

Electronic Kits & Components

Audio Connectors	119	Integrated Circuits	142	Solar	134
Cable Management	116	Lasers	130	Sound, Music & Light Modules	105
Capacitors	134	LED Accessories	132	Sounders, Buzzers & Speakers	150
Clock Movements	112	LEDs	124	Switches	153
Component Kits	113	LDRs	129	Terminal Blocks	121
Conductive Paint	105	Miniature Lamps	133	Test Leads & Probes	122
Curriculum Based Projects	98	Piggyaxe	107	USB Connectors	118
Discretes	140	Power Connectors	119	Velleman Kits	108
Displays	130	Power LEDs	131	Wire & Cable	114
Extension Cables	117	Relays & Solenoids	148		
IC Sockets	120	Resistors & Potentiometers	136		

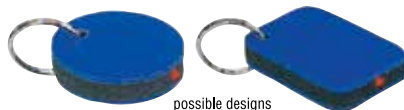
Full range of Electronic Kits & Components products available at:

www.rapidonline.com

Curriculum Based Projects



Mini-light Project Kits



LED key ring light kits designed as an introduction for **Key Stage 2 & 3** students to design and make in electronics. Project notes are available as a free PDF download, at www.rapidonline.com and are designed to be photocopied for class and teacher use.

Notes include suggested lesson plans and mapping to the National Curriculum, an introduction to circuits and symbols, batteries, LEDs and pricing and costing exercises and a series of homework assignments to support work in class.

- Students start by investigating the need for security and the problems of using locks in the dark
- They can then complete the design process of a mini-light, which can be attached to a key ring
- With careful organisation it should be possible to manufacture the design without specialist workshop facilities

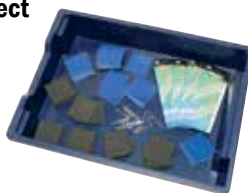
- The component kits include batteries and LEDs, plastazote foam core and high impact polystyrene outer layers
- Available in four styles:
- Standard Mini-light is a keyring torch kit using a red LED
- Super-bright Mini-light is an updated version using a modern white LED
- Rainbow Mini-light has a random colour-changing LED
- Ultraviolet Mini-light has a UV LED and can be used for revealing security coding on banknotes, etc.
- Suitable for **Key Stages 1, 2 & 3** (ages 5 to 14)
- Kits are supplied in **packs of 5**

Type	Order code	1+
Red	70-0015	2.60
White	70-0012	4.04
Rainbow	70-0013	4.43
Ultraviolet	70-0014	4.94

032668

Mini-light Project Classpacks

This simple but interesting project has been designed by Rapid's technical team for **Key Stages 1, 2 & 3** students. It will help them to make a



fully working mini-light from the parts supplied in this great kit. All the notes for making this kit are available as a free download from: www.rapidonline.com. The classpack is supplied in a handy storage tray with lid, containing sufficient components for 20 mini-lights.

- Batteries and LEDs
- Plastazote foam core
- High impact polystyrene outer layers
- Available in four styles:
- Standard Mini-light is a keyring torch kit using a red LED
- Super-bright Mini-light is an updated version using a modern white LED
- Rainbow Mini-light has a random colour-changing LED
- Ultraviolet Mini-light has a UV LED and can be used for revealing security coding on banknotes, etc.
- Suitable for **Key Stages 1, 2 & 3** (ages 5 to 14)
- Supplied in **classpacks of 20**
- Also available in an assorted classpack of 20, containing 5 of each type

Type	Order code	1+
Standard classpack	13-0138	13.70
White classpack	13-0155	17.50
Rainbow classpack	13-0156	18.97
Assorted classpack	13-0158	16.67

070957



Moisture Tester Project



Kits of components to build a functional **Moisture Tester** that can be used to tell if pot plants require water.

The kits contain all the electronic components required, except the PCBs, which are available separately. This provides the option to buy ready-made PCBs or for students to make their own.

The moisture tester project has been designed as an introduction for **Key Stage 2 & 3** students to the use of resistors and transistors in circuits.

- Students start by investigating the care of house plants and the problems associated with incorrect moisture content of soil
- Downloadable information and activity sheets then guide the students through a series of exercises to build background knowledge in the use of resistors and transistors in circuits
- For manufacture, the project allows the teacher to select from two alternative methods of circuit construction, either self adhesive copper tape onto card or on a printed circuit board (available separately) see order code **34-0635**
- Upon completion of manufacture students are then guided through an evaluation of their work
- They also have the option of producing a 3D model using high density polystyrene foam illustrating how they might develop a final product if the design were manufactured commercially
- Project notes are available for free download and are designed to be photocopied for class use
- They include both detailed student and teacher notes, which contain suggested lesson plans, mapping to the National Curriculum and a series of structured homework assignments to support the work in class

The component kits are supplied in multiples of 5 and include:

- All components including LEDs, battery clip, resistors and transistors
- The project can be produced using PCB available or self adhesive copper tape (see PCB products section)
- Suitable for **Key Stages 2 & 3** (ages 7 to 14)

Teachers notes are available to download from www.rapidonline.com/pdf/70-0030e.pdf.

Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
Class set of 5 kits	70-0030	1.40
PCB packs of 5	70-0040	4.53

032669

Moisture Tester Project Classpack



A classpack of 20 kits of components to build a functional **Moisture Tester** that can tell if pot plants require water. The classpack contains all the electronic components required, including ready-made PCBs, in a Grannell's Tray with lid. It offers a substantial saving compared to parts bought separately.

Students will love this Moisture Tester Project, which is linked to the National Curriculum, as it is simple to assemble and is ideal as an introduction to electronics.

- Dimensions of the box: 43cm x 31cm x 7cm
- Great school resource
- Suitable for **Key Stages 2 & 3** (ages 7 to 14)
- Supplied as a **pack**

Each kit requires 1x PP3 battery (not included).

Classpack contains:

4 x Moisture tester kit (pack 5)	70-0030
4 x Moisture tester kit PCBs (pack 5)	70-0040
1 x Shallow Tray	14-0430
1 x Tray lid	14-0436

Type	Order code	1+
Moisture tester classpack	13-0102	19.50

065931



View our latest videos
youtube.com/rapideducationtv



Rapid

555 Timer Project Kit Pack of 5



The timer project has been designed as an introduction to the use of the NE555 monostable and resistor-capacitor timing circuits.

- Students start by investigating the need for an accurate timer and are then led through the complete design process
- Upon completion of manufacture, students evaluate their work and start to look into commercial product development
- The information and activity sheets guide the students through a series of exercises, including the use of Crocodile Clips software, to build up knowledge in the use of the NE555 monostable within circuits
- Project notes are available and are designed to be photocopied for class use
- They include both detailed student and teacher notes, which contain suggested lesson plans, mapping to the National Curriculum and a series of structured homework assignments to support the work in class

The component kits are supplied in multiples of five and include:

- NE555 and IC holder, resistors and capacitors, buzzers and LEDs, switches and potentiometer and battery clips



- Pre-drilled PCBs are available separately in **packs of 5**, order code **70-0060**
 - Suitable for **Key Stage 3** (ages 11 to 14)
- Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
Class set of 5 kits	70-0050	8.78
PCB pack of 5	70-0060	3.31

034263

555 Timer Project Classpack of 20

Your chance to buy a classpack of 20 Timer Project kits offering a substantial saving. Linked to the National Curriculum and supplied in a handy storage tray, complete with lid.

- Great school resource
- Suitable for **Key Stage 3** (ages 11 to 14)
- Supplied as a **pack of 20 kits**

Each kit requires 1x PP3 battery (not included). Each student will also require: 4 x M3 6mm pan head slotted screws (available as Rapid part **33-1500**), 4 x M3 12mm pan head slotted screws (**33-1510**), 4 x M3 spacer 4mm (**33-3632**) and 4 x 18mm threaded spacers (**33-3535**).

Classpack contains:

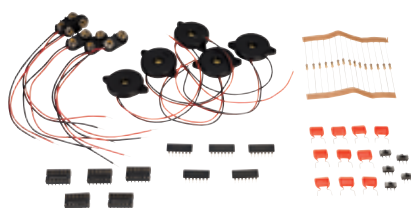
4x Timer project kit (pack 5)	70-0050
4x Timer project kit PCBs (pack 5)	70-0060
1x Shallow tray	14-0430
1x Tray lid	14-0436

Type	Order code	1+
Timer Classpack	13-0104	34.44

065932

Rapid

Logic Alarm Project Kit



Possible design (case not included)

This project is designed to cover key topics in electronic based exam courses at GCSE level.

- Each unit of work will offer students an opportunity to build a fundamental circuit and incorporate this with their own design



- The student notes are also supported with a set of teaching notes outlining the areas of the syllabus covered, suggested lesson plans and mapping to the National Curriculum
- Care has been taken to ensure that this project provides schools with a cost-effective, flexible method of offering a practical class based assignment
- The Logic Alarm project is an ideal way to introduce students to logic circuit theory and design
- The notes guide students through the fundamentals of logic, the use of truth tables, common logic gates and the design of combination circuits
- The notes also look at the difference between TTL and CMOS based ICs and their use in project work
- Detailed worksheets can be used in conjunction with Crocodile Clips and PCB Wizard software with a range of homework based assignments
- All circuit design is developed from a systems approach
- Project notes are available for free download at **www.rapidonline.com**, and are designed to be photocopied for class and teacher use
- The notes contain exercises that cover, in detail, core elements found in examination syllabuses

The component kits are supplied in multiples of five and include:

- ICs and switches
- Resistors and capacitors
- Piezo sounders and battery clips
- Pre-drilled PCBs are available separately in **packs of 5**, order code **70-0085**
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)

Requires 1x PP3 battery (not included).

Type	Order code	1+
Class set of 5 kits	70-0075	6.18
PCB packs of 5	70-0085	3.48

034265

Rapid



Flashing LED Christmas Tree Project Kit

A kit of parts for a simple to build festive project. Supplied with comprehensive instructions. Ideal as a one lesson end of term project.

- Size of finished tree: height 105mm, width (max.) 65mm
- Available **individually** and as a money-saving **classpack of 30 kits** supplied in a Grathells tray

• Suitable for **Key Stage 3** (ages 11 to 14)

Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
Christmas tree kit	70-1000	3.63
Classpack of 30	70-1005	55.55

067804



Rapid

Uncased 16GB USB Memory Stick Module

Fully-functional uncased memory sticks, ideal for allowing students to **design and make their own case**.

The finished product is a **practical item that students can keep** for transporting homework and other data. The rear section of the PCB from the front of the rectangular hole does not have any components on it so can be used for fixing part of the case. Case designs should not protrude any further than the front of the circuit board so that the USB connector is not obscured. The maximum thickness of the PCB and components is 5mm.

The memory stick is an **ideal basis for a 3D Printing Project** to design and make a suitable case. The cases are relatively small, use only a small amount of filament and are reasonably quick to print. Some 3D printers allow several cases to be printed at once.

- 16GB memory capacity
- USB connection
- On-board LED indicator
- Overall dimensions 14 x 5 x 60mm
- Ideal 3D printer project

Type	Order code	1+
Uncased 16GB stick	19-9996	3.98

559407

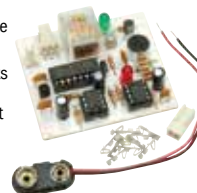


Rapid

Clap Switch Project

Build a switch circuit that responds to sharp sounds like clapping your hands, etc.

- Kit contains all components including circuit board
- 3A changeover relay output
- Circuit counts two claps before operating to avoid false triggers
- Operates from 6 to 20V
- Component count 36
- Circuit board dimensions: 55 x 50mm
- Also available as a money-saving **classpack of 20 kits** packed in a Grathells tray
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)



Type	Order code	1+
Clap switch project	70-2570	4.30
Classpack of 20	70-2602	68.86

073214

Teachers notes can be downloaded from the product pages at **www.rapidonline.com**

Rapid



Audio Amplifier Project Kits



Aimed at **Key Stage 3**, the audio amplifier project provides teachers with a stimulating and inexpensive project through which to study the subject of amplification.

This schools projects package contains a comprehensive selection of components for schools working on audio related projects linked to the National Curriculum. The classpacks of 20 projects include PCBs and offers a worthwhile saving over parts bought separately which is ideal for schools working to tight budgets.

Teaching resources are available for free download at www.rapidonline.com.

- Students have the opportunity to build a small amplifier, which can be incorporated into a variety of product

designs, e.g., as an amplifier for a personal CD/MP3 player so that they can share their music with their friends

- The students have a number of design situations to select a starting point from, and they are provided with research topics and background material to help build understanding for their chosen design brief
- The student notes provide material for students to explore how a range of simple amplifier circuits work
- They also include guidance on the design and construction of speakers
- To support students during the construction of the circuit, detailed instructions have been included on how to assemble the amplifier, and how to integrate the circuit into student designs
- In addition, care has been taken, through extensive evaluation of the teaching material and PCB designs in schools, to ensure that the circuits are easy and robust enough for student manufacture
- A detailed set of teacher notes is available which includes suggested lesson plans and mapping to the National Curriculum
- The project notes have been designed for photocopying for class use

Each kit contains the following:

- TBA820M audio amplifier and IC socket
- Resistors, capacitors, and LED
- Switch and connecting jack socket
- Connecting cable
- Speaker and speaker cable
- Battery clip
- Available in **packs of 5 kits, 70-0180** (no PCBs), or **classpacks of 20 packs** (including PCBs)
- Classpack of 20, **13-0106**, is supplied in a 43 x 31 x 7cm Grattells tray

- Classpack of 20, **13-0105**, has an enclosed battery box and is supplied without the Grattells tray

Each kit requires 1x PP3 battery (not included).

Pre-drilled PCBs are available separately in packs of 5, order code **70-0190** (included in Classpacks of 20, **13-0105 & 13-0106**).

Each kit contains:			
Quantity	Description		Order code
1	7/0.2 Speaker Cable (150cm from 01-0162)		01-0162
1	150pF 2.5mm Ceramic Capacitor		08-0150
1	47nF 100V 5mm Polyester Box Capacitor		10-3258
1	100nF 63V 5mm Polyester Box Capacitor		10-3260
1	10uF 25V Radial Electrolytic Capacitor		11-0220
2	330uF 16V Radial Electrolytic Capacitor		11-1404
1	Battery Clip PP3 - end entry**		18-0588
1	3.5mm Stereo Plug to Plug lead		20-0040
1	3.5mm Stereo PCB socket		20-0137
1	8-pin DIL socket (1 from 22-0107)		22-0107
1	66mm Ferrite 8 Ohm speaker		35-0130
1	OSNR5164A 5mm 2.2V Red LED		55-1790
2	470R CR25 0.25W CF Resistor		62-0365
3	1K CR25 0.25W CF Resistor		62-0373
1	1R CR12 0.125W CF Resistor		64-1100
1	SPDT right angle PCD slide switch		76-0272
1	TBA820M Audio Amplifier IC		82-0485
13-0106 Classpack of 20 in Grattells tray contains:			
4	Audio amplifier project kits (pack of 5)		70-0180
4	Audio amplifier project kit PCBs (pack of 5)		70-0190
1	Shallow Grattells tray		14-0430
1	Grattells tray lid		14-0436
13-0105 Classpack of 20 contains:			
20	PP3 battery holders** (replacing 18-0588)		18-0295
4	Audio amplifier project kits (pack of 5)		70-0180
4	Audio amplifier project kit PCBs (pack of 5)		70-0190

Type	Order code	1+	5+
5 kits no PCBs	70-0180	9.05	
20 kits + PCBs in tray	13-0106	47.10	43.48
20 kits + PCBs no tray	13-0105	55.99	
Circuit boards (Pack 5)	70-0190	5.48	

501834

Rapid

AM Radio Project



This project offers students a cost-effective way to build an AM tuner that is easy to incorporate into a variety of design situations. The Printed Circuit Board (PCB) can be either purchased ready made, or students can manufacture their own from the mask provided in the notes. Project notes are available for free download at www.rapidonline.com and can be photocopied for class use.

- Based on the TA-7642, an updated version of the popular MK484 IC

- Needs only a few external components to build a high quality AM radio
- They contain both detailed teacher and student sections, providing research information, and structured tasks
- The notes explain in detail how radio signals are transmitted and received
- They also look at how the design of radios has been influenced by style and technology of the day, from the first radios of the 1900's, through the introduction of the transistor, right up to today's digital radios
- Students are offered a variety of starting design briefs and guidance on how to develop their ideas
- Detailed diagrams and instructions support the radio circuit construction, and the notes provide suggestions for possible case designs and methods of manufacture
- The teacher section of the notes includes suggested lesson plans and mapping to the National Curriculum and a range of homework assignments

The component kits are supplied in multiples of five and include:

- TA-7642 and transistors
- Ferrite rods and wire
- Tuning capacitors and switches
- Battery holders and jack sockets
- Resistors and capacitors
- Screws, nuts and washers
- Schools have the choice to either purchase a PCB or manufacture their own from the mask provided in the notes
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)
- Pre-drilled PCBs are supplied separately in **packs of 5**, order code **70-0120**

Type	Order code	1+
AM radio project	70-0110	19.95
PCB packs of 5	70-0120	3.28

035911

AM Radio Project Classpack



This excellent projects package contains a wide range of components for schools working on radio type projects. Linked to the National Curriculum, this classpack of 20 projects offers a substantial saving on parts bought separately which is ideal for schools working to tight budgets. The kit is supplied in a strong box with lid.

- Dimensions of the box: 43cm x 31cm x 7cm
- Great school resource
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)
- Supplied as a pack

Each kit requires 1x AA battery (not included).

Classpack contains:			
4 x Radio project kit (pack 5)	70-0110		
4 x Radio project kit PCBs (pack 5)	70-0120		
1 x Shallow tray	14-0430		
1 x Tray lid	14-0436		
Type	Order code	1+	
Radio project pack	13-0100	84.95	

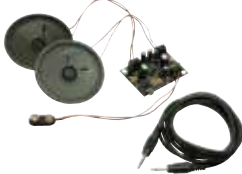
065930

LOOK ONLINE FOR TEACHER GUIDES AND PROJECT EXAMPLES

Follow the links on the product pages at www.rapidonline.com

RK Education
Stereo Audio Amplifier Kit

This project kit is a stereo version of our popular Audio Amplifier Project, 70-0180. Once assembled, the amplifier can be connected to MP3 players, laptops or any other device with a 3.5mm headphone jack socket.



The kit contains all components, speakers, printed circuit board and connecting cable. It is available in packs of 5 kits or as a class pack of 20 kits.

- Stereo version of the popular Audio Amplifier Project, order code **70-0180**
- Can be connected to MP3 players, laptops or any other device with a 3.5mm headphone jack socket
- Kit contains all components, speakers, printed circuit board and connecting cable
- Available in **packs of 5 kits** or as a class **pack of 20 kits**

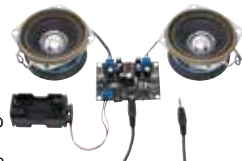
Each kit requires a 9V, PP3 battery (not included).

Type	Order code	1+
Pack of 5	70-0198	18.13
Class pack of 20	70-0199	67.48

500601

Rapid
2.5W + 2.5W Stereo Audio Amplifier Kit

This stereo audio amplifier kit gives you more power and more volume than our standard kits. Each channel can deliver up to 2.5W per channel for a louder, crisper sound. The kit is available with speakers or without if you would prefer to add your own.



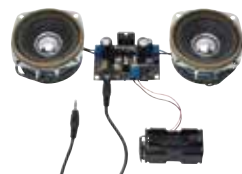
- Kit includes PCB and all components to make one stereo amplifier
- 2.5W power per channel
- Connecting cable supplied
- Available with or without speakers
- Requires 4x AA batteries (not included)
- Empty printed circuit board also available separately

Type	Order code	1+	20+
2.5W - No Speakers	70-0186	5.62	4.50
2.5W - With Speakers	70-0187	9.18	
PCB Only	70-0194	1.88	

519383

Rapid
10W + 10W Stereo Amplifier Kit

Our most powerful audio amplifier kit has 10W per channel, meaning it can drive much larger speakers to give a loud, clear sound. The kit is available with speakers or without if you would prefer to add your own.



- Kit includes PCB and all components to make one stereo amplifier
- 10W power per channel
- Connecting cable supplied
- Available with or without speakers
- Requires 4x AA batteries (not included)
- Empty printed circuit board also available separately

Type	Order code	1+
10W - No Speakers	70-0188	6.45
10W - With Speakers	70-0189	10.32
PCB Only	70-0195	1.88

519384

Rapid
POV Wand Project


Build this PIC based kit which uses the persistence of vision (POV) of the human eye to create the illusion of a message being written in mid-air. Instruction details are available for free download at www.rapidonline.com and are designed to be photocopied for class use.

- Programmable – create your own messages up to 6 characters long
- 57 pre-defined characters
- Complete set of components including printed circuit board
- Ideal demonstration of PIC controlled electronics and construction
- Component count 25
- Also available as a money-saving **classpack of 20 kits** packed in a Grattells tray
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Requires 2x AAA batteries (not included).

Type	Order code	1+
POV wand project	70-2555	6.44
Classpack of 20	70-2557	99.13

073215

RVFM
Random Moving Bug

This simply constructed bug is controlled by an 8-pin PIC12F629 chip.



It moves randomly on the motor shafts, turning left, right or moving forwards as the motors are turned on and off by the PIC.

- Controlled by an 8-pin PIC12F629 chip
- Randomly moves about, turning left, right or moving forwards

Requires 2x x AAA batteries, not included.

Type	Order code	1+
Random moving bug	06-1578	6.38

553701

RVFM
Rechargeable Solar Buggy

Designed for the purpose of investigating solar cells, this buggy includes a solar panel, a 0.22F super capacitor and a small circuit board for switching between 'charge' or 'run' modes.



In 'charge' mode the capacitor is charged up by the solar panel. In 'run' mode the solar panel is disconnected and the charge stored in the capacitor powers a motor that propels the buggy forwards.

The buggy is supplied fully assembled and ready to use.

Experiments include:

- Charging the solar panel under different types of light source, e.g. tungsten, fluorescent, etc.
- Investigating distance travelled against charge time
- Exploring the effects of coloured filters with the solar panel
- Investigating the effect of charging at various distances from the light source

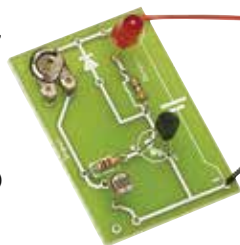
No batteries required.

Type	Order code	1+
Solar buggy	06-1580	20.30

553703

RVFM
Light Sensor Kit Pack of 10

A pack of components to build 10 light sensors, ideal for class projects with students working in small groups.



The general-purpose light-sensing circuit uses a miniature light dependent resistor (LDR) to detect changes in the level of light and switches the LED on or off accordingly. The sensitivity of the circuit can be set by adjusting a potentiometer.

Pack contains:

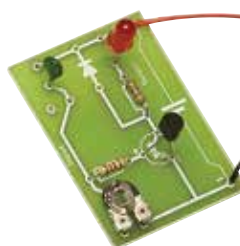
- 10x PCB
- 10x BC548 transistor
- 10x mini-LDR
- 10x 1kΩ resistor
- 10x 100Ω resistor
- 10x 470Ω resistor
- 10x standard LED
- 10x 47kΩ potentiometer
- 10x battery connector
- Designed for use with a 3 to 9V supply
- Supplied as a **pack of 10 kits**

Type	Order code	1+
Light sensor kit (10)	06-1581	11.49

553704

RVFM
Temperature Sensor Kit Pack of 10

A pack of components to build 10 temperature sensors, ideal for class projects with students working in small groups.



This general-purpose temperature-sensing circuit uses a thermistor to detect changes in temperature and switches the LED on or off accordingly. The sensitivity of the circuit can be set by adjusting a potentiometer.

Pack contains:

- 10x PCB
- 10x BC548 transistor
- 10x thermistor (1kΩ)
- 10x 1kΩ resistor
- 10x 3.3kΩ resistor
- 10x 470Ω resistor
- 10x standard LED
- 10x 10kΩ potentiometer
- 10x battery connector
- Designed for use with a 3 to 9V supply
- Supplied as a **pack of 10 kits**

Type	Order code	1+
Temp. sensor kit (10)	06-1582	14.07

553705

Don't forget Tools and Accessories

Full range online www.rapidonline.com

RVFM

Humidity Sensor Kit Pack of 10

A pack of components to build 10 humidity sensors, ideal for class projects with students working in small groups.

This general-purpose circuit detects changes in humidity and switches the LED on or off accordingly.

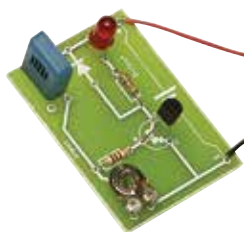
The sensitivity of the circuit can be set by adjusting a potentiometer.

• **Pack contains:**

- 10x PCB
- 10x BC548 transistor
- 10x humidity sensor
- 10x 1k Ω resistor
- 10x 100 Ω resistor
- 10x 470 Ω resistor
- 10x standard LED
- 10x 5k Ω potentiometer
- 10x battery connector
- Designed for use with a 6 to 9V supply
- Supplied as a **pack of 10 kits**

Type	Order code	1+
Humidity kit (10)	06-1583	16.00

553706



RVFM

Energy Transfer Demonstration Unit

This unit demonstrates a range of different energy transfers; for example, how energy is transferred electrically from a hand-turned dynamo to a motor. The unit is supplied complete with a booklet that discusses some of the key teaching and learning issues that surround the energy concept, and provides a series of activities that illustrate how the unit can be used to develop simple and coherent ways of talking about energy.

- Demonstrates a range of different energy transfers
- Unit houses a dynamo, electric fan, solar cell, capacitor and buzzer
- Supplied with booklet containing key teaching and learning topics
- Provides a series of activities

Type	Order code	1+
Energy transfer unit	06-1584	111.99

553707

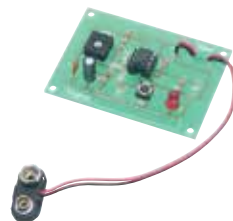


Rapid

555 Astable/Monostable Project Kit

The 555 Astable/Monostable PCB project has been designed specifically to support and integrate with teaching schemes for Key Stages 3 & 4. Instruction details are available for free download at www.rapidonline.com and are designed to be photocopied for class use.

- The kit is a timing circuit, which can be used to switch devices or circuits on and off
- Knowledge, skills and understanding can be developed in: component recognition and purpose; PCB circuit assembly and soldering; system and circuit principles; signal tracing and fault finding; product design
- The kit can be used for both class teaching or for individual project work



- All components, including the PCBs, are provided
- The kit includes: resistors and capacitors, NE555 timer, switches and preset resistors, LEDs, wire PCB and PP3 battery clip
- Empty PCBs are also available in packs of 5
- **Kit contains components for 5 circuits**
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)

Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
555 project kit	70-0225	9.69
Empty PCBs (5)	70-0230	6.97

070866

Rapid

LDR PCB Project Kit

The LDR PCB project has been designed specifically to support and integrate with teaching schemes for Key Stages 3 & 4. Instruction details are available for free download from

www.rapidonline.com

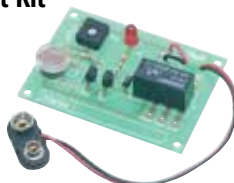
and can be photocopied for class use.

- The kit is a light sensing circuit, which can be used to switch output devices or circuits on and off
- Knowledge, skills and understanding can be developed in: component recognition and purpose, PCB circuit assembly and soldering, system and circuit principles, signal tracing, fault finding and product design
- The kit can be used for both class teaching or for individual project work
- All components, including the PCBs, are provided
- The kit includes: resistors and diodes, transistors and preset resistors, LEDs and relays, LDR PCB and PP3 battery clip
- Empty PCBs are also available in packs of 5
- **Kit contains components for 5 circuits**
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)

Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
LDR PCB project kit	70-0245	23.93
Empty PCBs (5)	70-0250	7.25

070867



Rapid

Thermistor Temperature Sensor Project Kit

The thermistor temperature sensor project has been designed specifically to support and integrate with teaching schemes for **Key Stages 3 & 4**.

Instruction details are available for free download at www.rapidonline.com and can be photocopied for class use.

- The kit is a heat sensing circuit, which can be set to recognise various temperatures through the use of a variable resistance
- Knowledge, skills and understanding can be developed in: component recognition and purpose; PCB circuit assembly and soldering; system and circuit principles; signal tracing and fault finding; product design
- The kit can be used for both class teaching or for individual project work
- All components, including the PCBs are provided
- The kit includes: resistors, amplifier IC sockets, diodes, thermistors, preset resistors, transistors, LEDs, thermistor PCB and PP3 battery clip
- Empty PCBs are available separately in packs of 5
- **Kit contains components for 5 circuits**
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)

Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
Temperature project kit	70-0315	13.84
Empty PCBs (5)	70-0240	9.25

070801



Rapid

Keyboard Encoder Project Kit

The keyboard encoder project has been designed specifically to support and integrate with teaching schemes for **Key Stages 3 & 4**.

Instruction details are available for free download at www.rapidonline.com and can be photocopied for class use.

- The kit allows students to use a matrix keyboard and encode it to a binary coded decimal number.
- Knowledge, skills and understanding can be developed in: Component recognition and purpose, PCB circuit assembly and soldering, System and circuit principles, Signal tracing and fault finding, Product design
- The kit can be used for both class teaching or for individual project work and all components, including the PCBs are provided
- The kit includes: PIC, resistors, capacitors, voltage regulators, DIL sockets, pin headers, switches, crimp housing, matrix keyboard, thyristors, pan head screws, nuts, LEDs and keyboard PCB
- **Kit contains components for 5 circuits**
- Suitable for **Key Stages 3 & 4** (ages 11 to 16)

Each kit requires 1x PP3 battery (not included).

Type	Order code	1+
Keyboard project kit	70-0325	28.12
PCB only - pack of 5	70-0270	5.38

070902



RK Education

555 Monostable Projects

This project has been designed to introduce the important concept of timing circuits to students using the 555 monostable circuit. The circuit

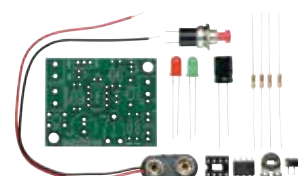
is very important as it features heavily in KS4 curriculums.

It has been designed to have more than one possible outcome and therefore more than one application. It allows for good differentiation and includes a transistor drive circuit.

- Time can be varied with the variable resistor
- Can be used with various trigger inputs
- Battery-powered
- PCB has space for a transistor drive circuit to allow higher powered outputs to be added
- Clear silkscreen text has been used to make construction simpler
- Professional double-sided PCB pre-drilled with silkscreen and solder-resist
- Empty PCBs are available separately, order code **70-9034**
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Type	Order code	1+
Economy	70-6012	2.25
Deluxe with buzzer	70-6013	2.40
PCB only	70-9034	1.04

082439



Order online

Save time, and place your order at:

www.rapidonline.com

24 hours a day

RK Education

555 Timer Astable Projects

This range of projects has been designed to introduce the important concept of astable timers and pulse-width modulation using a 555 timer astable circuit.

Three versions are available - Economy, **70-6017**: With drive circuit, **70-6018** and Deluxe, **70-6019**.

The three kits all use the same PCB, but have a different set of components. Please see Technical Details for more information.

This circuit is very important as it features heavily in KS4 curriculums. The range of projects has been designed to have more than one possible outcome and therefore more than one application.

- Frequency can be varied by adjusting the two variable resistors
- Battery-powered
- Clear silkscreen text has been used to make construction simpler
- Professional double-sided PCB pre-drilled with silkscreen and solder-resist
- Empty PCBs are available separately, order code **70-9036**
- Suitable for **Key Stages 2, 3 & 4** (ages 11 to 16)

Project notes are available to download from www.rapidonline.com.

Parts & quantities per kits

Order code	Description	Economy	With drive circuit	Deluxe
		70-6017	70-6018	70-6019
08-0235	100nF ceramic capacitor	1	1	1
11-0220	100µF electrolytic capacitor	1	1	1
08-0232	10nF capacitor	1	1	1
11-2922	100µF capacitor	1	1	1
18-0585	Battery clip PP3	1	1	1
21-0461	2-way 16A 5mm terminal block	-	-	2
22-0107	8-pin DIL socket	1	1	1
47-3142	1N4007 1A diode	-	1	1
55-1790	5mm red LED	1	1	1
55-1792	5mm green LED	1	1	1
62-0650	0R (zero Ohm) resistor	-	-	1
62-0359	270R resistor	2	2	2
62-0373	1k resistor	-	1	1
67-0408	2K preset	2	2	2
70-9036	PCB	1	1	1
76-0306	SPDT slide switch	1	1	1
81-0143	MPSA13 Darlington NPN transistor	-	1	1
82-0336	NE555 timer	1	1	1

Type	Order code	1+
Economy	70-6017	2.39
With drive circuit	70-6018	2.79
Deluxe	70-6019	3.29
PCB only	70-9036	1.18

082444

RK Education

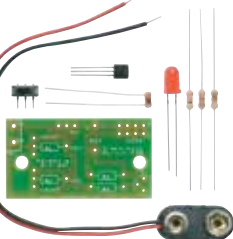
Transistor Switch Projects

This project introduces the transistor switch and is an excellent first electronics/ systems and control project for students.

The project is also excellent for GCSE students as it has been designed with KS4 curriculums in mind. It is a very versatile project and can be used as a moisture sensor, temperature sensor and light sensor. The project has been designed to allow differentiation and has space for up to 5 outputs and a range of inputs including variable resistors.

A number of different solutions are possible
Can be used with an LDR, thermistor or moisture sensor
Battery-powered

- A number of different solutions are possible
- Can be used with an LDR, thermistor or moisture sensor
- Battery-powered



- PCB has space for up to five outputs
- Clear silkscreen text has been used to make construction simpler
- Professional double-sided PCB pre-drilled with silkscreen and solder-resist
- A training system, **70-6046**, is available to help aid teaching and learning with this project and to help students to arrive at their final solution
- 2 versions available for maximum flexibility
- Available with or without temperature sensor
- Empty PCBs are available separately, order code **70-9040**
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Project notes are available to download from www.rapidonline.com.

Parts & quantities per kits

Quantity	Description	Order code
1	Transistor switch projects (70-6024/5) PCB	70-9040
1	1k 0.25W carbon film resistor	62-0373
1	270R 0.25W carbon film resistor	62-0359
1	TMPSA13 Darlington NPN 30V 0.5A TO-92	81-0143
1	SPDT ultraminiature slide switch	76-0306
1	Battery clip PP3 - end entry	18-0585
1	5mm red LED	55-1790
70-6024 only:		
1	Miniature photoresistor	58-0134
1	47K 0.25W carbon film resistor	62-0410
70-6025 only:		
1	NTC thermistor - 100K 10% 3.5mm pitch	61-0420
1	100K miniature carbon preset	67-0418

Price each		
Type	Order code	1+
Economy	70-6024	1.80
With temperature sensor	70-6025	1.80
MOQ 2		
Type	Order code	2+
PCB only	70-9040	0.747

082451

RK Education

Transistor Astable Projects

This project introduces astable circuits and also other important concepts including how resistance and capacitance affect timing circuits and the use of a transistor as a switch. There are a number of possible outcomes for the circuit including electronic decorations, a police car/fire engine or advertising. A training system, **70-6037**, is also available for use alongside this project to assist students with making important design decisions.

Frequency of the astable circuit can be varied
Different outputs can be used
Battery-powered
The PCB has space for up to five outputs on either side
Professional double-sided PCB with silkscreen and solder-resist
3 versions available for maximum flexibility
Empty PCBs are available separately, order code **70-9042**
Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

- Frequency of the astable circuit can be varied
- Different outputs can be used
- Battery-powered
- The PCB has space for up to five outputs on either side
- Professional double-sided PCB with silkscreen and solder-resist
- 3 versions available for maximum flexibility
- Empty PCBs are available separately, order code **70-9042**
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Project notes are available to download from www.rapidonline.com.

Parts & quantities per kits

Qty	Description	Order code
1	Transistor astable projects (70-6026/7/8) PCB	70-6026
2	270R 0.25W carbon film resistor	62-0359
2	BC182L TO92 60V NPN GP transistor	81-0034
1	SPDT ultraminiature slide switch	76-0302
1	Battery clip PP3 - end entry	18-0092
2	10k 0.25W carbon film resistor	62-0397
2	10µ 25V radial electrolytic capacitor	11-0220

70-6028 also contains:

1	5mm red LED	55-1790
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Price each		
Type	Order code	1+
Economy	70-6028	1.80
MOQ 2		
Type	Order code	2+
PCB only	70-9042	0.75

082453

RK Education

SCR/Thyristor Projects

This project introduces latching circuits and also other important concepts including different ways of triggering and resetting circuits. There are a number of possible outcomes for the circuit including electronic alarms, an electronic money box, a target game and a steady-hand game.

- Different trigger inputs can be used
- Different resets can be used
- Space for up to 3 outputs
- Battery-powered
- Clear silkscreen text has been used to make construction simpler
- Professional double-sided PCB pre-drilled with silkscreen and solder-resist
- Available in 2 versions: economy and complete
- Both versions are supplied with empty PCB, 1x PP3 battery clip, 1x 2N5060G SCR or equivalent, 1x 5mm red LED, 1x 270 ohm resistor, 1x 1k resistor, 1x 10k resistor (all 0.25W), 1x SPDT slide switch
- Complete version has additional push-to-make switch and 6V PCB mounting buzzer
- Empty PCBs are available separately, order code **70-9048**
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Project notes are available to download from www.rapidonline.com.

Price each		
Type	Order code	1+
Economy	70-6031	1.80
Complete	70-6032	2.25
MOQ 2		
Type	Order code	2+
PCB only	70-9048	0.747

082458

RK Education

SCR/Thyristor Training Kit - Assembled

This system has been specifically designed to be used alongside the SCR/ Thyristor Project PCB, **70-6031**. By using this system students can gain an understanding of the operation and application of the SCR latch circuit and this system also helps students make important decisions that will affect the final outcome of their project.

- Curriculum-based
- Allows students to test their designs prior to final construction
- Screwless terminal blocks allow students to easily insert different trigger and reset devices
- Clear silkscreen text has been used to aid learning
- Professional double-sided PCB with silkscreen and solder-resist
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Type	Order code	1+
SCR / Thyristor training k	70-6036	12.49

082463

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on all orders over £30 (excl. VAT)
(UK mainland only)

* See Terms & Conditions for full details - www.rapidonline.com/terms

Teachers notes can be downloaded from the product pages for many of our project kits at www.rapidonline.com

RK Education

Assembled Transistor Switch Training Kit

This system has been specifically designed to be used alongside the Transistor Switch Project, **70-6024**.

Using this system students can gain an understanding of the operation and application of the transistor switch circuit and this system also helps students make important decisions that will affect the final outcome of their project.

- Curriculum-based
- Allows students to model a light, temperature and moisture sensing circuit
- Allows students to test their designs prior to final construction
- Battery powered to remove the need for power cables and access to power sockets
- Screwless terminal blocks are used to allow students to easily insert different values for the potential divider section
- Clear silkscreen text has been used to aid learning
- Large pads have been included to allow the potential divider, base and collector voltages to be measured using a multimeter
- Professional double-sided PCB with clear white silkscreen and solder-resist
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)

Type	Order code	1+
Trans. switch training kit	70-6046	11.82

082409

RK Education

RKL298 H-Bridge Motor Drive IC Project PCB Kit

A kit of parts to build this versatile PCB that has been designed specifically for the L298 H-Bridge motor drive chip. The kit is ideal for DC motor control and robotic projects.

Further details, schematics and constructional notes can be downloaded from www.rapidonline.com.

- Uses an L298 stepper motor control/driver
- L298 has output current of 2A continuous per channel in DC operation
- Ideal for DC motor control and robotic projects
- Great for use with PIC, PICAXE, Genie, ATME1 and Arduino
- Designed for use in DC motor control and robotic projects
- Maximum output current 2A per channel
- Terminal blocks used for easy interfacing
- Mounting holes for PCB mounts
- Includes smoothing capacitors
- High quality, black, double-sided PCB
- Empty PCB is also available separately
- Suitable for **Key Stages 4 & A Level** (ages 14 to 18)

Technical specification		
Kit contents		
Quantity	Description	
1x	RKL298 PCB	
1x	L298N dual full bridge driver	
1x	7805 regulator TO-220	
1x	85°C 100µF 25V radial lead aluminium electrolytic capacitor	
2x	0.1µF +/-20% 50V V5V P:2.54mm pitch radial ceramic capacitor	
2x	3-way single row PCB socket 2.54mm pitch	
2x	10KΩ CR25 0.25W CF resistors	
4x	CTB5201/2BK 2-way 16A low profile terminal block 5mm pitch	
8x	UF4007 1A 1000V ultrafast diode	

Type	Order code	1+
L298 H-bridge kit	70-9111	5.64
Empty PCB only	70-9069	0.935

551957

RK Education

Servo Controller Project PCB Kit

A kit of parts to make a servo controller PCB that has been specially designed to be fully compatible with Atmel®, Arduino®, Genie®, PIC® and PICAXE®.

- PCB controls upto 8 servos
- Each servo has an LED indicator
- Servos are controlled via headers
- Designed for use with Atmel, Arduino, PIC, Genie and PICAXE
- High quality, double-sided PCB
- Empty PCB is also available separately



Technical specification		
Quantity	Description	
1x	Servo control PCB	
1x	0.1µF +/-20% 50V V5V P:2.54mm radial ceramic capacitor	
1x	CTB5201/2BK 2-way 16A low profile terminal block 5mm pitch	
2x	4-way single row PCB socket 2.54mm pitch	
8x	3W single row PCB header plug	
8x	CR25 0.25W CF resistor	
8x	330R CR25 0.25W CF resistor	
8x	3mm green LED miniature	

Type	Order code	1+
Servo controller kit	70-9112	2.45
Empty PCB only	70-9070	1.80

551958

RK Education

4 Siren Sound and Flashing Lights Generator Kit Based on UM3561 IC

A kit of parts to build a 4 siren sound and flashing lights generator ideal for building into models.

- Uses a UM3561 Sound IC
- High quality speaker
- 4 different emergency siren sounds, selected using a jumper
- Perfect for emergency vehicles
- Sound can be adjusted with a potentiometer
- PCB has space for up to 8 LEDs (available separately)
- LEDs flash
- LEDs can be turned off
- Frequency of flashing can be varied
- Ideal for using RC vehicles, cars, trucks, lorries etc
- Available as a kit or as a blank PCB
- Professional double sided PCB

Project notes are available to download from www.rapidonline.com.

Technical specification		
Quantity	Description	
1x	Siren generator PCB based on UM3561 IC with flashing lights	
1x	Battery clip PP3-end entry 200mm	
1x	2-way single row PCB header plug	
1x	3W single row PCB header plug	
1x	Miniature closed jumper link	
1x	85°C 100U 25V radial lead aluminium electrolytic capacitor	
1x	0.1µF +/-20% 50V V5V P:2.54mm radial ceramic capacitor	
1x	1N4007 1A 1000V silicon rectifier diode	
1x	BZX55C3V3 500MW Zener diode	
1x	W/proof 66mm mylar speaker 8 Ohm	
1x	100K CR25 0.25W CF resistor	
1x	47R CR25 0.25W CF resistor	
1x	8-pin DIL socket, narrow 7.62mm without central support	
1x	UM3561 three siren generator	
2x	1K CR25 0.25W CF resistor	
2x	470R CR25 0.25W CF resistor box	
2x	10K CR25 0.25W CF resistor box	
2x	200K WR3296W 10% 3/8 cermet trimmer pot	
2x	SPDT ultra miniature slide switch	
2x	85°C 10U 25V radial lead aluminium electrolytic capacitor	
3x	MPSA13 DAR NPN 30V 0.5A TO-92B	

Type	Order code	1+
4 siren & lights kit	70-9116	7.57
Empty PCB only	70-9076	2.85

551962

Finham Park School

Nightlight Project

The nightlight project is a safe, battery powered, bedside light that automatically switches on when the room lights are switched off. After a time delay of about 5 minutes the light automatically switches off to conserve battery power.

- Light source is a high efficiency, high brightness white LED
- Suitable for illuminating different coloured translucent acrylic, coloured inkjet film or 'fun and fancy' acrylic paints
- An excellent platform for creative product design
- Featured in Electronics Education published by the IEE
- Can be used to explore timing circuits using different component values
- Very popular and engaging project
- This project has been provided by the West Midlands EISS Support Hub
- The key aim of the hubs is to identify the needs of local teachers, and provide ongoing support to encourage teachers and schools offering electronics in the design and technology curriculum. The work undertaken by the hubs includes twilight workshops and half-day training sessions. A variety of material is covered in these sessions, ranging from reviewing developments in software and hardware to allowing teachers the opportunities to discuss Year 10 activities and Year 11 project work. In addition, the hub centres are involved in organising single, two and four-day teacher training programmes in conjunction with an ECT accredited trainer, through funding from both the Department for Skills and Education, and the IEE. For further information see: www.electronicsinschools.org
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)
- Component kits are supplied in packs of 5 kits including printed circuit boards

Each kit requires 4x AAA alkaline batteries (not included).

Type	Order code	1+
Nightlight project	70-2600	14.67

073056

RVFM

Badge Module with Flashing LEDs



Add eye-catching flashing LEDs to your badge designs with this ready-built, battery-powered electronic module.

- Two 3mm red LEDs flash alternately
- On/Off button on circuit board
- Size only 7mm thick x 25mm diameter
- Takes 2x L736 alkaline button cell (supplied)
- Holes can be easily made in most badges for the LEDs
- Complete with badge pin, double-sided adhesive foam pad for fixing to badge and plastic back cover
- Supplied in **packs of 30**

For neat LED holders please see order code **55-0160**.

Type	Order code	1+
Badge flash modules (30)	70-0721	23.74

077133



CP-01K Classical Piano Kit

This kit enables you to build a miniature classical piano to create your own melodies. The piano is able to play a chromatic



scale. Alternatively it is pre-programmed with 15 registered melodies for your enjoyment.

- Suitable for **Key Stage 4** (ages 14 to 16)

Requires 3x AAA batteries (not included).

Type	Order code	1+
Piano kit	13-1440	23.90

019052

RVFM

Infrared Detector Kit

A kit of parts to produce a simple, yet effective, infrared detector.



- Kit contains a tin-plated, single-sided PCB and the components required to build the detector
- When infrared radiation is detected by the sensor, the LED lights
- Ideal for testing TV remote controls and other infrared emitting devices
- The circuit operates from a 9V supply (not included)
- PCB dimensions: approx. 55 x 15mm
- Component count: 10
- Complete with assembly instructions

Requires 1x PP3 battery and battery connector (not included).

Type	Order code	1+
Infra-red detector kit	13-0500	2.55

034055

Sound, Music & Light Modules

RVFM

Coin Operated Sound and Music Modules

These modules enable students to enhance a simple container based assignment with a music or sound element.



- The modules are easy to incorporate into a container and can be triggered by a wide variety of coins
 - Modules employ a 27mm diameter piezo speaker and 2 replaceable L736 button cells (supplied).
- For replacement cells, see www.rapidonline.com
- Module dimensions: behind flange 39 x 15 x 31mm, flange dimensions 45 x 21 x 2.2mm, coin slot 30 x 3mm

Type	Order code	1+
Bird call sound	13-0626	1.75
It's a small world	13-0627	1.34

034061

RVFM

Sound Module for Recording/Playback

A compact sound recording module allowing you to make a 10-second recording of your own sounds or personalised messages for use in soft toys and textile projects.



- 40mm diameter mylar speaker for sound quality
- 10 seconds worth of recording time
- Recording is made by setting the slide switch to the recording position, depressing the top of the module and speaking into the microphone at the back of the unit
- An LED lights during the recording period
- With the slide switch set to play, depressing the top of the module plays your message back
- New recording can be made by sliding the switch back to record
- Battery compartment cover for easy battery changing

- Dimensions: 26 x 45mm diameter

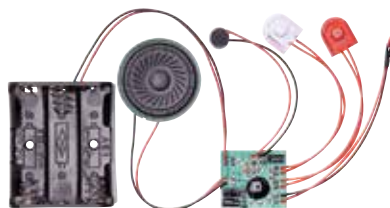
Powered by three L1154 button cells (supplied).

Type	Order code	1+	10+
10s Record/play	13-0678	8.45	7.15

060530

RVFM

20 Second Sound Recorder Module



A sound recording module providing up to 20 seconds of playback time for speech, music or sound effects.

- Allows students to include a record and playback element into projects
- 40mm mylar speaker
- Separate microphone, record and play buttons
- A single press of the play button starts playback
- The record push-button is held down during recording
- Separate battery holder
- Non-volatile memory allows the batteries to be changed without losing the recorded message
- PCB dimensions: 31 x 27mm

Requires 3x AA batteries (not included).

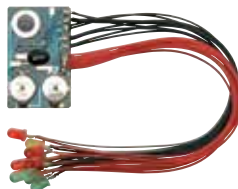
Type	Order code	1+	5+	10+	25+
20s Sound recorder	13-0665	10.02	9.72	9.29	8.57

060502

RVFM

10 Flashing LED Module

A flashing LED module, with built-in timer, producing a multi-coloured running light effect similar to that seen in disco light shows. By arranging the LEDs around the PCB, a large display can be created with minimal effort. The module is activated by a push button switch mounted on the PCB, and runs for approximately 10 to 15 seconds before automatically switching off.



- Ideal for eye-catching displays, notices, etc.
- Each module consists of an assortment of ten red, green and yellow 5mm LEDs which flash in pairs in sequence
- The module is powered by two, replaceable L1131 button cells. For replacement cells, see www.rapidonline.com
- PCB dimensions: 47 x 29mm
- LED lead length: approx. 280mm

Type	Order code	1+	5+	10+	25+
10 LED Flash module	13-0652	4.14	3.96	3.79	3.64

034071

Conductive Paint



Electric Paint

Bare Conductive Electric Paint is conductive which means that electricity from the battery can pass through it just like a wire. When you draw a circuit with



a Bare Electric Paint Pen, the components and battery are joined together by the paint and make a complete loop, or circuit.

Bare Electric Paint is non-toxic, solvent-free and dries at room temperature.

- Draw a circuit on almost any surface: Paper, plastic, cardboard, fabric, wood, and more!
- Connect batteries, LEDs and other components
- Try it with microcontrollers like Arduino
- Can be used with conductive thread and e-textiles
- Great for attaching components and for PCB repair
- Can be used as a Cold Solder and Wire Paint
- Non-toxic and solvent free
- Dries at room temperature
- Available in **10ml pens, 50ml jars and 1l tins**
- For further information, image gallery, data sheets and downloads click the link on the product page at www.rapidonline.com.

Type	Order code	1+
10ml Pen	70-0873	4.99
50ml Jar	70-0874	14.55
1l Tin	70-0885	190.00

524978



Touch Board

The Bare Conductive Touch Board is a printed circuit board module that can make your projects interactive, responsive, smart or just fun. Change the world around you by using the Touch Board to turn almost anything into a sensor.



Connect anything conductive to one of the 12 electrodes and trigger a sound via the onboard MP3 player, play a MIDI note or do anything else that you might do with an Arduino or Arduino-compatible device.

The Touch Board has been designed to be an easy-to-use platform for a huge range of projects, whether it is painting a lightswitch on your wall, making a paper piano or creating a customised interactive surface.

- Touch sensing
- Distance sensing
- No programming required for basic operation
- Arduino compatible and works with popular shields
- Ideal for use with Bare Conductive paint or any other conductive material
- MP3 Player / MIDI device
- MicroSD card socket
- Standard 3.5mm audio jack for headphones and speakers
- Lithium Polymer (LiPo) battery recharges via USB
- HID capable - turn the Touch Board into a keyboard or mouse
- Board size: 84 x 62 x 10mm

See www.rapidonline.com/Bare-Conductive/TouchBoard for further information, image gallery, data sheets and downloads. See www.rapidonline.com/Bare-Conductive/projects to see our Bare Conductive Ideas Page.

Technical specification

Arduino compatible (recognised as an Arduino Leonardo in IDE)
Atmel ATmega32U4 Microprocessor
Freescale MPR121 dedicated touch interface
VLSI VS1053B audio processor
Arduino Shield Compatible (check pins available)
32KB of Flash Memory of which 4KB is used for bootloader
5V operating voltage (automatic voltage selector for USB or battery operation)
Built in LiPo battery charging with onboard boost circuit for 5V operation
16MHz clock speed
Can be powered and programmed via USB
20 digital I/O pins (3 used for Touch IC and 5 for MP3 IC - can be disabled)
7 PWM channels
12 analogue input channels
12 Touch electrodes of which 8 can be configured as extra digital inputs or outputs with PWM capability
84mm x 62mm foot print with maximum height of 10mm (audio connector)
On/Off switch when powered from battery

Type	Order code	1+
Touch board	70-0105	49.00

548747

Pixy 2 Vision Sensor Camera CMUcam5 Arduino / Pi Compatible

The Charmed Labs Pixy 2 vision sensor camera is smaller, faster and more capable than the original Pixy.

Like its predecessor, Pixy2 can learn to detect objects that you teach it, just by pressing a button. Additionally, Pixy2 has new algorithms that detect and track lines for use with line-following robots. The new algorithms can detect intersections and 'road signs' as well. The road signs can tell your robot what to do, such as turn left, turn right, slow down, etc. Pixy2 does all of this at 60 frames-per-second, so your robot can be fast, too.

No need to mess around with tiny wires - Pixy2 comes with a special cable that plugs directly into an Arduino and a USB cable that plugs into a Raspberry Pi, so you can get started quickly.

No Arduino or Raspberry Pi? No problem! Pixy2 has several interfaces (SPI, I2C, UART, and USB) and simple communications, so you can quickly get your chosen controller talking to Pixy2.

- Small, fast, easy-to-use, low-cost, readily-available vision system
- Learns to detect objects that you teach it
- Connects to Arduino with included cable. Also works with Raspberry Pi, BeagleBone and similar controllers
- All libraries for Arduino, Raspberry Pi, etc. are provided
- C/C++ and Python are supported
- Communicates via one of several interfaces: SPI, I2C, UART, USB or analog / digital output
- Configuration utility runs on Windows, MacOS and Linux
- All software/firmware is open-source GNU-licensed
- All hardware documentation including schematics, bill of materials, PCB layout, etc. are provided
- Kit contains: Pixy2 CMUcam5, Pixy IO to Arduino ISP cable, microUSB cable, mounting hardware

CHARMED LABS



£46.20

Order code 75-1010

BUILD YOUR OWN ARDUINO!

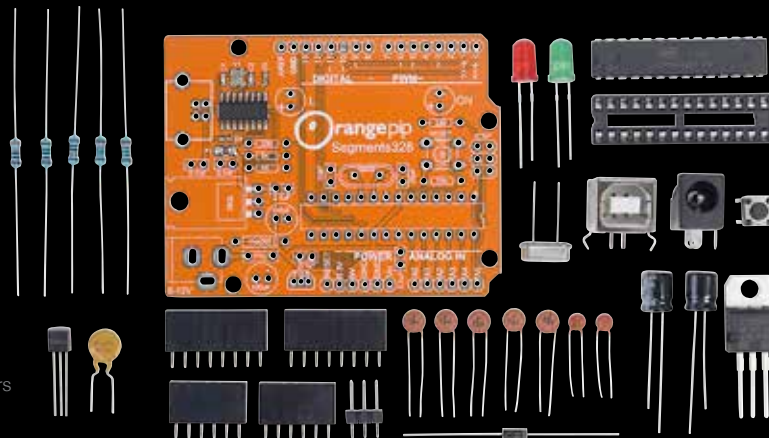
orange pip[®]
Segments328

Orangepip Segments328

- An Arduino compatible board you can use in your own projects.
- Test your soldering skills!
- Understand the components needed to support a microcontroller.

Contents includes:

- | | |
|------------------------------|--------------------------------|
| 1 Orangepip Segments PCB | 2 x 1K resistors |
| 1 x 16MHz crystal | 2 x 47µF electronic capacitors |
| 1 ATmega328 microcontroller | 1 x 1N4007 diode |
| 1 Dual in line socket | 1 x 7805 voltage regulator |
| 1 Tactile switch | 1 x 7133 voltage regulator |
| 1 Red LED | 1 PTC resettable fuse |
| 1 Green LED | 5 x 0.1µF ceramic capacitors |
| 1 x 6-pin dual row header | 2 x 22pF ceramic capacitors |
| 2 x 8-pin single row sockets | |
| 2 x 6-pin single row sockets | |
| 1 ISB socket | |
| 1 Power supply jack socket | |
| 1 x 10K resistor | |
| 2 x 330R resistors | |



SINGLE

£11.95

Order code 75-1200

CLASSPACK OF 15

£120.00

Order code 75-1201

Piggyaxe



555 Alternating Flasher Kit

A kit of parts to make a simple and reliable alternating flasher circuit based around possibly the most famous 'chip' of all, the 555 timer.

In this circuit, it is used as an astable (oscillator) and directly drives two LEDs, flashing them alternately.

The kit is quick to build, even by absolute beginners. It provides a quick way to add some electronic interest to a variety of projects, from aliens with flashing eyes through to edge-lit acrylic display stands.

- Kit contains printed circuit board and standard components
- See Technical Specification table for list of kit contents
- Constructional notes are available for download at www.rapidonline.com

Kit contains:			
Order code	Description		Quantity
82-0336	NE555 bipolar single timer		1
18-0092	TruPower PP3 battery clip (heavy duty) end entry		1
08-0235	100nF 5mm ceramic disc capacitor		1
62-0354	220Ω CR25 0.25W carbon film resistor		2
62-0370	1kΩ CR25 0.25W carbon film resistor		1
62-0462	6.8MΩ CR25 0.25W carbon film resistor		1
62-0446	1.5MΩ CR25 0.25W carbon film resistor		1
62-0438	680kΩ CR25 0.25W carbon film resistor		1
55-0155	Kingbright L-7113ID 5mm 2V red diffused LED 45mcd		2
70-1050	555 flasher PCB		1

Type	Order code	1+
555 flasher kit	70-1051	1.60



6-LED Random Flasher Kit

A kit of parts to make a circuit that flashes 6 LEDs at random. The circuit is really 6 separate circuits combined into a single chip: a CMOS 40106 Hex (6) Schmitt trigger.

The overall circuit is made up of 6 relaxation oscillators directly driving 6 LEDs. The free-running oscillator frequencies soon drift apart and become out of sync, thus producing an eye-catching 'random' display. By angling the LEDs and adding ping-pong balls as light diffusers, striking effects can be achieved with relative simplicity. The circuit is compact and economical enough to be used to enhance anything that would benefit from some flashing LEDs.

- Kit contains printed circuit board and standard components
- See Technical Specification table for list of kit contents
- Construction notes are available for download at www.rapidonline.com

Kit contains:			
Order code	Description		Quantity
83-0482	40106B hex Schmitt trigger		1
62-0466	10MΩ CR25 0.25W carbon film resistor		6
62-0370	1kΩ CR25 0.25W carbon film resistor		6
08-0235	100nF 5mm ceramic disc capacitor		6
18-0092	TruPower PP3 battery clip (heavy duty) end entry		1
70-1052	6 LED flasher PCB		1
55-0125	Kingbright L-7113YD 5mm 2.1V yellow LED 20mcd		2
55-0155	Kingbright L-7113ID 5mm 2V red diffused LED 45mcd		2
55-0122	Kingbright L-7113PGD 5mm 2.25V green LED 5mcd		2
18-2909	Battery box 4x AA with switch		1

Type	Order code	1+
6 LED flasher kit	70-1053	2.77



Touch-On, Auto-Off Kit

A kit of parts for this very useful circuit that offers touch activation and variable time delay with a choice of output options. As no on-off switch is needed it can be quickly incorporated into almost any project. Simply touch between two contacts to start the time delay.

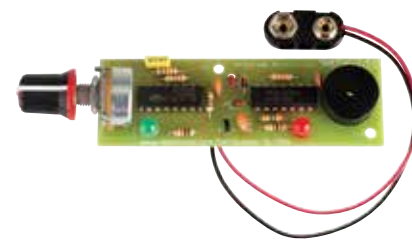
- Kit contains printed circuit board and standard components
- See Technical Specification table for list of kit contents
- Constructional notes are available for download at www.rapidonline.com

Kit contains:			
Order code	Description		Quantity
83-0380	4049UB hex inverters/buffers		1
18-0092	TruPower PP3 battery clip (heavy duty) end entry		1
62-0466	10MΩ CR25 0.25W carbon film resistor		2
62-0434	470kΩ CR25 0.25W carbon film resistor		1
47-3416	1N4148 signal diode 75V, 150mA		1
11-0205	Forever 85°C 1µF 63V radial lead aluminium electrolytic capacitor		1
01-0440	1m violet 7/0.2 wire		1
70-1054	Touch-on, auto-off PCB		1
35-0052	HCM1206BX low profile buzzer 6V		1
55-0155	Kingbright L-7113ID 5mm 2V red diffused LED 45mcd		2

Type	Order code	1+
Touch-on auto off kit	70-1055	1.78



Piggyaxe Multi-Timer Kit



A set of parts to build a multi-purpose pocket timer. The timer is fun to build and useful, with great repeatability and long time delays possible. The circuit provides an activity LED, a strident 'beep-beep-beep' warning when the time is up and a visual warning too.

The circuit uses a self-clocking binary counter that controls via number of relaxation oscillators that control each other.

- Kit contains printed circuit board and standard components
- See Technical Specification table for list of kit contents
- Constructional notes are available for download at www.rapidonline.com

Kit contains:			
Order code	Description		Quantity
83-0390	4060B 14-stage ripple carry binary counter (DIL)		1
83-0482	40106B hex Schmitt trigger		1
18-0092	TruPower PP3 battery clip (heavy duty) end entry		1
47-3416	1N4148 signal diode 75V 150mA		2
55-0155	Kingbright L-7113ID 5mm 2V red diffused LED 45mcd		1
35-0044	Miniature PCB piezo transducer		1
65-0740	470k 16mm linear potentiometer		1
55-0122	Kingbright L-7113PGD 5mm 2.25V green LED 5mcd		1
10-5825	220nF 5% 63V 5mm polyester box capacitor		1
62-0398	15kΩ CR25 0.25W carbon film resistor		1
62-0458	4.7MΩ CR25 0.25W carbon film resistor		1
62-0442	1MΩ CR25 0.25W carbon film resistor		1
62-0370	1kΩ CR25 0.25W carbon film resistor		2
08-0235	100nF 5mm ceramic disc capacitor		3
70-1056	Multi-timer PCB		1
62-0402	22kΩ CR25 0.25W carbon film resistor		1
62-0450	2.2MΩ CR25 0.25W carbon film resistor		1
65-0745	1MΩ 16mm linear potentiometer		1
32-1200	Tincolor knob with red insert		1

Type	Order code	1+
Multi-timer kit	70-1057	3.42



Joule Thief Kit



A kit of parts to build the ultimate 'Green' circuit that uses the cells that other people throw away.

The Joule thief is a simple circuit, but it delivers great functionality. Its name is derived from the concept that it's stealing energy (Joules) from the battery that powers it. Nothing special there, except that this circuit will work down to absolute cell exhaustion at around 0.5 volts. Hence the idea that its 'stealing' the last dregs of energy.

- Ideal as a short introduction to soldering
- Great for Cubs, Scouts, Beavers and Guides to build for a skills badge
- Easily incorporated into a packaging project, STEM activity, Young Enterprise etc.
- Kit contains printed circuit board and standard components
- See Technical Specification table for list of kit contents

Kit contains:			
Order code	Description		Quantity
70-1058	Joule Thief PCB		1
62-0370	1kΩ CR25 0.25W carbon film resistor		1
50-0257	BC548C transistor NPN TO92 0.2A 30V		1
50-1176	470µH ±5% 90mA Epcos RF axial SBC inductor		2
08-0200	1nF 2.5mm ceramic capacitor		1
55-1549	3mm white LED 1000mcd 30°		1
18-2906	Battery box 2x AA with switch		1

Type	Order code	1+
Joule thief kit	70-1059	2.48



14M2 Motherboard Kit



If you run out of I/O with the 08M2 then the **14M2 motherboard kit** provides a logical step up. Based on the 14M2 and offering 11 pins that offer a huge variety of options, the chances are it will do what you want.

With 4 hardware PWM channels, total dimming control of 4 channels of LEDs becomes a possibility, with of course analogue and digital inputs and Infra-red capability too. It's an ideal starting point if you need to switch on more or simply want more ways of sensing and controlling your project.

- Kit contains printed circuit board and standard components
- See Technical Specification table for list of kit contents
- Visit www.rapidonline.com to download constructional notes for this kit

Kit contains:			
Order code	Description		Quantity
20-0137	TruConnect PCB Jack socket (stereo) 3.5mm		1
62-0394	10kΩ CR25 0.25W carbon film resistor		1
62-0402	22kΩ CR25 0.25W carbon film resistor		1
50-0381	1N4001 Diode rectifier diode 1A 50V		1
11-0820	Forever 85°C 100µF 10V radial micro miniature electrolytic capacitor		1
19-0086	15-way single row PCB socket 2.54mm pitch		1
18-0092	TruPower PP3 battery clip (heavy duty) end entry		1
13-5024	PICAXE-14M2 chip		1
70-1062	14M2 motherboard PCB		1
22-1721	14-pin 0.3in. turned pin socket		1

Type	Order code	1+
14M2 motherboard kit	70-1063	4.26

Velleman Kits



Flashing LED Module Kit

A simple multivibrator circuit driving two LEDs.

- Suitable for many applications including model construction and education
- Adjustable flashing speed with two potentiometers
- Power consumption approx. 8mA
- Dimensions: 30 x 35 x 15mm
- Kit contains all components required including printed circuit board and construction instructions
- **Velleman MK102**

Requires 1x PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Flashing LED kit	70-4138	3.48

07455



Dual Super Bright Flashing LED Lights Kit

A module with two superbright red LEDs giving a powerful warning indication.

- Ideal for emergency and warning signs, eye-catchers, etc.
- High visibility 'alarm-active' - simulation, etc.
- 'Auto turn-on at dark' - mode with adjustable sensitivity
- On/Off switch
- Can be operated from 12V supply
- Dimensions: 55 x 32 x 40mm
- Kit contains all components required including printed circuit board and construction instructions
- **Velleman MK148**

Requires 1x PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Dual LED flasher	70-4164	4.22

07456



MK107 Running LED Light Kit

This kit will produce a running light effect.

- 8 LEDs
- Different running light effects are selectable (Prog push button)
- Adjustable effect speed with potentiometer
- Includes stand-by push button power switch (Off push button)
- Suitable for beginners
- Dimensions 95(L) x 40(W)mm
- **Velleman MK107**

Requires a 9V battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Running LED light kit	70-4010	4.97

07383



LED Sets

Packs of 5mm light emitting diodes, ideal for use with Velleman's Advertisement LED Display Kit (available as Rapid part **70-4264**), and many other electronics projects.

- Available in packs of 50 (red or green)

Set size	Colour	Order code	1+
50	Green	70-4222	4.99
50	Red	70-4224	4.99

518057



Mini-6-LED Chaser Kit

If you've ever wanted to recreate the light sequences from the Star Trek Enterprise or from the 1980s TV show Knight Rider, the Velleman Mini-6-LED Chaser Kit is just what you need. The kit provides LED sequences which scan from side to side or go in one direction and is a great attention-grabber. Suitable for use on cars or in shop windows, at exhibitions.. or anywhere where you want to get the point across.

- 6 high-intensity 3mm red LEDs
- Fixed scan speed 0.5 sec
- Dimensions 55 x 25 x 10mm
- Power supply 4-15Vdc (20mA at 12Vdc)
- Manufacturer's part **MK173**

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Chaser Kit	70-4416	5.55

518134



Infrared Light Beam Kit



This kit will produce an IR light beam that can be used to monitor a doorway, a pathway, an area etc. for the arrival or presence of a person or object.

- When the light beam is interrupted the kit makes an audible noise (85dB)
- Uses an IR transmitter emitter to project a beam of infrared light to an IR receiver detector
- Ideal for home security
- On/Off switch provided
- Basic soldering techniques required for circuit board assembly
- Suitable for beginners with little or no previous knowledge of electronics
- Not recommended for outdoor use
- **Velleman MK120**

Transmitter and receiver both require a 9V PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Technical specification	
Audible signal	85db
Visible signal	LED alert
Range	1 to 4m (3.3ft to 13ft)
IR transmitter	5.5 x 4cm
IR receiver	10 x 5 cm
Transmitter emitter	9V DC, 50mA max.
Receiver detector	9V DC, 20mA max.
9V battery holder and power adaptor jack included.	

Type	Order code	1+
IR Light barrier	70-4028	6.95

073843



Minikits Starter Sets



These starter sets from Velleman give you everything you need to start enjoying electronic projects. Each set contains a number of kits for you to enjoy making. Choose from the Minikits Starter Set, with 6 different projects, or the Seasonal Minikit Pack which gives you 5 different kits, each with a festive theme.

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Starter set	70-4464	29.05
Seasonal pack	70-4466	19.99

518153



Traffic Light Kit

A miniature four way traffic light as seen at many junctions.

- Realistic operation with adjustable delay
- 12 LEDs
- Great for model railroads, exhibitions or as a toy
- Low power consumption 15mA
- Suitable for beginners
- Dimensions 115(H) x 50(W) x 35(D)mm
- **Velleman MK131**

Requires a 9V PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Traffic light	70-4040	5.77

073846



MK191 Classic TV Game with Analog Bats

A modern adaptation of the classic 'tele tennis' TV game: - build the kit then play the game. Each player has his own bat with rotary potentiometer for ultra-fast bat

movement. The game has 5 single-player levels, 5 two-player levels, 3 ball angles, smash function and game play sound.

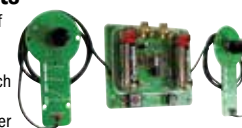
- 5 single-player levels
- 5 two-player levels
- 3 ball angles
- Smash function (press the button the moment the ball hits the bat)
- Only the server can score points
- Audio output
- Composite video out
- PAL or NTSC selection
- Brightness control
- Consumption only 7mA
- Auto power-down
- **Velleman type MK191**

Takes 2x AA batteries, not included.

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
TV Tennis Game	70-4147	13.41

526258





Memory Brain Game Electronics Kits

The Velleman Brain Game Kit will provide hours of fun with just 4 LEDs and 4 push buttons. It is available **either with or without a case**.

- Aim of the game is to repeat a pattern, which is generated at random
- Pattern is played both visually and audible or visually only (selectable)
- Features 4 difficulty levels, which can be selected at start-up
- Replay speed gradually increases during the game, to make it even more challenging
- Low power consumption
- Microprocessor controlled
- Auto power off
- Basic soldering techniques required for circuit board assembly
- Suitable for beginners with little or no previous knowledge of electronics
- Dimensions 65(L) x 50(W)
- **Available with or without case**

Requires 3x AAA batteries (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Without enclosure	70-4018	8.01
With enclosure	70-4402	9.62

073838



Expandable Quiz Kit

This quiz table will allow up to four players to compete against one another.

- LED indicates first button pushed
- Quizmaster reset button
- Two units can be daisy chained for eight player fun
- Add your own remote pushbutton and indication
- Suitable for beginners
- On/Off switch
- Dimensions 110(L) x 78(W) x 28(D)mm
- **Velleman MK133**

Requires a 9V PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Quiz table	70-4042	5.95

073850



Wheel of Fortune Kit

This wheel of fortune acts just like the game, just push the button and the 10 LEDs start showing a spinning action. They gradually slow down until the winning one remains lit.

- Push the button to start spinning action
- 10 LEDs red, yellow and green
- Spinning action gradually decreases
- Auto power-off
- Low power consumption
- Suitable for the intermediate, some previous knowledge of electronics required
- Good soldering techniques for medium dense boards recommended
- Dimensions 33(L) x 0.64(D)mm
- **Velleman MK152**

Requires 9V PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Wheel of fortune kit	70-4058	5.87

073858



Roulette Kit

This roulette kit is just like the real thing, and will be a sure winner with you, your friends and relatives.

- With a push of a button, the LEDs lights flash in a spinning sequence and stop randomly
- Enjoy hours of fun with this game of chance
- 37 LEDs are arranged in a circle
- Winner tune played for each colour
- Pushbutton operation
- Microprocessor technology
- Auto power off
- Low power consumption
- Some previous knowledge of electronics required
- Good soldering techniques for medium dense boards
- Suitable for intermediates
- Diameter 90mm
- **Velleman MK119**

Requires 3x AA batteries (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Roulette kit	70-4026	11.71

073842



MK109 Electronic Dice Kit

Board games provide an excellent source of pleasant and healthy entertainment, and this dice kit will provide the players with even more fun.

- Fully independent electronic dice
- Result displayed on this electronic dice module
- Cheating is out of the question
- Displays are switched off automatically saving battery power
- Some soldering experience recommended
- Suitable for beginners
- Dimensions 60(L) x 45(W)mm
- **Velleman MK109**

Requires a 9V PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Electronic dice	70-4014	4.22

073836



MK150 Electronic Dice Kit

Novel dice that you don't have to throw or press any buttons. Just shake.

- Acts just like regular dice
- Lights roll out slowly and flash the last combination or winning number
- Buy two and simulate a pair of real dice
- Auto power-off
- Suitable for beginners
- Dimensions 36(L) x 36(W) x 32(D)mm
- **Velleman MK150**

Requires 1x 3V Lithium button cell type CR2025 or CR2032 (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Shaking dice kit	70-4056	8.84

073857



Animated LED Smiley

You can make light of every occasion with the Animated LED Smiley Kit from Velleman. The smiley face goes through a sequence of eight different faces, from sad to happy and a few in between. You can use this kit as a novelty gift or just build it for the fun of it.

- Great attention grabber
- Choose between static or animated expressions
- On/off expression selection button
- Auto power off
- Power consumption 15mA
- Dimensions 75 x 75 x 32mm
- Power supply 3 x AAA batteries
- Manufacturer's part MK175

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
LED Smiley	70-4420	6.95

518136



Running Microbug Kit

This attractive bright coloured bug-shaped miniature robot is always hungry for light, and will constantly run towards it in a bug-like behaviour.

- A really great gift for the budding robotics enthusiast
- Features two open chassis sub-miniature motors
- Adjustable light sensitivity to work in almost any light condition
- LED eyes to indicate driving direction
- Bug stops in total darkness
- Suitable for beginners
- Dimensions 100(L) x 60(W)mm
- **Velleman MK127**

Requires 2x 1.5V AAA batteries (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Running microbug kit	70-4034	7.12

073846



MK194N FM Radio Kit

This FM Radio Kit from Velleman will give you double the fun of learning to build and then listening to the FM radio. Suitable for beginners with little or no previous knowledge of electronics.

- New and enhanced HQ FM receiver module
- Single button station search function
- 4 station presets with confirmation beep
- Restore of last selected station at switch-on
- Soft fade-in of last audio level at switch-on
- FM range: 88 to 107.9MHz (0.1MHz step)
- Power supply: 9V DC (battery not incl.)
- Power consumption: 40mA max.
- Dimensions: 130 x 85 x 45mm / 5.1 x 3.34 x 1.8in.
- Suitable for beginners with little or no previous knowledge of electronics
- **Velleman type MK194N**

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
FM radio kit	70-4037	14.90

528297



Electronic Christmas Tree

Have yourself a cosy little Christmas with this Electronic Christmas Tree from Velleman.

- 16 blinking LEDs
- Very low power consumption: max. 4mA
- Dimensions 60 x 100 x 25mm
- Power supply 9V battery PP3 (not supplied)
- Manufacturer's part **MK100**

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Electronic Xmas Tree	70-4382	4.35

518121



3D Christmas Tree Electronics Kit



Make sure everyone knows that you're in the Christmas spirit with the Velleman 3D Christmas Tree Kit. Customise your tree with a choice of red, green and yellow LEDs.

- 16 flashing red LEDs
- Extra green and yellow LEDs provided
- Can be hung on and fed through wires
- Low power consumption
- Dimensions 80 x 88 x 102mm
- Power supply 9-12Vdc or 9V battery/8mA (not supplied)
- Manufacturer's part **MK130**

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
3D Christmas Tree	70-4386	7.99

519180



LED Animated Bell Kit

An animated illuminated bell display with 83 LEDs.

- Power supply 9 to 12VDC adaptor or 9V PP3 battery
- No need to remove battery when using external supply
- 12V operation possible for use in cars, lorries, trucks, etc.
- On/Off switch included
- Kit contains all components required including printed circuit board and construction instructions
- **Velleman MK122**

Requires 1x PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Animated bell kit	70-4148	7.49

014560



Riding Santa Kit



This animated Riding Santa will make a delightful addition to any seasonal decoration or Christmas display.

- 126 multi-coloured LED lights
- Suitable for use in cars, lorries etc.
- No need to remove battery when using external supply
- On/Off switch included
- Some soldering experience recommended
- Suitable for beginners
- Dimensions: 145(L) x 80(W)mm
- **Velleman MK116**

Powered by either a 9 to 12V DC supply or 9V alkaline battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Riding Santa	70-4000	14.61

013629



Flashing LED Stars



You can be the star of the local Christmas scene with these Flashing LED Star kits from Velleman. Ideal for lighting up the festive season, these stars are available in 2 colours - red and yellow.

- 35 LEDs included
- Safe battery operation
- Flashing or static operation
- Can be used on desktop or hanging from the ceiling
- Multiple kits enhance the effect
- In-car (12V) operation possible
- Current consumption 40mA (static mode)
- Flash duty cycle 1:2
- Dimensions 90 x 90mm
- Power supply 9Vdc battery

Please note: This is a self-assembly kit and requires soldering.

Colour	Order code	1+
Red	70-4410	5.96
Yellow	70-4412	6.81

518132



LED Halloween Pumpkin Kit

A brightly coloured halloween pumpkin kit with 25 LEDs.

- Random flash effect simulates flickering candle
- One extra high intensity yellow LED illuminates the pumpkin On/Off switch
- Dimensions: 100 x 80 x 33mm
- Kit contains all components required including printed circuit board and construction instructions
- Suitable for **Key Stages 2 & 3** (ages 7 to 14)

Requires 1x PP3 battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
LED pumpkin kit	70-4162	5.95

014561



Sound to Light Unit Kit

This kit has four high-intensity LEDs that light up and react simultaneously on every sound.

- For different funny and practical applications
- Sound indicator
- Simple sound-to-light unit for music
- Can be used to indicate the telephone, door bell for the hearing impaired
- Adjustable sensitivity with potentiometer
- Built-in microphone
- Some soldering experience recommended
- Suitable for beginners
- Dimensions 55(L) x 55(W) x 35(D)mm
- **Velleman MK103**

Requires 1x 9V battery (not included).

Please note: This is a self-assembly kit and requires soldering.

Technical specification

Adjustable sensitivity	RV1
LEDs	4 high bright
Operating voltage	9V DC
Power consumption	0.5mA min./12mA max.
Built-in microphone	

Type	Order code	1+
Sound-to-light unit	70-4004	4.66

013631



Electronic Clock Kit

Digital clock with red seven-segment displays in an attractive case.

- Automatic time base selection (internal or net-frequency controlled 50/60Hz)
- Internal time base with fine-tuning adjustment
- Selectable 12 or 24 hour display
- Equipped with optional backup battery facility in case of power failure
- Dimensions: 92 x 45 x 101mm
- Kit contains all components required including printed circuit board and construction instructions
- **Velleman MK151**

Requires a 9V, 500mA AC/DC mains adaptor or 3x AA batteries (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
LED clock kit	70-4166	12.85

014569



Countdown Timer Kit

A very useful kitchen timer that will alert you with timers from 1 minute to 1 hour.

- Single button and straight forward operation
- Clear 16 LED readout
- Audible and visible alarm
- Discrete pre-alarm
- Auto power-off
- Attractive designer enclosure
- Suitable for beginners
- Dimensions 76.5(L) x 75(W) x 32(D)mm
- **Velleman MK128**

Requires 3x AAA 1.5V DC batteries (not included).

Please note: This is a self-assembly kit and requires soldering.



Technical specification

Timer settings	1-10 minutes in one minute steps
	10-30 minutes in five minute steps
	30-60 minutes in 15 minute steps
Basic accuracy	Better than 5%
Power supply	3x AAA 1.5V batteries (not included)
Power consumption	10mA typical

Type	Order code	1+
Kitchen timer kit	70-4036	8.50

073047



Rolling Message Kit

Create your own moving message with up to 16 self definable characters, the options are many and varied.

- Adjustable scrolling speed
- Press 'SET' to change a particular character
- Press the up or down-key to select a character and end with the '>' sign
- Display standby function press 'Stby' (press RUN to restart)
- 35 LED graphic display
- Requires an 9-12V DC power supply or car battery
- 20mA maximum
- Suitable for beginners
- Dimensions 46/89(L) x 67(W)mm
- **Velleman MK124**

Back-up battery 9V PP3 (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Rolling message	70-4032	10.69

073045



USB PC Scope and 2-channel Generator

The feature-packed Velleman USB PC Scope and 2-Channel Generator is a complete USB-powered lab in a box. The software offers a 2-channel oscilloscope, spectrum analyser, transient recorder, function generator and bode plotter. With the generator, you can create your own waveforms using the integrated signal wave editor. For automated measurements, it is possible to generate wave sequences, using file or computer input.

- Manufacturer's part **PCSGU250**

Type	Order code	1+
USB PC Scope	70-4468	134.99

518154



USB PC Scope and Signal Generator

The pocket-sized Velleman USB PC Oscilloscope and Signal Generator contains a whole world of measuring tools in one small box. It includes a powerful 2-channel oscilloscope and a handy bode plot function. There is no need for a power supply as the unit is powered over USB.

- Includes function generator, oscilloscope, transient recorder, bode plotter, spectrum analyser, manual, USB PC scope+generator unit and USB cable
- Dimensions: 100 x 100 x 35mm



- Minimum system requirements - IBM compatible PC, Windows™ XP, Vista, 7 *, SVGA display card (min. 1024 x 768), mouse, USB port 1.1 or 2.0
- Manufacturer's part **PCSU 200**

Type	Order code	1+
PC Scope + Generator	70-4470	124.59

518155



EDU09 Educational PC Oscilloscope Kit

Oscilloscopes needn't be expensive and complicated!

Build your own oscilloscope and use your PC to display your measurements. This small and easy to build kit has all the features of a full blown oscilloscope and comes complete with detailed instructions and test leads.

- Self-assembly kit
- Dimensions 94 x 94mm
- **Velleman type EDU09**

Technical specification

Oscilloscope:
 Bandwidth: DC to 200kHz \pm 3dB
 Input impedance: 100k Ω /20pF
 Maximum input voltage: 30V (AC + DC)
 Time base: 10 μ s to 500ms per division
 Input range: 100mV to 5V/division
 Input sensitivity: 3mV display resolution
 Readouts: True RMS, dBV, dBm, p, p, Duty cycle, Frequency ...
 Record length: 1k samples
 Sampling frequency: 62.5Hz to 1.5MHz
 Sample history function
 Auto set-up function
 Pre-trigger function: on 0.1ms/div. to 500ms/div ranges
 Persistence options: Colour graded, Variable and Infinite
 Spectrum analyser:
 Frequency range: 0 to 150Hz to 75kHz
 Operating principle: FFT (Fast Fourier Transform)
 FFT resolution: 512 lines
 Transient recorder:
 Timescale: 20ms/div to 2000s/div
 Max. recording time: 9.4h/screen
 Automatic storage of data
 Record and display of screens
 Automatic recording for more than 1 year
 Max. number of samples: 100/s
 Min. number of samples: 1 sample/20s
 General information:
 Markers for: amplitude/voltage and frequency/time
 Expert or basic mode selection in software
 Input coupling: DC and AC
 8 Bit resolution
 Storage of display and data
 Power supply through USB: +/- 200mA
 Uses Microsoft® human interface device (HID) driver, no external driver required
 Dimensions: 94 x 94mm
 Minimum system requirements:
 IBM compatible PC
 Windows® XP, Vista, 7, 8
 SVGA display card (min. 1024 x 768)
 Mouse
 Free USB port 1.1 or 2.0

Type	Order code	1+
PC based scope	57-4590	26.60

545233



USB Controlled DMX Interface Kit

The Velleman USB-Controlled DMX Interface Kit enables you to control DMX lighting fixtures using a PC and USB interface.

Test software and DMX Light Player software is included, and a Dynamic Link Library (DLL) is provided to write your own software. The device includes a stand-alone test function that outputs all 512 channels at a time, with adjustable levels.

- Kit includes enclosure and USB cable



- Connected and powered through USB
- 512 DMX channels with 256 levels each
- 3 pin XLR-DMX output connector
- Windows 98SE or higher compatible
- 9V battery (not supplied) needed for stand alone test mode
- Solid state - fuse protection on DMX output
- Dimensions 106 x 101 x 45mm
- Power supply 5V DC via USB
- Manufacturer's part **K8062**

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
USB DMX Interface	70-4318	43.95

518103



Multifunction Relay Switch

This kit has a total of 14 different functions including timers, switching, flashing, interval and random switching.



- Two pre-programmed delays
- Learning mode for delays of 2 seconds up to 12 days
- Pushbutton control
- EEPROM for delay time storage in case of power failure
- On-board transient filter for the relay contacts
- Suitable for control of incandescent lighting, halogen lighting, fluorescent lighting, fans, valves, buzzers
- Maximum load 2.5A (550W/220V; 275W/110V)
- Suitable for intermediate with knowledge with previous electronics knowledge and good soldering techniques
- Dimensions 87(L) x 39(W) x 26(D)mm
- **Velleman K8015**

Requires a 12V DC battery or 9 to 12V AC power supply (not included).

Please note: This is a self-assembly kit and requires soldering.

Type	Order code	1+
Multi-function relay	70-4066	10.95

073085



USB Experiment Interface Board

The Velleman USB Experiment Interface board has 5 digital input channels and 8 digital output channels, plus two analogue inputs and two analogue outputs with 8 bit resolution.



The number of inputs/outputs can be further expanded by connecting up to 4 more cards to the PC's USB connectors. All communication routines are contained in a Dynamic Link Library (DLL). You may write custom Windows (XP, Vista, Windows 7) applications in Delphi, Visual Basic, C++ Builder or any other 32-bit Windows application development tool that supports calls to a DLL. Available either as a kit for you to make yourself or as a pre-assembled module.

- Source code examples for Visual Basic, Visual C++, Visual C#, Excel, Delphi and Borland C++ builder available
- 5 digital inputs (on board test buttons provided)
- 2 analogue inputs with attenuation and amplification option
- 8 digital open collector output switches
- 2 analogue outputs
- Up to 4 cards can be connected to PC
- General conversion time: 2ms per command
- Uses Microsoft human interface device (HID) driver, no external driver required.
- Power supply through USB: approx. 70mA
- Dimensions 145 x 89 x 20mm
- Manufacturer's part **K8055N**

Type	Order code	1+
Kit	70-4314	21.51
Pre-assembled module	70-4476	37.23

518101



Solderless Experimental Electronics Starter Kit

Take your first steps into the world of electronics with the Velleman EDU01 Solderless Experimental Starter Kit. If you ever needed proof that electronics can be fun, this is it, as the EDU01 allows you to build your own circuits in a fun, safe and educational way.

The kit contains a breadboard and all the components needed to get started, so you can finish assembling your first circuit in just a few minutes.

- Projects include: LED with push button
- Transistor as current amplifier
- Astable multivibrator
- Simple burglar alarm with LED indication and sound
- Light detector
- Polarity tester
- Start-Stop circuit
- Timer circuit
- Light switch
- Water alarm
- No soldering required
- High-quality breadboard with 456 contact terminals
- Extended manual
- Dimensions: 80mm x 60mm

Requires 9V battery (not included)

Type	Order code	1+
Solderless Experiment	70-4204	9.63

518049



Oscilloscope Tutor Board

The Velleman EDU06 Oscilloscope Tutor Board will show you how to get the most out of your digital oscilloscope. The board generates a number of signals, which you can use to become familiar with AC, DC and frequency measurements, sine and square waves, power supply ripple, full and half wave rectifiers and oscillators. The kit will also help you learn the meaning of terms such as V/div, Time/div, trigger level and auto-setup. Most of the experiments involved can be done using any digital storage scope. Some experiments can be performed with an analogue scope.

- Assembled and tested
- No soldering required
- Dimensions: 116 x 74 x 24mm
- Power supply 9-12V AC/100mA min

Type	Order code	1+
Tutor board	70-4210	16.46

518052



USB Interface Card

The Velleman USB Experiment Interface Board has 5 digital input channels and 8 digital output channels, plus two analogue inputs and two analogue outputs with 8 bit resolution. The number of inputs/outputs can be further expanded by connecting up to 4 more cards to the PC's USB connectors.



All communication routines are contained in a Dynamic Link Library (DLL). You may write custom Windows (XP, Vista, Windows7) applications in Delphi, Visual Basic, C++ Builder or any other 32-bit Windows application development tool that supports calls to a DLL. Also available as a kit for you to make yourself.

- Source code examples for Visual Basic, Visual C++, Visual C#, Excel, Delphi and Borland C++ builder available
- 5 digital inputs (on board test buttons provided)
- 2 analogue inputs with attenuation and amplification option
- 8 digital open collector output switches
- 2 analogue outputs
- Up to 4 cards can be connected to PC
- General conversion time: 2ms per command
- Uses Microsoft human interface device (HID) driver, no external driver required.
- Power supply through USB: approx. 70mA
- Dimensions 145 x 89 x 20mm
- Manufacturer's part **VM110N**

Type	Order code	1+
Interface card	70-4476	37.23

518156

Clock Movements



Quartz Clock Movement and Numerals



These quartz crystal controlled clock movements and numerals are ideal for replacing defective units or for creating your own personalised clock projects.

They allow you to make any number of different clocks from CDs, papier mache, even paper plates, the only limits are your imagination. Use paper crafting techniques to design and build clocks that will suit any room and express your creativity.

- Quartz crystal controlled clock movements ideal for replacing defective units or for creative clock projects
- Black self-adhesive Arabic Numerals, 20mm high
- Shaft length 30mm
- Face 56x56mm

Requires 1x AA battery (not included)

Type	Order code	1+	5+	25+	100+
Clock movement	85-1430	1.49	1.25	1.15	1.05
Numeral set - black	85-1421	0.945	0.872	0.798	0.735

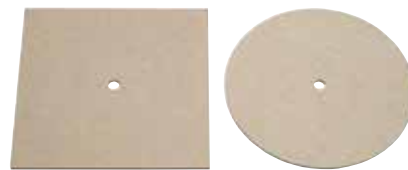
014959

Order online

Save time, and place your order at:
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 24 hours a day



Wooden Clock Face Blanks



Have fun with these handy wooden clock face blanks.

- Great for painting and decorating with your own design
- Suitable for use with TruMotion clock movement **85-1430** and numerals **85-1421** & **85-1422**
- Choose from square or round shape
- Size: 170 x 170mm (square), 170mm diameter (round)
- Made from 6mm thick MDF
- 8mm central hole
- Supplied in **packs of 10**

Type	Order code	1+
Square clock blanks	06-0782	6.80
Round clock blanks	06-0783	5.05

010568



Clock Group Kit



This kit enables pupils to create and design their own working clocks.

- Kit contains 10x wooden clock blanks, 10x clock mechanisms, 10x numeral sets and 100 sheets of A4 white card
- Clock blanks 170 x 170mm
- Suitable for all ages
- **Supplied as a pack**

Requires 2x AA batteries (not included)

Type	Order code	1+
Clock group kit	13-0152	24.44

010756

Don't forget your batteries ...



See page **312** or visit
www.rapidonline.com

Component Kits

Rapid

Electricity Classpack

A cost-saving classpack containing a selection of commonly used electrical accessories.

- Cost saving over buying parts separately
- Popular parts can be topped up
- Packed in a Grattells storage tray with lid
- Please see individual product descriptions for full details
- Supplied as a **pack**



Kit contains:

Order code	Quantity	Description
41-0125	10	3.5V bulbs
18-0125	5	2x AA battery holders
41-0070	5	Bulb holders
37-0140	5	Motors
18-0105	5	Battery snaps
17-0350	1	Crocodile leads (Pack of 10)
01-0102	5	Wire
75-0180	5	Toggle switch
76-0100	5	Slide switch
78-0115	5	Push on/off switch
78-0112	5	Push to make switch
35-3610	5	Buzzer
14-0430	1	Grattells tray
14-0436	1	Lid for tray

Type	Order code	1+
Electricity classpack	70-1012	37.83

078013

Rapid

Electrical Essentials Kit

A cost-saving classpack containing a selection of essential electrical accessories.

- Cost saving over buying parts separately
- Popular parts can be topped up
- Packed in a Grattells storage tray with lid
- Please see individual product descriptions for full details
- Suitable for **Key Stages 2, 3 & 4** (ages 7 to 16)
- Supplied as a **pack**



Kit contains:

Order code	Quantity	Description
17-0350	1	Crocodile leads (Pack of 10)
21-0100	1	12-Way connecting block
18-0546	3	Battery clips
18-1092	6	AA zinc chloride batteries
37-0342	1	Pulley black 10mm
86-0405	1	100 x 3mm flat blade screwdriver
86-0455	1	75 x No.1 Phillips screwdriver
37-0144	3	Miniature 3V motors
35-3596	3	Buzzers 6V
01-0108	1	Stranded wire pack
34-5926	1	Band pack
14-0430	1	Grattells tray (shallow)
14-0436	1	Lid for tray
76-0100	3	Slide switches
75-0057	3	Round rocker switches
75-0730	3	Rectangular rocker switches
41-0070	12	MES bulb holders (screw connection)
37-0344	1	Pulley black 20mm
37-0346	1	Pulley black 30mm
37-0348	1	Pulley black 40mm
18-0563	3	2x AA battery holders
18-0129	3	C size battery holders
18-1444	3	C size batteries
18-0150	3	1x AA battery holders
85-0230	1	Light duty wire cutter
60-0515	3	Reed switches

Type	Order code	1+
Electrical essentials kit	70-1014	27.10

078014

Rapid

Education Wire Starter Pack

A substantial kit containing a wide array of wire related consumables.

- Ideal for the classroom
- Contains wire cutters and strippers, wire, batteries and battery clips
- Offers a massive saving over separately purchased items
- Moulded box included
- Dimensions of the box: 43cm x 31cm x 7cm
- Great resource for all ages
- Supplied as a **pack**



Kit contains:

Description	Order code
5x Wire stripper	86-0350
5x Economy side cutter	85-0205
10x Equipment wire (pack)	01-0108
15x PP3 zinc chloride battery	18-1448
50x PP3 battery clip	18-0105
1x Shallow tray	14-0430
1x Tray lid	14-0436

Type	Order code	1+
Wire starter pack	13-0112	37.87

065939

Rapid

Education Components Spares Kit

A comprehensive range of essential electronic consumables offering a huge saving over individually purchased items.

- The kit is ideal for the classroom and contains LEDs, resistors, capacitors, etc.
- All the pieces are neatly packed into a well laid out stackable storage box with lid
- Dimensions of the box: 43cm x 31cm x 7cm
- Great school resource
- Total number of components = 1945
- Supplied as a **pack**



Kit contains:

Description	Order code
1x 5mm red LED (pack 100)	55-1796
1x 5mm green LED (pack 100)	55-1792
1x 5mm yellow LED (pack 100)	55-1794
1x Carbon film resistor kit (pack 1000)	13-0260
1x Polyester capacitor kit (pack 93)	13-0220
1x Polyester capacitor kit (pack 100)	13-0215
30x Stripboard 25 x 64mm	34-0500
2x Single sided pins (pack 100)	34-0610
2x Equipment wire (pack 11)	01-0108
100x BC5488 Transistor	81-0466
50x LM741 Op-amp	82-0458
50x NE555 Timer	82-0336
1x Shallow tray	14-0430
1x Tray lid	14-0436
1x Insert (3 long compartments)	14-0438
Total number of components = 1945	

Type	Order code	1+
Education spares kit	13-0108	58.72

065934

Rapid

Education LED Pack

A considerable range of LEDs and LED related products are neatly packaged in this classroom kit.

- All the pieces come in re-sealable polythene bags
- Offers a significant saving over separately bought items
- Storage box with compartment tray and lid
- Dimensions of the box: 43cm x 31cm x 7cm
- Suitable for all ages
- Total number of components = 680
- Supplied as a **pack**



Kit contains:

Description	Order code
1x 5mm red LED (pack 100)	55-1790
1x 5mm green LED (pack 100)	55-1792
1x 5mm yellow LED (pack 100)	55-1794
25x Flashing 5mm red LED	55-0140
25x Flashing 5mm green LED	55-0142
25x Flashing 5mm yellow LED	55-0144
1x 3mm red LED (pack 100)	55-1770
1x 3mm green LED (pack 100)	55-1772
1x 3mm yellow LED (pack 100)	55-1774
1x LED tester	55-0000
1x Miniature LDR	58-0134
1x Shallow tray	14-0430
1x Tray lid	14-0436
1x Insert 8 compartment	14-0443
Total no. of components = 680	

Type	Order code	1+
Education LED pack	13-0122	44.63

065946

Forever

Radial Electrolytic Capacitor Kit 93-piece



This 93-piece capacitor kit contains a range of micro-miniature radial leaded electrolytic capacitors. The capacitors have a high capacitance per unit volume and are ideal for applications where high density packaging and low profile capacitors are required.

- Each value individually packed
- A total of 12 different values
- 7mm height
- Tolerance $\pm 20\%$
- Temperature Range -40°C to $+85^{\circ}\text{C}$

Kit contains:

Number	Value	Voltage	Number	Value	Voltage
15x	100uF	16V	5x	22uF	25V
5x	220uF	16V	10x	47uF	25V
5x	470uF	16V	3x	1000uF	25V
3x	1000uF	16V	10x	1uF	63V
2x	2200uF	16V	10x	2.2uF	63V
15x	10uF	25V	10x	4.7uF	63V

Type	Order code	1+	5+
Electrolytic capacitor kit	13-0220	7.76	6.73

062537

Electronic Components Spares Kit

Only

£58.72

Order code 13-0108

For full details visit www.rapidonline.com



Wire & Cable

Rapid

Equipment Wire 7/0.2mm



A high quality wire produced to the DEF61-12 (Part 6) standards, making it ideal for general interconnection within apparatus.

- 7/0.2mm tinned copper conductor
- Overall diameter 1.2mm
- Rating 1kV rms 1.4A at 70°C
- Supplied on reels of 100m and 500m

Price per 100m reel				
Type	Order code	1+	10+	
Black	01-0400	6.09	5.22	
Blue	01-0405	6.09	5.22	
Brown	01-0410	6.09	5.22	
Green	01-0415	6.09	5.22	
Grey	01-0420	6.09	5.22	
Orange	01-0425	6.09	5.22	
Pink	01-0430	6.09	5.22	
Red	01-0435	6.09	5.22	
Violet	01-0440	6.09	5.22	
White	01-0445	6.09	5.22	
Yellow	01-0450	6.09	5.22	
Kit of 11 reels	01-0480	62.26	52.28	

Price per 500m reel		
Type	Order code	1+
Black	01-2200	26.29
Blue	01-2202	26.29
Brown	01-2204	26.29
Green	01-2206	26.29
Grey	01-2208	26.29
Orange	01-2210	26.29
Pink	01-2212	26.29
Red	01-2214	26.29
Violet	01-2216	26.29
White	01-2218	26.29
Yellow	01-2220	26.29

Type	Order code	1+	10+
Black	01-0300	6.40	5.84
Blue	01-0305	6.40	5.84
Brown	01-0310	6.40	5.84
Green	01-0315	6.40	5.84
Grey	01-0320	6.40	5.84
Orange	01-0325	6.40	5.84
Pink	01-0330	6.40	5.84
Red	01-0335	6.40	5.84
Violet	01-0340	6.40	5.84
White	01-0345	6.40	5.84
Yellow	01-0350	6.40	5.84
1 Each of above (11 reels)	01-0380	62.94	58.53

062317

Rapid

Equipment Wire 16/0.2mm



A high quality wire produced to DEF61-12 (Part 6) standards for general use and interconnection within apparatus.

- 16/0.2mm (0.5mm²) tinned copper conductor
- Overall diameter 1.6mm
- Rating 1kV 3A at 70°C
- Supplied on reels of 100m and 500m

Price per 100m reel				
Type	Order code	1+	10+	25+
Black	01-0900	13.50	11.45	10.89
Blue	01-0905	13.50	11.45	10.89
Brown	01-0910	13.50	11.45	10.89
Green	01-0915	13.50	11.45	10.89
Grey	01-0920	13.90	11.54	10.89
Orange	01-0925	13.50	11.45	10.89
Pink	01-0930	13.50	11.61	11.10
Red	01-0935	13.50	11.45	10.89
Violet	01-0940	13.50	11.45	10.89
White	01-0945	13.50	11.45	10.89
Yellow	01-0950	13.50	11.45	10.89
100m reels (total 11)	01-0970	101.53		

Price per 500m reel			
Type	Order code	1+	5+
Black	01-2280	51.50	47.50
Blue	01-2282	49.21	46.50
Brown	01-2284	49.89	46.50
Green	01-2286	49.21	46.50
Grey	01-2288	57.39	52.93
Orange	01-2290	49.77	46.50
Red	01-2294	51.50	47.50
Violet	01-2296	49.89	46.50
White	01-2298	49.21	46.50
Yellow	01-2300	51.50	47.50

062322

Rapid

10/0.1mm Equipment Wire 100m



A high quality flexible equipment wire, available in a range of colours in 100m lengths.

- 10/0.1mm tinned copper conductor
- Perfect for general interconnections within instruments

- Overall diameter 1.05mm
- 1kV at 0.5A @ 70°C
- Supplied on reels of 100m

Type	Order code	1+	10+	25+
Black	01-1500	3.95	3.60	3.23
Blue	01-1505	3.95	3.60	
Brown	01-1510	3.95	3.60	
Green	01-1515	3.95	3.60	
Grey	01-1520	3.95	3.60	
Orange	01-1525	3.95	3.60	
Pink	01-1530	3.95	3.60	
Red	01-1535	3.95	3.60	3.23
Violet	01-1540	3.95	3.60	
White	01-1545	3.95	3.60	3.23
Yellow	01-1550	3.95	3.60	

062319

Rapid

32/0.2mm Equipment Wire 1500V 6A



A high quality manufactured wire.

- Overall diameter 2.6mm
- 32/0.2mm (1.0mm²) tinned copper conductor
- Rating 1500V 6A at 70°C
- Approved DEF61-12 (Part 6) for general use and connection within apparatus
- Supplied on reels of 100m

Type	Order code	1+	10+
100m reels			
Black	01-1200	20.01	19.39
Brown	01-1210	20.01	19.39
Red	01-1235	20.01	19.39
Orange	01-1225	20.01	19.39
Yellow	01-1250	20.01	19.39
Green	01-1215	20.01	19.39
Blue	01-1205	20.01	19.39
Violet	01-1240	20.01	19.39
Grey	01-1220	20.01	19.39
White	01-1245	20.01	19.39
Pink	01-1230	20.01	19.39

062325

Rapid

Extra Flexible Wire 25m

A very flexible wire suitable for test leads, interconnection and frequently being moved wires.

- 55/0.1mm copper conductor
- Overall diameter 2.8mm
- Maximum current rating 6A
- Temperature: minimum -10°C
- Temperature: maximum: 60°C / Aging temperature
- Supplied on reels of 25m



Type	Order code	1+	10+
Red extra-flex	01-0600	4.20	3.59
Black extra-flex	01-0605	4.20	3.59
Blue extra-flex	01-0610	4.20	3.59
Green extra-flex	01-0615	4.20	3.59
White extra-flex	01-0625	4.20	3.59
Yellow extra-flex	01-0630	4.20	3.59

062327

Rapid

1/0.6mm Single Core Equipment Wire on 100m Reels



This wire has a solid core and is ideal for plate wiring (running wires across a chassis with all wires straight or at right angles to one another). This wire remains in formed shape without cable ties.

- 1/0.6mm copper conductor
- Overall diameter 1.2mm
- Rating 1kV rms 1.8A at 70°C
- weight of reel approx 400g
- Supplied on reels of 100m

UNISTRAND cable

Tinned Copper Wire

A reel of tinned copper wire.

- Supplied on reels of 500g



Technical specification

Please Note:

The figures are the carrying currents.

The fusing currents will be higher.

Size	SWG	Carrying current	Order code
2.0mm	14	100A	05-0295
1.6mm	16	65A	05-0300
1.25mm	18	45A	05-0305
0.90mm	20	32A	05-0310
0.71mm	22	24A	05-0315
0.56mm	24	18A	05-0320
0.45mm	26	13A	05-0325
0.375mm	28	10A	05-0330
0.315mm	30	9A	05-0335
0.28mm	32	7.5A	05-0340
0.25mm	34	6.6A	05-0350
0.15mm	38	3A	05-0360

SWG	Length (m)	Order code	1+	10+
14	17	05-0295	14.33	
16	27	05-0300	15.26	12.58
18	48	05-0305	15.26	12.58
20	66	05-0310	15.26	12.58
22	140	05-0315	15.26	12.58
24	230	05-0320	15.26	
26	340	05-0325	15.26	
28	490	05-0330	15.26	
30	780	05-0335	15.26	
32	914	05-0340	15.52	
34	1285	05-0350	16.48	
38	3182	05-0360	17.10	

062485

UNISTRAND cable

Copper/nickel Alloy Wire

A range of copper/nickel alloy wire (also known as Constantan)

- Suitable for winding resistance coils
- Wire not insulated
- Supplied in lengths of 228m approx.
- Supplied on reels of 125g



Type	Order code	1+	10+
16SWG	05-0400	16.56	13.64
20SWG	05-0405	16.56	
28SWG	05-0407	16.56	
30SWG	05-0410	16.56	
32SWG	05-0415	16.56	
34SWG	05-0420	16.56	
36SWG	05-0425	16.56	

062486

UNISTRAND cable

Enamelled Copper Wire

A wide range of enamelled copper wire for winding transformers and coils, etc.

- Supplied on reels of 500g



Warning: This product contains modified polyurethane.

SWG	Approx. length (m)	Order code	1+	10+
35/36	1850	05-0200	14.42	11.90
34/35	1450	05-0205	14.42	
34	1250	05-0207	14.42	
33	1120	05-0210	14.42	
30	720	05-0215	14.42	11.90
27	450	05-0220	14.42	11.90
25	290	05-0225	14.42	
24	230	05-0230	14.42	11.90
22	140	05-0235	14.42	
20	100	05-0240	14.42	
18	45	05-0245	13.82	
16	28	05-0250	13.82	

062484

UNISTRAND cable

Nichrome Wire

This nichrome wire is ideal for use in applications requiring a heating element and can be used for ignition in applications such as fireworks and pyrotechnics.

- Suitable for producing heating elements
- Weight of reels 125g
- Please see technical specification for reel lengths



SWG	dia. (mm)	Reel length	Order code	1+
14	2.01	4.5m	05-0490	18.64
16	1.62	7.0m	05-0495	18.64
18	1.22	11.5m	05-0500	17.99
20	0.91	22.0m	05-0505	17.99
22	0.71	35.0m	05-0510	17.99
24	0.56	57.0m	05-0515	17.99
26	0.46	88.0m	05-0520	17.99
28	0.38	127.0m	05-0525	17.99
30	0.32	180.0m	05-0530	17.99
32	0.27	228.0m	05-0535	17.99

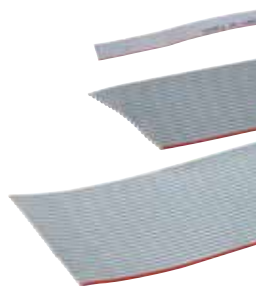
062487

Rapid

Ribbon Cable

Ribbon cable in grey colour for use with all styles of IDC connectors.

- Consists of parallel stranded tinned copper wire conductors laminated between layers of PVC film to form a flat ribbon cable
- May be split into individual cores
- Conductor spacing 0.05in
- Red identification band
- Fully UL approved to style UL2651 (grey) and UL2834 (rainbow)
- Rated 105°C, 300V AC, horizontal flame
- Supplied on reels of 30m



Technical specification

Conductor	7/0.127mm tin plated copper (28AWG)
Conductor rating	1A 300V per conductor
Pitch	0.05in (1.27mm)
Conductor resistance	235Ω/Km (max.)
Capacitance	46pF/m
Temperature range	-20°C to +105°C

Type	Order code	1+
9-way	01-0166	14.03
14-way	01-0171	6.50
20-way	01-0177	8.64
26-way	01-0182	22.95
34-way	01-0187	27.79
40-way	01-0192	34.87

062359



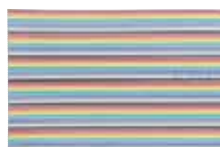
3583 Coloured Ribbon Cable

This range of top quality multi-coloured ribbon cable from Alpha Wire is available with a variety of ways.

Rapid can offer access to the complete Alpha Wire catalogue - so even if we do not stock the product or line you need, we can order and despatch it for you. All lines are available on short lead times.

Find out more by visiting www.rapidonline.com/alphawire

- Ideal for conserving space.
- Suitable for computer chassis to connect a PC board to CD-ROMs and hard drives etc.
- Supplied on reels of 30.5m



Technical specification

Operating Temperature	-20°C to 105°C
Voltage Rating	300V
Color Description	Brown, red, orange, yellow, green, blue, violet, grey, white, black, repeats beyond 10 conductors
Conductor	Stranded tinned copper on 1.27mm centres
Insulation	Thermally bonded PVC with clear PVC covering
Capacitance	45.9pF/m at 1MHz
Propagation Delay	4.6 ns/m-0.18 ns) rise time pulse at 1MHz
Impedance	10[+5%]-12, Nom
Crosstalk	Near end 3.2%
(3.05m @ 1ns)	Far end 11.5%
Applications	PC board to PC board interconnects where space is a premium, where a high degree of flexibility is required.
Transmission Characteristics	Ground-signal
Approvals	UL AWM Style 2651

Alpha part No	No. of conductors	Nominal Width (mm)	Nominal span (mm)
3583/9	9	11.43	10.16
3583/10	10	12.7	11.43
3583/14	14	17.78	16.51
3583/15	15	19.05	17.78
3583/16	16	20.32	19.05
3583/20	20	25.4	24.13
3583/24	24	30.48	29.21
3583/34	34	43.18	41.91
3583/37	37	46.99	45.72
3583/40	40	50.8	49.53
3583/50	50	63.5	62.23
3583/60	60	76.2	74.93

Type	Order code	1+	5+	10+
9-way	01-1460	57.38	53.79	
10-way	01-1461	60.64	56.15	
14-way	01-5455	85.10	79.79	
15-way	01-1463	90.90	85.52	78.94
16-way	01-1464	97.20	90.90	84.20
20-way	01-1465	113.71	107.10	
24-way	01-1466	132.90	128.90	
34-way	01-1469	186.50	180.90	175.50
37-way	01-5456	190.80	180.90	172.80
40-way	01-1471	212.61	197.10	188.60
50-way	01-1472	263.19	243.90	233.42
60-way	01-1473	329.30	319.40	309.80
64-way	01-1474	330.30	312.30	298.84

071075

UNISTRAND cable

3-Core Silicone Cable - Reels of 50m

3-core silicone cable with a silicone rubber insulation.

- Silicone rubber sheathed to compound E12
- Intended for applications where the cable can be in contact with high temperatures such as soldering irons etc.
- Available in 0.5mm² and 1.0mm² sizes
- Conforms to BS6141 and BS6500
- Supplied in white
- Supplied on reels of 50m



Type	Order code	1+
0.5mm ² Silicone	01-3005	55.27
1.0mm ² Silicone	01-3007	57.33

062337

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UNISTRAND cable

3-core Mains Equipment Cable

Mains electric cable with round profile.

- Flexible PVC sheath
- Suitable for connection of electrical equipment and most light electrical applications
- **BS6500, VDE BSI** approved
- Supplied on **reels of 100m**

Technical specification

300V/500V H05VV-F3 13A						
CSA	Strands	Current	Overall Dia	Colour	Reel size	Order code
1.25mm ²	3x 40/0.2mm	13.0A max	7.8mm	black	100m	01-0282
1.25mm ²	3x 40/0.2mm	13.0A max	7.8mm	white	100m	01-0284

1.25mm ²	3x 40/0.25mm	15.0A max	7.6mm	white	100m	01-0284
300V/500V H05VV-F3 15A						
CSA	Strands	Current	Overall Dia	Colour	Reel size	Order code
1.5mm ²	3x 30/0.25mm	15.0A max	8.7mm	white	100m	01-0278

Type	Colour	Order code	1+	5+
100m 13A	Black	01-0282	110.33	106.77
100m 13A	White	01-0284	84.28	81.40
100m 15A	White	01-0278	55.00	

UNISTRAND cable

Black Weather Resistant Cable Ties

These black cable ties are ideally suited for any outdoor application.

- Weather-resistant ties have Carbonate A
- Offers UV resistance
- Fastens wires, cables and hose
- One-piece construction for consistent performance and reliability
- High strength and low thread force
- For outdoor use
- Supplied in **packs of 100**
- 100mm cable ties also available in **packs of 1000**, order code **04-0725**

Technical specification

Normal service temperature range:	-40°C to +85°C
Flammability rating:	UL 94V-2
Heat stabilized nylon Specification	Service temperature 135°C
Order code	Dimensions (L x W)
04-0636	100 x 2.5mm
04-0637	150 x 3.6mm
04-0638	200 x 4.6mm
04-0639	292 x 3.6mm
04-0640	368 x 4.8mm
04-0725	100 x 2.5mm

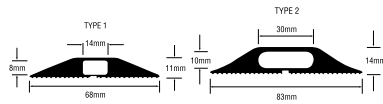
Length	Pack size	Order code	1+	10+	50+
100mm	100	04-0636	0.621	0.536	0.466
150mm	100	04-0637	1.65	1.45	1.30
200mm	100	04-0638	2.55	2.04	1.76
292mm	100	04-0639	3.88	3.50	3.40
368mm	100	04-0640	5.11	4.72	4.24
100mm	1000	04-0725	4.91	4.41	4.00



High Visibility Cable Protectors

A range of high visibility cable protectors manufactured from a special compound.

- Elastomer rubber is flexible, rugged and hard wearing
- Eye catching warning stripe along each side of the profile
- Enhances safety at work by preventing accidents caused by loose cables
- Ideal solution for trailing cables
- Low lying profile geometry with a unique 'snap open' feature for fast and simple installation
- Housing suitable for one or more cables
- Easily relaid as required
- Produced from a flame retardant compound to **BS476 Part 7 Class 3** and European equivalent **DIN 4102 Part 1 and Class B1**
- Tested for non-conductivity to **BS903-C5 500V**, and UV stabilised for extended life
- Supplied in **lengths of 3m**



Technical specification

Technical specification					
Type	Profile	Colour	Warning	Dimension	Order code
HAZ/1	Type 1	Black, yellow stripe	Hazard	14 x 8mm	04-0800
HAZ/2	Type 2	Black, yellow stripe	Hazard	30 x 10mm	04-0802
Type	Order code		1+	3+	
HAZ/1 Black/yellow 3m	04-0800		29.16	27.39	
HAZ/2 Black/yellow 3m	04-0802		39.45	36.49	

Rapid education

We bring STEM to life

UNISTRAND cable

2:1 Heat Shrinkable Sleeving 25m Reels

Available in a wide range of sizes.

- Excellent flame retardant properties
- Excellent flexibility and insulation
- Thermally stabilised flame retardant polyolefin
- 2:1 shrink ratio
- Temperature range -55°C to +125°C
- Shrinking temperature starts at +70°C and totally shrunk at 115°C
- Available in black (for other colours see order code **03-0351**)
- Sizes quoted before shrinking
- Supplied on **reels of 25m**
- **UL224** approved

Type	Order code	1+	5+	10+
1.6mm Black	03-0340	5.45	4.90	4.36
2.4mm Black	03-0341	6.95	6.26	5.55
3.2mm Black	03-0342	7.50	6.76	6.01
4.8mm Black	03-0343	7.98	7.18	6.37
6.3mm Black	03-0344	9.31	8.40	7.45
9.5mm Black	03-0345	11.58	10.42	9.19
12.7mm Black	03-0346	13.08	11.73	10.42
19.1mm Black	03-0347	19.19	17.29	15.35
25.4mm Black	03-0348	23.18	20.88	18.56
38.1mm Black	03-0349	44.20	41.71	40.19
50.8mm Black	03-0350	51.92	48.98	47.16

Shrinktek Heat Shrink Sleeving



A highly flexible, polyolefin tubing supplied on small boxed reels for convenient storage and ease of use.

- Shrink ratio 2:1
- Operating temperature +105°C
- Shrink temperature +100°C
- Resistant to fuel and oils
- Suitable for a wide range of uses including military and professional electronics, and industrial electronics manufacturing
- Applications include insulation, marking, strain relieving, building of wire bundles, colour coding and identification and mechanical protection
- Dielectric strength 20kV/mm
- Flame retardant to **UL224**
- Sizes quoted before shrinking
- Available in black, clear, red, yellow, blue, white, green and brown

Please note: The un-shrunk size may vary, but it does not affect the shrunk size.

Technical specification			
Bore size (mm)	Shrunk (mm)	Bore size (mm)	Shrunk (mm)
1.2	0.6	6.4	3.2
1.6	0.8	9.5	4.75
2.4	1.2	12.7	6.35
3.2	1.6	19	9.5
4.8	2.4	25.4	12.7

UNISTRAND cable

Speaker Wire on 100m Reels

A flexible twin cable having a 'figure 8' shape.

- Ideal for speaker connection
- 7/0.2mm copper conductor
- Rating 60V rms 1A
- Overall size 4x 1.6mm
- Grey colour with polarity marking
- Supplied on **reels of 100m**

Type	Order code	1+	10+
100m Reel speaker cable	01-0162	12.53	10.01

Cable Management

UNISTRAND cable

Canister Packed Cable Ties

Assorted cable ties in a variety of colours and sizes conveniently packed in a plastic canister.

- Manufactured from Nylon 6.6
- Flame retardant to **UL94V2**
- Four different packs available



Technical specification

Order Code	Type	Length	Qty	Colour
04-0430	Canister 1	100mm	1000	1000x various mixed colours
04-0432	Canister 2	100mm	200	100x natural, 25x red, 25x yellow, 25x blue, 25x black
		140mm	200	100x natural, 100x black
		180mm	100	50x natural, 50x black
04-0434	Canister 3	100mm	200	100x natural, 25x red, 25x blue, 25x yellow, 25x green
		200mm	100	50x natural, 25x red, 25x blue
04-0436	Canister 4	100mm	300	100x red 100x blue, 100x green
		200mm	100	100x natural

Type	Order code	1+
Canister 1 1000	04-0430	8.06
Canister 2 500	04-0432	7.85
Canister 3 300	04-0434	3.95
Canister 4 300	04-0436	4.71

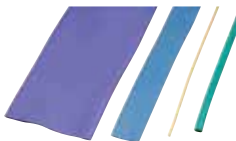
Type	Size	Order code	1+	5+
1.2mm Black	12m reel	03-0240	6.58	5.81
1.6mm Black	12m reel	03-0250	6.58	5.81
2.4mm Black	11m reel	03-0260	6.58	5.81
3.2mm Black	11m reel	03-0270	6.58	5.81
4.8mm Black	10m reel	03-0280	6.58	5.81
6.4mm Black	9m reel	03-0290	6.58	5.81
9.5mm Black	8m reel	03-0301	6.58	5.81
12.7mm Black	7m reel	03-0241	6.58	
19.0mm Black	5m reel	03-0251	6.58	5.81
25.4mm Black	3.5m reel	03-0261	6.58	5.81
1.2mm Clear	12m reel	03-0271	6.58	
1.6mm Clear	12m reel	03-0281	6.58	
2.4mm Clear	11m reel	03-0291	6.58	
3.2mm Clear	11m reel	03-0302	6.58	
4.8mm Clear	9m reel	03-0252	6.58	5.81
9.5mm Clear	8m reel	03-0262	5.60	
12.7mm Clear	7m reel	03-0272	5.60	
19.0mm Clear	5m reel	03-0282	6.58	
25.4mm Clear	3.5m reel	03-0292	6.58	
1.2mm Red	12m reel	03-0303	6.58	
1.6mm Red	12m reel	03-0243	6.58	
2.4mm Red	11m reel	03-0253	6.58	5.81
3.2mm Red	11m reel	03-0263	6.58	
4.8mm Red	10m reel	03-0273	6.58	
6.4mm Red	9m reel	03-0283	6.58	5.81
12.7mm Red	7m reel	03-0304	6.58	
19.0mm Red	5m reel	03-0244	6.58	
2.4mm Yellow	11m reel	03-0284	6.58	
3.2mm Yellow	11m reel	03-0294	6.58	
4.8mm Yellow	10m reel	03-0306	6.58	5.81
6.4mm Yellow	9m reel	03-0245	6.58	5.81
9.5mm Yellow	8m reel	03-0255	5.22	4.83
12.7mm Yellow	7m reel	03-0265	6.02	5.31
1.2mm Blue	12m reel	03-0295	5.84	5.16
2.4mm Blue	11m reel	03-0246	4.83	4.47
3.2mm Blue	11m reel	03-0256	6.58	
4.8mm Blue	10m reel	03-0266	6.58	5.81
9.5mm Blue	8m reel	03-0286	6.58	5.81
12.7mm Blue	7m reel	03-0296	6.58	
25.5mm Blue	3.5m reel	03-0247	6.38	5.64
1.2mm White	12m reel	03-0257	6.02	5.31
1.6mm White	12m reel	03-0267	6.58	
4.8mm White	10m reel	03-0297	6.02	
6.4mm White	9m reel	03-0309	6.58	
12.7mm White	7m reel	03-0258	6.58	5.81
19.0mm White	5m reel	03-0268	6.58	
1.2mm Green	12m reel	03-0288	5.03	4.66
1.6mm Green	12m reel	03-0298	6.58	
2.4mm Green	11m reel	03-0311	6.13	5.42
3.2mm Green	11m reel	03-0249	6.02	5.31
9.5mm Green	8m reel	03-0279	5.43	5.03
12.7mm Green	7m reel	03-0289	6.58	5.81
25.4mm Green	3.5m reel	03-0312	6.58	
3.2mm Brown	11m reel	03-0317	6.58	
6.4mm Brown	9m reel	03-0319	6.58	5.81
9.5mm Brown	7m reel	03-0321	6.58	5.81
12.7mm Brown	6m reel	03-0322	5.54	5.19
19.0mm Brown	5m reel	03-0323	6.02	5.31

UNISTRAND cable

2:1 Heat Shrinkable Sleeving 25m Reels

Flame retardant heat shrinkable sleeving with 2:1 shrink ratio. Available in a wide range of colours and sizes.

- Excellent flame retardant properties
- Excellent flexibility and insulation
- Thermally stabilised flame retardant polyolefin
- 2:1 shrink ratio
- Temperature range -55°C to +125°C
- Shrinking temperature starts at +70°C and totally shrunk at 115°C
- Available in red, yellow, green, clear, blue, grey, purple and white
- Supplied on **reels of 25m**



Type	Order code	1+	5+	10+
Red				
1.6mm Red	03-0351	6.68	6.01	
2.4mm Red	03-0352	6.82	6.14	5.46
3.2mm Red	03-0353	7.37	6.64	
6.3mm Red	03-0355	9.15	8.24	
9.5mm Red	03-0356	11.37	10.24	
12.7mm Red	03-0357	12.85	11.52	
19.1mm Red	03-0358	18.84	16.97	
38.1mm Red	03-0360	22.63		
Yellow				
2.4mm Yellow	03-0363	6.82	6.14	
3.2mm Yellow	03-0364	7.37	6.64	
4.8mm Yellow	03-0365	7.83	7.06	
6.3mm Yellow	03-0366	9.15	8.24	
9.5mm Yellow	03-0367	11.37	10.24	
12.7mm Yellow	03-0368	12.85	11.52	
Green				
4.8mm Green	03-0376	7.83	7.06	
Clear				
1.6mm Clear	03-0384	5.35	4.81	
3.2mm Clear	03-0386	7.37	6.64	
4.8mm Clear	03-0387	7.83	7.06	
6.3mm Clear	03-0388	9.15	8.24	
9.5mm Clear	03-0389	11.37	10.24	9.11
12.7mm Clear	03-0390	12.85	11.52	
19.1mm Clear	03-0391	18.84	16.97	
25.4mm Clear	03-0392	22.74	20.50	
38.1mm Clear	03-0393	61.20	54.41	
50.8mm Clear	03-0394	71.75	63.82	
Blue				
3.2mm Blue	03-0397	7.37	6.64	
4.8mm Blue	03-0398	7.83	7.06	
6.3mm Blue	03-0399	9.15	8.24	
19.1mm Blue	03-0452	18.84	16.97	
25.4mm Blue	03-0453	22.74	20.50	
Grey				
2.4mm Grey	03-0457	3.74		
3.2mm Grey	03-0458	7.37	6.64	
12.7mm Grey	03-0462	12.85	11.52	
Purple				
4.8mm Purple	03-0470	3.14		
White				
2.4mm White	03-0479	6.82	6.14	
3.2mm White	03-0480	7.37	6.64	
4.8mm White	03-0481	7.83	7.06	
6.3mm White	03-0482	9.15	8.24	
9.5mm White	03-0483	11.37	10.24	
12.7mm White	03-0484	2.65		
25.4mm White	03-0486	22.74	20.50	

UNISTRAND cable

3:1 Heat Shrink Sleeving, 25m Reels

This heat shrink sleeving has excellent flame retardant properties, flexibility and insulation.

- Thermally stabilised flame retardant polyolefin material
- 3:1 shrink ratio
- Temperature range -55°C to +125°C
- Shrinking temperature starts at +70°C and totally shrunk at +115°C
- Sizes quoted before shrinking
- Supplied on **reels of 25m**
- **UL224** approved



Type	Order code	1+	5+
1.5mm Black	03-0489	7.10	6.79
3mm Black	03-0490	10.65	10.16
6mm Black	03-0491	17.72	16.71
9mm Black	03-0492	33.73	31.82
12mm Black	03-0493	38.65	36.38
18mm Black	03-0494	47.01	44.34
24mm Black	03-0495	65.07	61.39
6mm Red	03-0702	18.12	17.10

Shrinktek

3:1 Heat Shrinkable Sleeving

A range of general purpose, black, flexible polyolefin heat shrink tubing.



- Shrink ratio of 3:1 when heated above +125°C
- Operating temperature -75°C to +135°C
- Suitable for a wide range of uses including military and professional electronics, and industrial electronics manufacturing
- Applications include insulation, marking, strain relieving, building of wire bundles, colour coding, identification and mechanical protection
- Dielectric strength 25kV/mm
- All sizes quoted before shrinking
- Supplied in **lengths of 1.2m**

Technical specification

Order code	Mfrs Part No.	Bore size	Shrunk dia.
03-1100	SP3X 1.5 BLK	1.5mm	0.5mm
03-1105	SP3X 3 BLK	3.0mm	1.0mm
03-1110	SP3X 6 BLK	6.0mm	2.0mm
03-1115	SP3X 9 BLK	9.0mm	3.0mm
03-1120	SP3X 12 BLK	12.0mm	4.0mm
03-1125	SP3X 18 BLK	18.0mm	6.0mm
03-1130	SP3X 24 BLK	24.0mm	8.0mm

Bore size	Shrunk dia.	Order code	1+	25+	100+
1.5mm	0.5mm	03-1100	0.854	0.698	
3.0mm	1.0mm	03-1105	0.835	0.716	0.596
6.0mm	2.0mm	03-1110	1.52	1.24	1.06
9.0mm	3.0mm	03-1115	1.63	1.39	
12.0mm	4.0mm	03-1120	1.91	1.55	1.30
18.0mm	6.0mm	03-1125	2.91	2.26	
24.0mm	8.0mm	03-1130	3.82	2.91	

Extension Cables

brennenstuhl®

Energy Cube

A double sided, height adjustable, hanging extension reel.

- 6x 240V socket outlets (3 each side)
- Galvanised steel hanging chain (3m)
- Housing made from break resistant plastic
- Rated 13A
- Supplied with **cable length of 5m**



Type	Order code	1+
Energy cube	23-0220	30.00

14m Extension Cable 240V

brennenstuhl®

Only

£13.48

Order code 23-0746

For full details visit www.rapidonline.com





Low Temperature 10m Extension Reel

A 10m mains cassette cable reel fitted with four UK mains sockets and a UK plug fused at 13A.

- Super flexible cable
- Thermal cut out and reset button
- Tough fused 13A plug to **BS1363/A**
- 10A maximum load
- 240V AC
- Four outlet sockets
- Suitable for use down to -20°C
- Smooth winding action
- Easy grip recess and handle for effortless winding
- Complies to all relevant British Standards
- Guaranteed for 25 years against materials and workmanship
- Manufactured to **BSEN61242**
- **CE** approved



Technical specification

Fully wound 720W
Fully un-wound 2400W

Type	Order code	1+
Extension reel	23-0233	17.31

017470



Automatic Cable Reel, 9+2m/ 16+2m



This range of **Brennenstuhl Wall and Ceiling Mountable Cable Reels**, are ideal for **Garage and Workshop use**. They feature an easy to use automatic cable rewind function. This makes sure that the durable rubber-neoprene cable is safely stored inside the plastic outer casing, reducing the risk of damage to the cable and preventing the cable becoming a potential trip hazard.

The automatic cable reel is suitable for use in dry interior rooms.

- Automatic cable reel
- Convenient automatic rewind
- Ideal for fitting on walls and ceilings
- Slewable up to 180°
- Robust plastic housing
- Safety cut-out
- Childproof socket
- Cable quality: Rubber-Neoprene
- Body colour: **Yellow**
- Cable colour: **Black**
- Available in **240 and 110V power options**
- Available with cable length of **16+2m and 9+2m**

Type	Order code	1+
Cable reel 16+2m 110V	23-1343	74.97
Cable reel 16+2m 240V	23-1344	75.44
Cable reel 9+2m 240V	23-1345	42.83

539862

Rapid
...where price meets quality



13A Mains Extension Reels

A range of compact, handy extension cable reels ideal for home, office and DIY.

- 5 or 15m cable lengths
- Three 13A, 240V sockets with self-closing covers
- Maximum overall current rating 13A
- Safety cut-out
- Colour: blue
- Housing made of break-resistant plastic
- Practical carrying handle
- Twin feet for excellent stability
- Easy to unwind and rewind
- Compact, handy cable reel for home, office and DIY
- **Brennenstuhl Vario Line series**



Cable length	Order code	1+
5m	23-0215	12.54
15m	23-0217	19.85

067933



Retractable Cable Reel System 10m 2 x 230V Socket

Hard wearing, composite cased, retracting electric cable reel operated by simple pull and release action. Features integral manual thermal trip switch to prevent overload. Double socket outlet with individual LED power indicators and rocker on/off switches.

This socket is wall-mountable.

- Hard wearing, composite cased, retracting electric cable reel operated by simple pull and release action.
- Features integral manual thermal trip switch to prevent overload.
- Double socket outlet with individual LED power indicators and rocker on/off switches.
- Model No. CRM10



Technical specification

Voltage: 230V
Cable Length: 10mtr
Cable Section: 3 x 1.5mm²
Thermal Trip: Yes
Capacity Wound: 1000W
Capacity Unwound: 2750W

Type	Order code	1+
Cable Reel System	89-1635	57.76

302047



4-Way Extension Sockets with Neon Indicator, White 2m/5m

These **White 4-Way Extension Sockets with Neon Indicator 2m/5m 05VV-F361.25 GB**

from **Brennenstuhl** feature a neon indicator and have been manufactured with highly impact-resistant special plastic in an attractive design, making it ideal for the home, DIY and office. Equipped with an extra long 5m cable and mounting facilities for wall installation.

- Stylish white design
- Neon indicator
- 27cm housing length
- 2m or 5m cable lengths



Cable length	Order code	1+
2m	23-0644	4.27
5m	23-0645	5.98

533039



Premium Line Technics Extension Sockets



These black/grey extension sockets from Brennenstuhl are manufactured from break-resistant plastic, making them ideal for the home, office and school.

Equipped with an illuminated 2-pole switch with protection cover, widely spaced sockets and mounting facilities for wall installation.

- Stylish black/grey design
- Child-proof sockets
- Excess cable can also be wound around housing
- 3m cable length
- 13A nominal current

No. of sockets	Cable length	Order code	1+
6	3m	23-0663	13.37
12	3m	23-0661	21.82

533047



2-Way Trailing Extension Lead

A high quality extension lead.

- 240V AC 13A
- Fitted with 3m of cable
- All sockets are shuttered with the main body of the socket sealed for extra safety
- **BS1363/A** and **CE** approved



Type	Order code	1+	5+
3m Extension lead	23-0509	6.52	5.97

072001

USB Connectors



Micro USB to USB Cables

These USB 2.0 cables from Cable Power are ideal for connecting a range of devices which have a Micro USB connection. They are available in a choice of black or beige colour in 1.8m lengths and in black in 3m lengths.

- Ideal as a charger for a mobile phone with Micro USB charging dock
- USB A to Micros USB cable
- USB 2.0 specification



Cable length	Colour	Order code	1+
1.8m	Black	19-9314	2.16
1.8m	Beige	19-9316	3.30
3m	Black	19-9315	4.40

530506



USB2 Cables

A range of USB 2.0 leads and cables for connecting peripheral devices such as printers to PCs.

- Data transfer rate of 480Mb/s



- Backwards compatible with USB 1.1 devices
- Cables with LEDs can be used to check connections
- On-the-go (OTG) cables can connect two devices without needing to go via a PC
- Available in different lengths and with male or female connectors

Technical specification

Order code	Mfrs Part No.	Connectors	Length	Colour
19-8660	USB2-102	A male to B male	2m	Beige
19-8662	USB2-103	A male to B male	3m	Beige
19-8663	CDL-103	A male to B male	3m	Black
19-8664	USB2-105	A male to B male	5m	Grey
19-8665	USB2-105K	A male to B male	5m	Black
45-4006	USB2-022	A male to A female	2m	Beige
45-4008	USB2-023	A male to A female	3m	Beige
45-4010	USB2-024	A male to A female	5m	Beige
45-4021	USB2-062K	A male to mini B male	2m	Black
45-4012	USB2-062	A male to mini B male	2m	Beige
45-4016	USB2-012	A male to A male	2m	Beige
45-4017	USB2-012	A male to A male	2m	Black
45-4018	USB2-013	A male to A male	3m	Beige
45-4020	USB2-015	A male to A male	5m	Beige

Type	Order code	1+	10+	50+
AM to BM 2m	Beige 19-8660	3.16	2.93	2.15
AM to BM 3m	Beige 19-8662	3.48	3.09	1.50
AM to BM 3m	Black 19-8663	1.41	1.24	1.13
AM to BM 5m	Grey 19-8664	4.76	4.24	2.76
AM to BM 5m	Black 19-8665	4.69	4.19	
AM to AF 2m	Beige 45-4006	2.38	2.19	1.30
AM to AF 3m	Beige 45-4008	3.19	2.94	
AM to AF 5m	Beige 45-4010	3.85	3.43	2.25
AM to Mini BM 2m	Black 45-4021	3.43	3.29	1.98
AM to Mini BM 2m	Beige 45-4012	2.37	2.20	1.35
AM to AM 2m	Beige 45-4016	2.97	2.72	1.64
AM to AM 2m	Black 45-4017	1.87	1.72	1.03
AM to AM 3m	Beige 45-4018	4.72	4.37	
AM to AM 5m	Beige 45-4020	5.41	4.86	



USB 2.0 Type A to Micro B Cable – 1m

A USB 2.0 type A to micro B data cable for connecting devices such as mobile phones and digital cameras equipped with a micro USB port. Suitable for use with BBC Micro:bit



- Length 1m
- Colour: black

Type	Order code	1+
USB A to micro B, 1m	45-4009	0.94



USB A Type Male Solder Kit

This self assemble USB kit will enable you to customise and construct your own USB leads to the length required.

- Housing materials: PBT+30% G.F(UL 94 V-0)
- Contact materials: copper alloy
- Shell materials: steel



Technical specification

Contact current rating:	1.5A max. per pin
Voltage rating:	30V (DC)
Contact resistance:	30mΩ max.
Dielectric withstanding voltage:	500V AC(rms) for 1 minute
Insulation resistance:	100MΩ min.
Operating temperature:	0°C to +50°C

Type	Order code	5+	10+	100+
USB A-type solder kit	24-0351	0.233	0.163	0.107



USB 2.0 Cables



Standard USB 2.0 plug to plug leads, suitable for connection of printers, hubs, audio devices, etc., to a PC.

- Black coloured cable
- Cable diameter 4.3mm
- Cable type 4x0.15mm CCA + 32x0.10 CCA Braid, Cotton Reinforced
- Available in A to A and A to B options
- Length 1.5m

Type	Order code	1+
USB cable A-A 1.5m	35-4758	1.22
USB cable A-B 1.5m	35-4757	1.25

Audio Connectors



PCB Jack Sockets (Stereo & Mono)

Switched PCB mounting 3.5mm jack sockets in either stereo or mono.

- Stereo and mono versions available
- Chrome plated trim
- Both circuits switched
- Also suitable for GENIE and PICAXE download circuits



Type	Order code	10+	100+	500+
3.5mm Stereo PCB skt	20-0137	0.157	0.105	0.098
3.5mm Mono PCB skt	20-0138	0.145	0.101	0.088



3.5mm Stereo Jack Plug to 3.5mm Stereo Jack Plug Leads



3.5mm stereo plug to plug leads with screened audio cable.

Ideal for connecting MP3, laptop or personal CD players to speakers or Hi-Fi.

- Nickel plated connectors
- Quality materials
- Moulded strain relief
- Available in lengths of 1.2, 3 and 6m

Technical specification

Order code	Mfrs Part No.	Type
35-4474	A117A	3.5mm stereo to 3.5mm stereo 1.2m
35-4475	112.038UK	3.5mm stereo to 3.5mm stereo 3m
35-4476	112.040UK	3.5mm stereo to 3.5mm stereo 6m

Length	Order code	1+
1.2m	35-4474	0.571
3m	35-4475	1.56
6m	35-4476	1.23



Jack and Audio Leads

Common jack leads.

- Employing moulded construction



Technical specification

3.5mm stereo plug to 3.5mm stereo socket	3m	20-0030
3.5mm stereo plug to 3.5mm stereo plug	1.2m	20-0040
3.5mm Stereo plug to bare wires	1.5m	20-0041

Type	Order code	1+	10+	50+	100+
3.5 Stereo plug/skt	20-0030	1.52	1.26	0.899	0.81
3.5 Stereo plug/plug	20-0040	1.26	1.08	0.882	0.732
3.5 Stereo/bare wire	20-0041	1.01	0.882	0.702	0.575

Power Connectors



DC Power Sockets

These DC power sockets are supplied with 2.1 or 2.5mm central pins.



- Panel mounting
- Supplied with washer and hexagonal fixing nut
- Contact rating 1A 16V DC
- Switched

Type	Order code	1+	100+	500+
2.1mm Panel power socket	20-1094	0.815	0.665	0.589
2.5mm Panel power socket	20-1096	0.815	0.665	



DC Power Socket for Panel 12.6mm Cut-out

High quality chassis mounting DC socket.



- Flush mounting with single hole fixing
- Supplied with hexagonal fixing nut
- Integral break switch on outer contact
- Suitable for panel thickness up to 4.5mm
- Panel cut-out 12.6mm
- Overall dimensions: bezel diameter 14mm, length 15.7mm

Type	Order code	5+	100+	500+
2.1mm Power socket	20-0980	0.747	0.60	0.558
2.5mm Power socket	20-0985	0.802	0.639	



Moulded DC Power Extension Leads



Extension leads for use with DC power applications.

- DC plug to DC socket
- Polarity marked figure-of-8 cable
- Pin length 10mm
- Max. current 3A
- 140Ω per Km
- 14/0.12 bare copper
- Supplied in lengths of 5m

Type	Order code	1+	10+	50+
2.1mm DC Extension	20-1080	2.50	1.76	1.56
2.5mm DC Extension	20-1082	2.50	1.76	1.56

Free Delivery*

on all orders over £30 (excl. VAT)
(UK mainland only)

* See Terms & Conditions for full details - www.rapidonline.com/terms

RVFM

Chassis Mounting Single Hole Fixing DC Power Socket

High quality chassis mounting DC sockets for 2.1 and 2.5mm power plugs.



- Flush mounting with single hole fixing
- Supplied with hexagonal fixing nut
- Integral break switch on outer contact
- Suitable for panel thickness up to 8mm
- Panel cut-out 12.6mm
- Rating: 1A 12V
- Overall dimensions: bezel diameter 14.8mm, length 18mm

Technical specification

Contact:	Tin plated brass
Rating:	1A 12V
Nut:	Nickel plated brass
Cover:	PCB
Pin:	Nickel plated brass
Spring:	Tin plated phosphor bronze
Housing:	PBT

MOQ 5 - In Multiples of 5

Type	Order code	5+	100+	500+
2.1mm Chassis Single hole	20-0988	0.424	0.285	0.246
2.5mm Chassis Single Hole	20-0989	0.424	0.285	0.246

400350

CLICK

13A Mains Plugs

Tough 13A white or black mains plugs.

- Fitted with 3A or 13A fuse
- Manufactured to BS1363/A
- Suitable for industrial, commercial or educational environments



Type	Order code	1+	20+	100+
3A White	23-0305	1.86	1.58	1.48
3A Black	23-0310	1.63	1.38	1.30
13A White	23-0315	1.63	1.38	
13A Black	23-0325	1.86	1.58	1.48

063619

CLICK

13A Transparent Clear Fast Fit Plug

Transparent 250V 13A mains plugs.

- Fitted with 13A fuse
- Plugs can be readily safety checked without dismantling
- Suitable for industrial, commercial or education environments
- BS1363/A approved



Type	Order code	1+	20+	100+
Clear	23-0342	1.80	1.75	1.69

071521

TruConnect

13A Plug to Dual IEC Cordsets

A mains power cord comprising of a moulded 13A plug, fused at 13A, terminating in two moulded IEC straight sockets.

- Ideal for PCs and monitors
- BS1363/A, VDE and KEMA approved
- Supplied in lengths of 2m



Type	Order code	1+	25+	100+
Dual IEC lead	23-6455	3.07	2.82	2.67

072089

IC Sockets

TruConnect

DIL IC Sockets



A range of high quality, dual-in-line narrow sockets with black thermoplastic bodies and tin-plated copper alloy contacts. The sockets may be mounted end to end to achieve longer continuous runs. Sockets have chamfered side walls to assist insertion. One end is indented for easy identification of the polarisation.

Please note: All these products are supplied in tubes. For the actual number in a tube see the technical specification and price panel

- Ideal for production and replacement use
- PCB hole required: 0.6mm
- Overall height above PCB: 4.8mm
- UL94V-0 approved
- Available in 7.62mm (0.3in) pitch with 6, 8, 14, 16, 20, 24 and 28-pin options
- Available in 15.24mm (0.6in) 28, 32 and 40-pin options
- For tube sizes please see technical specification and price panel

Technical specification

Material	Thermoplastic alloy
Contacts	Copper
Storage temperature	-20°C to +70°C
Operating temperature	0°C to +85°C
Contact resistance	20mΩ
Insulation resistance	1000MΩ
Dielectric withstanding	500V AC one minute

Type	Order code	1+	10+	25+	100+
Tube 80 6pin, narrow 7.62mm	22-0106	2.02	1.14	1.05	
Tube 60 8pin, narrow 7.62mm	22-0107	1.66	1.02	0.899	0.818
Tube 34 14pin, narrow 7.62mm	22-0108	1.43	0.856	0.748	0.683
Tube 30 16pin narrow 7.62mm	22-0109	1.57	0.962	0.856	0.748
Tube 26 18pin, narrow 7.62mm	22-0110	1.49	0.91	0.803	0.71
Tube 24 20pin, narrow 7.62mm	22-0111	1.59	0.978	0.864	0.802
Tube 20 24pin, narrow 7.62mm	22-0112	1.57	0.928	0.825	
Tube 20 24pin, 15.24mm	22-0113	1.55	0.958	0.85	0.756
Tube 17 28pin, narrow 7.62mm	22-0114	1.58	0.967	0.864	0.774
Tube 17 28pin, 15.24mm	22-0115	1.58	0.967	0.864	0.774
Tube 15 32pin, 15.24mm	22-0116	1.52	0.903	0.80	
Tube 12 40pin, 15.24mm	22-0117	1.55	0.926	0.791	0.737

400861

TruConnect

DIL (Dual In Line) Turned Pin Sockets



A range of good quality DIL sockets with closed pins that accept round pin headers. The range includes both 7.62mm (0.3in) and 15.24mm (0.6in) pitch options. The pins been machine turned and the main body has been manufactured from Polybutylene terephthalate (PBT) with glass fibre.

- Closed pin design
- Contacts: Copper alloy
- Moulded in PBT with glass-filled flame retardant polyester
- Please see technical specification for more details
- Approved to UL 94 V-0

Technical specification

Electrical characteristics

Contact resistance:	20 milliohms max.
Dielectric withstanding voltage:	500V AC(rms) for 1 minute.
Insulation resistance:	1000 megaohms min.

Environment characteristics

Operating temperature:	0°C - +85°C
Storage temperature:	-20°C - +70°C

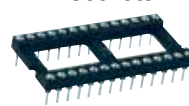
Type	Order code	1+	10+	25+	100+
8-pin 0.3in tube of 60	22-1757	6.60	5.55	4.95	
14-pin 0.3in tube of 34	22-1758	6.60	5.55	4.95	
16-pin 0.3in tube of 30	22-1759	6.60	5.55	4.95	
18-pin 0.3in tube of 26	22-1760	6.60	5.55	4.95	
20-pin 0.3in tube of 24	22-1761	6.60	5.55	4.95	
24-pin 0.3in tube of 20	22-1762	6.60	5.55	4.95	
28-pin 0.3in tube of 17	22-1763	6.60	5.55	4.95	
24-pin 0.6in tube of 20	22-1764	6.60	5.55	4.95	
28-pin 0.6in tube of 17	22-1765	6.60	5.55	4.95	
32-pin 0.6in tube of 15	22-1766	6.60	5.55	4.95	
40-pin 0.6in tube of 12	22-1767	6.60	5.55	4.95	4.47

062699

TruConnect

Low Profile Turned Pin DIL Sockets

Low profile high-quality machined contact DIL sockets. Each socket is fitted with gold-plated copper alloy contacts in a thermoplastic housing.



- Moulded in black glass-filled flame retardant polyester
- Height above PCB 4.3mm

Technical specification

Insulator material	Glass filled polyester
Contact material	Rated UL94V-0 4 finger gold plated beryllium copper Tin plated brass
Current rating	1A
Contact resistance	10mΩ max.
Insulation resistance	1 x 10 ⁹ Ω min.
Dielectric strength	1000V
Operating temperature	-55°C to +125°C

Type	Pitch	Order code	5+	50+	250+
8-pin	0.3in	22-1720	0.22	0.158	0.136
14-pin	0.3in	22-1721	0.526	0.399	0.319
16-pin	0.3in	22-1722	0.594	0.429	0.375
18-pin	0.3in	22-1723	0.683	0.501	0.399
20-pin	0.3in	22-1724	0.502	0.384	0.324
24-pin	0.3in	22-1725	0.594	0.453	
28-pin	0.3in	22-1726	0.697	0.56	0.444
24-pin	0.6in	22-1727	0.605	0.47	
28-pin	0.6in	22-1728	0.683	0.553	0.44
32-pin	0.6in	22-1729	0.801	0.583	0.521
40-pin	0.6in	22-1730	1.02	0.813	0.634

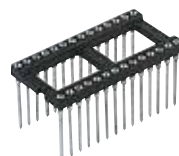
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TruConnect

Wirewrap Turned Pin DIL Sockets

Professional quality turned pin wirewrap sockets with 13mm tin plated brass terminations to allow three wraps per pin.

- Four finger gold plated (0.25 micron) inner contacts
- Technical specification as for low profile type 22-1720
- Moulded in black glass-filled flame retardant polyester
- Height above PCB 4.9mm
- Preci-dip type 123-87-3xx-41001 where xx is no of pins



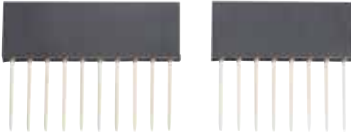
Type	Pitch	Order code	5+	50+	250+
8-pin	0.3in	22-1715	0.567	0.499	0.443
14-pin	0.3in	22-1716	0.762	0.676	
16-pin	0.3in	22-1717	1.05	0.976	
18-pin	0.3in	22-1718	1.26	1.08	0.967
28-pin	0.6in	22-1719	1.73	1.63	

063710

**No minimum order value
UK mainland only**



2.54mm Pitch Single Row Long Pin Female Headers



These TruConnect **Long Pin Headers** with 2.54mm pitch have gold-plated brass contacts for PCB connection. They are available with either 6, 8 or 10 pins in a single row. The longer pins means these headers can be used with more than one PCB at the same time.

- Pin length 10.9mm
- Terminal height 8.5mm
- Straight terminals
- Current rating 3A max.
- Contact resistance $\leq 20\text{m}\Omega$
- Operating temperature -55 to +105°C

MQQ 5 - In Multiples of 5					
Type	Order code	5+	50+	100+	250+
6-way	19-0272	0.319	0.281	0.261	0.234
8-way	19-0273	0.475	0.421	0.382	0.361
10-way	19-0274	0.543	0.49	0.448	

531293

Terminal Blocks



10A 3.5mm Terminal Blocks



If you mount terminal blocks on PCBs we can probably help you with our fine selection of terminal blocks. Rapid is pleased to offer you these 2, 3 and 5-way 3.5mm pitch vertical moulded types that are UL94V-0 approved.

Current carrying capacity of these pluggable terminal blocks is 10A per pole. They feature a tin-plated pin header and a Phosphor bronze wire guard. The terminals are housed in moulded green flame proof polyamide PA66.

- 3.5mm pitch
- Slotted screws
- Rated voltage 130V
- Rated current 10A
- Moulded housing in green flame retardant PA66
- Screws zinc plated steel
- Pin header tin plated brass
- Wire guard Phosphor bronze

Technical specification

Rated voltage	130V
Rated current	10A
Pitch	3.5mm
Screws	M2 slotted, zinc plated steel
Rated current at 130V	10A
Temperature rating	-40°C to +105°C
Housing	Moulded in green flame retardant PA66/UL94V-0
Wire guard	Phosphor bronze
Pin header	Tin plated brass
Strip length	5 - 6mm
Wire range	1.0mm ²
UL94V-0 and CSA approved	

MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
2-way terminal block	21-3000	0.155	0.103	0.09	0.074
3-way terminal block	21-3001	0.22	0.155	0.132	0.108
Type	Order code	5+	10+	25+	
5-way terminal block	21-3098	0.153	0.143	0.128	

082056

Order online

Save time, and place your order at:
www.rapidonline.com
 24 hours a day



16A Interlocking Terminal Blocks

These **5mm pitch** PCB terminal blocks from TruConnect interlock to give any number of connections.



- Current rating 16A
- Maximum voltage 300V
- Housing PBT (30% glass filled)
- Screw M2.6, steel, zinc plated
- 1.5mm² wire size

MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
2-way Black	21-0440	0.111	0.087	0.053	0.05
3-way Black	21-0442	0.155	0.104	0.079	0.064
5-way Black	21-0445	0.268	0.215	0.134	0.125

069014



16A Interlocking Terminal Blocks

Quality interlocking PCB terminal blocks on a standard 5mm pitch.



- 5mm pitch
- 16A rating
- Fitted with wire protectors
- Height of 10mm
- Low profile package
- Metway 650tds series

Technical specification

Current rating	16A
Conductor size	1.5mm ²
Moulding material	Grey polycarbonate (UL94V-0)
Wire protector material	Nickel plated bronze
Insert/pin material	Tinned brass
Height	10mm
Width	7.5mm
Operating temperature	+120°C max.
Approvals	UL

MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
2-way	21-0112	0.18	0.142	0.128	0.115
3-way	21-0114	0.276	0.219	0.201	0.18
4-way	21-0116	0.334	0.249	0.224	0.205
6-way	21-0118	0.491	0.399	0.346	
12-way	21-0120	0.933	0.756	0.666	

063813



16A Interlocking Terminal Blocks

High quality, low-cost PCB terminal blocks offering wide versatility in a low profile package.



- 16A rating
- Stainless steel wire protectors fitted
- Height 10mm
- 5mm pitch
- Camden CTB5200 series

Technical specification

Current rating	16A
Maximum voltage	380V AC
Clamp screw	M2.5 steel x5 zinc plated steel and colour passivated
Pin terminal	5µ tinned, nickel plated copper flesh brass
PCB hole size	1.3mm
Conductor acceptance	1.5mm ²
Colour	Black (UL94V-0 PA66)
Temperature range	-30°C to +125°C
Mfr. Part Nos.	2-way CTB5201/28K 3-way CTB5201/38K 4-way CTB5201/48K 6-way CTB5201/38K 12-way CTB5201/128K

MQQ 5 - In Multiples of 5					
Type	Length	Order code	5+	100+	500+
2-way	10mm	21-0461	0.164	0.134	0.099
3-way	15mm	21-0463	0.204	0.172	0.139
4-way	20mm	21-0465	0.231	0.162	0.144
6-way	15mm	21-0467	0.386	0.276	0.243

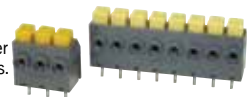
MQQ 25 - In Multiples of 25					
Type	Length	Order code	25+	100+	500+
12-way	60mm	21-0469	0.756	0.557	0.473

079518



Screwless Terminal Blocks

These **screwless** pushbutton terminal blocks from Metway offer customers many benefits.



- Speed, on average, screwless connections can be made in half the time
- Cuts installation costs in half
- No need for twisting and turning screws
- Easier on the installer's hands and arms
- Never have a problem with loose connections from loose screws again
- Provide a vibration proof connection
- Spring clamp conforms to the wire with constant tension, making it maintenance-free
- 5mm pitch
- Side entry

Technical specification

Current rating	6A
Contact spring	Stainless steel
Solder pins	Brass, electro tinned
Conductor size	1mm to 1.5mm ²
Working temperature	+120°C
Mouldings	PBT, UL94 V0

MQQ 5 - In Multiples of 5					
Type	Order code	5+	25+	50+	100+
2-pole	21-2626	0.334	0.257	0.23	0.214
3-pole	21-2627	0.562	0.45	0.399	0.372

073517



Interlocking Terminal Blocks 16A

16A terminal blocks which interlock to provide any number of connections.

- 5mm pitch
- Cable wire protector



Technical specification

Rating	16A/250V
Solder pin	brass, tin plated
Wire acceptance	2.5mm ²
Pin dimension	1.0mm x 0.6mm
Height above PCB	12.5mm
Screw	M3, steel, zinc plated
Width	9mm
Wire protector	0.2t, stainless steel
Housing	PBT (30% glass filled)

MQQ 10 - In Multiples of 10					
Type	Order code	10+	100+	500+	
2-way 16A	21-1810	0.104	0.086	0.07	
3-way 16A	21-1812	0.145	0.11	0.101	
4-way 16A	21-1814	0.22	0.171	0.149	
6-way 16A	21-1816	0.304	0.231	0.205	
12-way 16A	21-1818	0.502	0.398	0.346	

068090



We bring
STEM to life



3A 12-Way Terminal Blocks

Commercial quality polythene moulding terminal blocks.



- Current rating 3A
- 12-way which may be readily subdivided
- Max. temperature +60°C
- Dimensions 92.5 x 15.5 x 12mm

MOQ 5 - In Multiples of 5

Current rating	Dimensions	Order code	5+	10+	100+
3A	92.5x15.5x12	21-0100	1.06	0.792	0.659

063854



Easy Break Terminal Strips

These **easy break** terminal strips from **CamdenBoss** make life simpler for installers to create the exact number of poles required without having to use cutting tools when connecting copper conductors.



- Easily snapped into the required number of poles
- No remaining burrs
- No tools needed to cut to length
- Save time and money
- Supplied in strips of 12-poles
- Three sizes available encompassing insert sizes of 3, 3.5 and 4.4 diameter
- Available in black Polyamide 6,6 **UL94 V2**
- Standard insert is nickel-plated brass with zinc-plated steel screws
- Screws are supplied in open position
- Continuous working temperature range is -30°C to +110°C

Rapid is an official distributor of CamdenBoss products. The products listed here are those that Rapid hold in stock - but we have access to many more, including the company's complete range of terminal blocks.

Technical specification				
Length	Width	Inset size	Mfrs. part no.	Order code
19.5mm	17.5mm	3mm	CTS0S431	21-1697
118.1mm	19mm	3.5mm	CTS0S433	21-1698
142.2mm	20.8mm	4.4mm	CTS0S434	21-1699

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+
Inset size 3mm	21-1697	1.02	0.83
Inset size 3.5mm	21-1698	1.10	0.883
Inset size 4.4mm	21-1699	1.11	1.05

073716



12-Pole Kwik Snap Terminal Blocks

This range of 12-pole terminal blocks features **Kwik Snap** technology, enabling pole separation without the use of tools. This method of block separation means that the pole dividers are still strong enough to support screws for terminal block assembly.



The connectors are available in 24, 32, 57 and 76A ratings and are manufactured from white **UL 94V-2** grade polypropylene.

- Kwik Snap technology for easy and clean break - no tools required
- Pole dividers support screws for assembly
- Formed, zinc plated steel insert
- **VDE** approved and rated to **T85-110**
- Complies with **IEC/EN60998-1, 60998-2-1**
- Manufactured from **UL 94V-2** grade materials

Technical specification

Voltage (V)	Current (A)	Wiring capacity max. (mm ²)	Pitch (mm)	H (mm)	W (mm)	L (mm)	Order code
450	24	4	8	12.2	93.5	17.8	21-4269
450	32	6	10	14	116.5	20	21-4270
450	57	10	12	16.3	139.3	23.4	21-4271
750	76	16	14.5	20.9	169.5	27.7	21-4272

MOQ 5 - In Multiples of 5

Current (A)	Wire size max. (mm ²)	Order code	5+	25+	100+
24	4	21-4269	1.00	0.698	0.498
32	6	21-4270	1.08	0.752	0.54
57	10	21-4271	1.65	1.12	0.85
76	16	21-4272	2.31	2.09	

500711

Test Leads & Probes



2mm Uninsulated Socket

Nickel plated 2mm chassis mounting socket.

- Mounting hole 4.2mm
- Contact surface: nickel-plated
- Rated 10A



MOQ 5 - In Multiples of 5

Type	Order code	5+	100+
2mm Socket	17-1043	0.377	0.284

067719



4mm Stackable Plugs

These 4mm plugs have a 4mm socket in the rear providing an in-line stacking facility.

- The lead wire is clamped in position by a screw
- Nickel plated brass insert with stainless steel plug spring
- 10A rating
- Spare screws are available



MOQ 2

Type	Order code	2+	100+	500+
Black stackable plug	17-0400	0.655	0.494	0.428
Blue stackable plug	17-0405	0.655	0.494	
Green stackable plug	17-0410	0.655	0.494	
Red stackable plug	17-0420	0.655	0.494	0.428
White stackable plug	17-0425	0.655	0.494	
Yellow stackable plug	17-0430	0.655	0.494	

Price each

Type	Order code	1+	5+	10+
Spare screws (Pack of 25)	17-0398	1.06	0.883	0.79

063885



4mm Stackable Test Leads 500mm



These banana to banana test leads are available with a lead length of 500mm. The stackable 4mm banana plugs have been machined from brass and nickel plated. They also have a moveable multi-lam contact cage spring for tight fit.

- Body: Brass
- Spring: Nickel plated
- Insulation: ABS
- Lead: PVC covered
- Lead width: 0.75²
- Plug length: 45mm

- Voltage: 30V AC - 60VDC
- Maximum current rating: 15A
- Supplied with a lead length of 500mm
- Available in black, blue, green, red and yellow

Type	Order code	1+	25+	100+	500+
Black 4mm test lead	17-2836	0.928	0.663	0.607	0.581
Blue 4mm test lead	17-2837	0.928	0.663	0.607	
Green 4mm test lead	17-2838	0.928	0.663	0.607	
Red 4mm test lead	17-2839	0.928	0.663	0.607	0.581
Yellow 4mm test lead	17-2840	0.928	0.663	0.607	

063063



4mm Stackable Test Leads

Ready assembled test leads comprising 0.5m of 55/0.1 extra-flexible cable terminated at each end with an in-line stackable 4mm plug.



- Maximum working voltage 50V

Type	Order code	1+	25+	100+
Black stackable lead	17-0385	1.04	0.95	0.81

063914



4mm Stackable Test Plugs

Build your own safety cable test plugs with these do-it-yourself safety sheathed 4mm stackable banana plugs. These 4mm test plugs are very popular within the education sectors. They have a solder termination with a rigid insulating sleeve.



- Body: Brass
- Spring: Beryllium copper, nickel plated
- Housing: PE
- Cable diameter: 3.5mm
- Contact: Solder
- Length: 45mm
- Voltage: 30V AC - 60V DC
- Maximum current rating: 19A
- Available in **black, blue, green, red and yellow**

MOQ 10

Type	Order code	10+	25+
Black 4mm plug	17-2635	0.153	0.145
Blue 4mm plug	17-2636	0.153	0.145
Green 4mm plug	17-2637	0.153	0.145
Red 4mm plug	17-2638	0.153	0.145
Yellow 4mm plug	17-2640	0.153	0.145

063049



4mm Bunch Pin Test Plug

Build your own safety cable test leads with these high quality 4mm plugs. They can accept up to 3.5mm diameter cable and can either be terminated with a screw or solder. The caged spring and the tapered sleeve provide protection against kinking and are ideal for easy self-assembly of the test lead.



- Body: Brass
- Spring: Steel, nickel plated
- Housing: PE
- Cable diameter: 3.5mm
- Contact: Screw-in or solder
- Length: 56.5mm
- Voltage: 30V AC - 60V DC
- Maximum current rating: 32A
- Available in **black, blue, green, red, and yellow**

MOQ 5 - In Multiples of 5					
Type	Order code	5+	100+	250+	1000+
Black 4mm plug	17-2646	0.451	0.324	0.285	0.268
Blue 4mm plug	17-2647	0.451	0.324	0.285	
Green 4mm plug	17-2648	0.451	0.324	0.285	
Red 4mm plug	17-2649	0.451	0.324	0.285	0.268
Yellow 4mm plug	17-2650	0.451	0.324	0.285	

083051



4mm Panel Socket with Solder Connection

This test socket has been designed to be panel mounted. It requires a cut-out of 8.2mm and a solder termination. It is especially popular in test equipment used by education and training schools.

- Body: Brass
- Spring: Nickel plated
- Insulation: ABS
- Mounting hole: 8.2mm
- Contact: Solder
- Length: 15mm
- Voltage: 30V AC - 60V DC
- Maximum current rating: 10A
- Available in **black or red**



MOQ 20					
Type	Order code	20+	100+	500+	1000+
Black 4mm socket	17-2672	0.104	0.071	0.066	0.061
Red 4mm socket	17-2673	0.104	0.071	0.066	0.061

083056



4mm Stackable Test Leads

Professional quality 4mm stackable test leads using 0.75mm² PVC cable terminated at each end with a stackable 4mm plug.

- Available in a variety of lead lengths and colours



Technical specification
Maximum current 12A
Working voltage 30V AC/60V DC max.
Contact resistance 30mΩ
Contacts Nickel plated brass/bronze
Cable employed 0.75mm² PVC
Temperature range -20°C to +80°C

Length	Order code	1+	25+	100+
Red				
25cm	17-2280	2.59	2.41	
50cm	17-2282	2.79	2.61	
100cm	17-2284	2.87	2.68	
Black				
25cm	17-2286	2.50	2.31	
50cm	17-2288	2.79	2.61	
100cm	17-2290	2.87	2.68	
Blue				
25cm	17-2291	2.59	2.41	
50cm	17-2292	2.79	2.61	
100cm	17-2294	2.87	2.68	
Green				
25cm	17-2295	2.47	2.30	
100cm	17-2298	2.87	2.68	
White				
25cm	17-2303	2.12	2.01	
50cm	17-2304	2.79	2.61	
100cm	17-2305	2.87	2.68	
Yellow				
25cm	17-2299	2.59	2.41	
50cm	17-2300	2.67	2.52	2.31
100cm	17-2302	2.87	2.68	

076625



4mm Sockets

These 4mm panel mounting sockets have tin plated brass inserts designed to accept a wide range of 4mm plugs.

- Sockets have double flat to assist positive location in panel
- Supplied with panel mounting hardware
- Rated 10A 125V AC
- Solder termination
- **SCI R1-22** series



MOQ 5					
Type	Order code	5+	20+	100+	500+
Black 4mm socket	17-1920	0.355	0.288	0.253	0.219
Blue 4mm socket	17-1925	0.334	0.298	0.253	0.219
Green 4mm socket	17-1930	0.30	0.236	0.207	
Red 4mm socket	17-1935	0.334	0.298	0.253	0.219
White 4mm socket	17-1940	0.334	0.298	0.253	0.219
Yellow 4mm socket	17-1945	0.30	0.236	0.207	

083893



4mm Stackable Test Plugs with Screw Termination

Build your own safety cable test leads with these high quality 4mm plugs. They can accept up to 4mm diameter cable and can either be terminated with a screw or solder. This stackable 4mm plug has a rigid insulating sleeve for easy self-assembly of the test lead. The hexagonal body makes the connection more stable. They feature a spring loaded plug for good connection.

- Body: Brass
- Spring: Beryllium copper, nickel plated
- Housing: PE
- Cable diameter: 4mm
- Contact: Screw-in or solder
- Length: 52.5mm
- Voltage: 30V AC - 60V DC
- Maximum current rating: 30A
- Available in **black, blue, green, red, and yellow**



MOQ 5 - In Multiples of 5				
Type	Order code	5+	10+	25+
Black 4mm plug	17-2641	0.49	0.411	0.341
Blue 4mm plug	17-2642	0.49	0.411	0.341
Green 4mm plug	17-2643	0.49	0.411	0.341
Red 4mm plug	17-2644	0.49	0.411	0.341
Yellow 4mm plug	17-2645	0.49	0.411	0.341

083050



CL1500 Series 4mm Terminals

High quality moulded terminals in acetal.

- All metal parts bright nickel plated
- Rated at 10A
- Will accept our low-cost or standard 4mm plugs
- Height above panel 24-32mm
- 14mm diameter
- Maximum panel thickness 12.7mm
- Thread size 4BA clearance
- **Cliff CL1500** series



Type	Order code	1+	25+	100+
Red 4mm terminal	17-0230	0.992	0.892	0.764
Green 4mm terminal	17-0235	0.992	0.828	0.723
Blue 4mm terminal	17-0240	1.02	0.853	0.748
Black 4mm terminal	17-0245	0.992	0.828	0.723
White 4mm terminal	17-0255	0.992	0.828	0.723
Yellow 4mm terminal	17-0260	0.992	0.828	0.723

083005



Low Cost 4mm Plugs

Economically priced 4mm plugs.

- Can be used in conjunction with our 4mm terminals
- Solder connection
- Available in red, black and white



MOQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
4mm Red plug	17-0130	0.363	0.33	0.31
4mm Black plug	17-0135	0.373	0.33	0.31
4mm White plug	17-0137	0.363	0.31	

083883



4mm Binding Posts

These shrouded 4mm binding posts are ideal for panel mounting. They require a cut-out of 8.2mm and are terminated by means of twin nut fastening. Ideal for audio speaker connectors and other applications where robust high power connections are required. They have a 4mm end hole suitable for a wide variety of leads and probes terminals and a strong threaded insert for added reliability and to ensure a secure fixing.

- Body: Brass
- Spring: Nickel plated
- Insulation: ABS
- Mounting hole 8.2mm
- Contact: Twin nut fastening
- Length: 44mm
- Voltage: 30V AC - 60VDC
- Maximum current rating: 19A
- Available in **black, green and red**



MOQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
Black	17-2696	0.46	0.384	0.319
Green	17-2697	0.397	0.354	0.319
Red	17-2698	0.397	0.354	0.32

083061



BNC Male to Dual 4mm Binding Post

This quality adaptor converts double banana jack test instruments to male BNC and permits single or double inline banana plugs to be used with equipment having a BNC female. The coaxial configuration is for added shielding protection. The BNC centre contact is gold plated, brass for low contact resistance. The body of the adaptor has cross holes to provide stack up connections. The binding posts are ideal for other wiring configurations and are colour coded red and black for easy identification. The combination of the BNC plug, banana sockets and binding posts are popular in test lab environments.

- BNC shell is nickel plated for tarnish resistance
- BNC centre connector gold plated
- Body: Brass
- Spring: Nickel plated
- Insulation: ABS
- Length: 51mm
- Voltage: 500V



Type	Order code	1+	50+	100+
BNC Male to binding post	17-2863	3.72	2.93	2.49

083075

TruConnect

Standard Crocodile Clip

A low cost bright metal crocodile clip. The uninsulated clip has a 4mm socket that will accept a 4mm banana plug. The wire can also be connected by means of the fitted screw or soldered in to place. The grip is very strong within its jaw opening of 8.5mm.

- Low cost
- Accepts 4mm banana plugs
- Wire can be screwed or soldered
- Crocodile body: Steel nickel plated
- Insulation: Uninsulated
- Length: 51mm
- Rated current: 10A



MOQ 10					
Type	Order code	10+	100+	500+	1000+
Standard crocodile clip	17-2873	0.133	0.104	0.094	0.085

TruConnect

4mm Stackable Plugs to Miniature Shrouded Crocodile Clips 50cm

A choice of red or black test leads that feature one end with a 4mm stackable banana plug and the other end with a miniature shrouded crocodile clip. Length of bale between the connectors is 50cm, making this lead suitable for a wide range of test and prototyping applications.



- Available in red or black
- 50cm PVC Lead with 0.75mm² wire
- 4mm banana plug to miniature shrouded croc clip
- Max. rating 15A 30V AC/60V DC

Type	Order code	1+	25+	100+
Red 50cm test lead	17-3279	1.02	0.731	0.634
Black 50cm test lead	17-3280	1.02	0.731	0.634

RVFM

Crocodile Lead Pack



A pack of 460mm long crocodile clip leads. Available in either a **pack of 10** leads in 5 colours, or a **pack of 20** leads in red and black.

- Terminated at each end with a vinyl covered crocodile clip
- Ideal for use as test clips

Type	Order code	1+	10+
Assorted pack 10	17-0350	2.44	1.98
Red/black pack 20	17-0345	4.59	3.97

TruConnect

BNC Male/4mm Terminal Adaptor

A useful adaptor comprising a BNC plug terminated to twin 4mm terminals in red and black with 4mm sockets.

- Signal is connected to red terminal
- 19mm centres

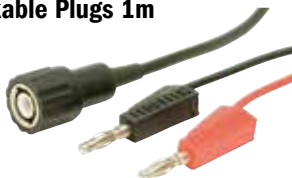


Type	Order code	1+	25+
BNC/4mm Adaptor	16-0295	4.50	3.66

TruConnect

Shrouded BNC Male to Red and Black 4mm Stackable Plugs 1m

This quality adaptor converts double banana jack test instruments to BNC male coaxial configuration.



The 4mm banana plugs are stackable. For added shielding protection the adaptor is fully shrouded. The BNC centre contact is gold plated on brass for low contact resistance.

- Connector Type A: Insulated BNC plug
- Connector Type B: 1x red and 1x black stackable plugs
- Cable Type: Insulated test lead
- Cable colour: Black
- Lead Length: Available in **1m lengths**

Type	Order code	1+	10+	50+	100+
BNC male/stackable plugs	17-2897	4.75	3.64	3.18	2.85

TruConnect

Ready Assembled BNC Test Leads



A range of ready assembled test leads employing bright nickel plated connectors complete with moulded-on strain reliefs, using RG-58 cable.

- Black PVC shield
- 50Ω impedance
- See www.rapidonline.com for a range of ready assembled Network Cables employing Thin Ethernet cable

Technical specification		
Type	Cable length	Order code
BNC plug to stackable 4mm plugs	1.2m	16-0300
BNC plug to crocodile clips	1.2m	16-0315
BNC plug to BNC plug	1.2m	16-0330
BNC plug to BNC plug	2.0m	16-0340

Type	Order code	1+	10+	50+
BNC 4mm Plugs	16-0300	6.84	5.60	5.06
BNC Croc Clips	16-0315	4.50	3.66	3.26
BNC-BNC 1.2m	16-0330	3.87	2.98	2.62
BNC-BNC 2m	16-0340	4.82	3.70	3.28

LEDs

Kingbright

Super Bright LED 3mm

The Kingbright Super Bright LEDs employ the latest technology to produce LEDs that are highly visible and therefore suitable for a wide variety of applications.



Available with diffused, water clear, or transparent lenses in a variety of colours and luminous intensities, the Super Bright LEDs rugged design adds to their long life reliability. Meanwhile, these high intensity components have been manufactured using only the best materials - the color devices are made with GaN on Sapphire Light Emitting Diode.

Overall, these unique Super Bright LEDs, along with low power consumption, offer excellent value and are a clear market leader in their field - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- Cathode identified by short leg
- Particularly suitable for signalling applications and as an alternative to filament lamps
- Kingbright L-7104 series (Formerly L-934 series)
- Low power consumption
- Long life - solid state reliability
- 3.2mm length

MOQ 5 - In Multiples of 5					
Colour	Wvlght/LumInt	Order code	5+	100+	1000+ 5000+
Water clear lens					
SB Red	640/4500	55-9214	0.245	0.24	0.181
Super red	640/800	55-0090	0.074	0.063	0.057 0.05
Red	640/600	56-0535	0.18	0.118	0.09
Red	640/400	56-0530	0.073	0.06	0.044 0.038
Hyper orange	630/3500	55-0104	0.216	0.196	0.162
Hyper red	630/1300	72-8942	0.126	0.107	0.089
Red	625/60	56-0570	0.091	0.064	0.048
Orange	601/1300	72-8972	0.155	0.102	0.079
Super yellow	589/900	55-0080	0.369	0.335	0.278
Yellow	588/700	72-8974	0.133	0.111	0.097
Yellow	588/20	56-0580	0.104	0.07	0.041
Mega green	568/700	55-1670	0.348	0.319	0.285
Green	568/150	72-8970	0.087	0.077	0.053 0.05
Green	568/60	56-0575	0.085	0.06	0.036
Blue	470/1500	55-1478	0.275	0.234	0.146
Blue	470/1000	55-1476	0.153	0.13	0.118 0.104
White	0.31 0.31/1200	55-1630	0.47	0.432	0.367
Diffused lens					
Red	660/100	56-0500	0.106	0.074	0.06
Red	640/350	72-8978	0.102	0.075	0.058 0.048
Red	640/150	56-0505	0.106	0.077	0.058 0.044
SB yellow	588/250	55-0008	0.106	0.082	0.067
Super green	568/40	55-0106	0.10	0.061	0.046
Blue	470/700	55-1462	0.30	0.228	0.176
Transparent lens					
Blue	470/800	55-1468	0.30	0.228	0.176

TruOpto

Rainbow Colour Cycling 3mm LED

Innovative, eye catching rainbow 3mm LEDs that contain an inbuilt IC that causes the LED to cycle through the red, green and blue elements, individually and then in combination. Colour cycles every 33 seconds.

- Water clear or diffused lens types



Test Equipment

To see our full range of test equipment visit www.rapidonline.com



- Ideal for use in warning devices, indication panels, alarm systems, mood lighting, toys

MQQ 5 - In Multiples of 5					
Type	Lens type	Order code	5+	100+	500+
Rainbow LED	Clear	55-1905	0.774	0.584	0.384
Rainbow LED	Diffused	55-1907	0.774	0.584	0.384

082702

Kingbright

Flashing 3mm LED

A range of 3mm LEDs housed in a diffused package with an in-built IC to produce a continuous flash at a frequency of 3Hz.

- Supply voltage 9 to 12V
- No series resistor is required
- **Kingbright L-36BD** series

MQQ 5 - In Multiples of 5					
Type	Order code	5+	25+	100+	500+
3mm HE red LED	56-0760	0.351	0.288	0.21	
Type	Order code	5+	25+	100+	500+
3mm Super red LED	56-0765	0.399	0.364	0.251	0.216
3mm Green LED	56-0755	0.315	0.243	0.234	0.216
3mm Yellow LED	56-0805	0.324	0.255	0.198	0.191

029350

TruOpto

3mm White LEDs High Luminous Intensity

A range of white 3mm LEDs available in various luminous intensities and viewing angles.

Featuring high luminous intensities and long lifetime operation, these LEDs are suitable for a wide range of applications including: electronic sign and signals, small area illumination, back lighting and other lighting.

- 3mm Round standard directivity
- High luminous intensity
- Long lifetime operation
- Superior weather resistance
- UV Resistant epoxy
- Water clear lens

MQQ 5 - In Multiples of 5						
Type	Lum.Int. (mcd)	Order code	5+	25+	100+	500+
3mm White LED	1120	55-1541	0.526	0.387	0.262	0.129
3mm White LED	4200	55-1545	0.582	0.451	0.322	0.198
3mm White LED	10,000	55-1549	0.582	0.451	0.322	0.198

036655

TruOpto

Miniature 3mm LEDs

A range of industry standard 3mm round LEDs housed in a diffused coloured package.

- Viewing angle 60°
- Supplied in **packs of 100 or 1000**

Price per pack of 100					
Colour	Order code	1+	10+	25+	
Red	55-1770	7.98	6.18	5.47	
Bright red	55-1776	6.97	5.36	4.73	
Yellow	55-1774	8.89	6.97		
Green	55-1772	9.26	6.97	6.14	
Blue	55-1762	14.66	11.81		
White	55-1766	14.66	11.81		
Price per pack of 1000					
Colour	Order code	1+	5+		
Red	55-1778	56.60	47.67		
Bright red	55-1784	47.67	40.51		
Yellow	55-1782	64.05	52.13		
Green	55-1780	64.05	52.13		

064821

TruOpto

Standard 3mm Water Clear LEDs

A range of high power, industry standard 3mm LEDs in various colours. These LEDs are particularly suitable for automotive dashboard lighting and general backlighting purposes.

- Water clear lens
- Viewing angle 30°
- Superior weather-resistance
- Made from UV resistant epoxy
- Suitable for PCB or panel mounting applications

MQQ 5 - In Multiples of 5					
Colour	Order code	5+	100+	1000+	5000+
Red	55-0066	0.113	0.098	0.05	0.036
Yellow	55-0068	0.113	0.098	0.05	
Green	55-0070	0.304	0.192	0.14	
Blue	55-0072	0.251	0.156	0.116	
White	55-0076	0.424	0.292	0.228	
Warm white	55-0074	0.502	0.333	0.248	
Pink	55-0078	0.262	0.21	0.148	

082271

KEYSTONE

LED Spacer Mounts

LED mounting spacers from **Keystone** featuring an internally tapered barrier which guides the leads and eliminates the possibility of bending or shorting. The internal configuration also assures positive self-alignment on 2.54mm centres.

- Supplied in **packs of 25**

Price per pack of 25					
Type	Length	Order code	1+	5+	10+
3mm Spacer	3.0mm	38-0750	2.91	2.47	2.32
3mm Spacer	9.1mm	38-0755	3.92	3.53	3.36
3mm Spacer	23.5mm	38-0760	4.66	4.39	4.18
5mm Spacer	3mm	38-0765	2.85	2.37	2.27
5mm Spacer	7.6mm	38-0770	3.78	3.00	2.78
5mm Spacer	12.7mm	38-0775	4.41	4.20	4.08
5mm Spacer	19mm	38-0780	3.80	3.50	3.20

032521

Nichia

Super Bright Blue LEDs Nichia NSPB Series

The tremendous luminous intensity of these superbright LEDs from Nichia's top-quality NSPB Series opens new application opportunities for analysis equipment in chemistry, medicine and photographic technology.



MQQ 5						
Size	Intensity	Order code	5+	100+	500+	1000+
5mm	5600mcd	50-0712	0.492	0.417	0.373	0.318
5mm	11000mcd	50-0711	0.512	0.433	0.387	

519824

Breadboard Power Supply Module 5V or 3.3V

Only

£2.32

Order code 73-4538

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TruOpto

Rainbow Colour Cycling 5mm LED

Innovative, eye catching colour change LEDs. The 5mm LED contains an inbuilt IC that causes the LED to cycle through the red, green and blue elements, individually and then in combination. Colour cycles in 33s.

- Water clear or diffused lens types
- Ideal for use in warning devices, indication panels, alarm systems, mood lighting, toys



MQQ 5 - In Multiples of 5						
Type	Lens type	Order code	5+	100+	500+	1000+
Rainbow LED	Clear	55-1904	0.748	0.557	0.372	
Rainbow LED	Diffused	55-1906	0.748	0.557	0.372	0.319

075160

TruOpto

5mm White LEDs

LEDs that are available in high luminous intensities of up to 30,000mcd at 20mA and provide white LED technology at the cost of lower technology indicators. Suitable for a wide range of illumination and indication applications where high luminous intensity is required, such as: small area illumination, back lighting and general purpose indication.

- Housed in an industry standard 5mm water clear package
- Viewing angle 15°
- Superior weather resistance
- UV resistant epoxy
- Suitable alternative for filament lamps

MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
LED 6000mcd	55-1820	0.71	0.529	0.384	
LED 10,000mcd	55-1886	0.49	0.319	0.258	0.228
LED 30,000mcd	55-2216	0.825	0.692	0.557	

064846

TruOpto

High Intensity LEDs

A range of high intensity LEDs in a 5mm package that features a blade cathode which acts as a heat sink to dissipate heat at high current levels.

- High luminous intensity for use in a wide range of indication and illumination applications requiring a high output
- Manufactured using the latest technologies for long life, energy efficiency and high reliability
- Suitable for PCB and panel mounting applications
- Water clear lens

MQQ 5 - In Multiples of 5						
Type	Colour	Order code	5+	100+	500+	1000+
5mm LED	White	55-2484	0.58	0.438	0.367	0.311
5mm LED	Warm white	55-2600	0.697	0.424	0.372	
5mm LED	Red	55-2476	0.27	0.228	0.203	0.156
5mm LED	Orange	55-2486	0.329	0.221	0.198	0.156
5mm LED	Yellow	55-2478	0.27	0.228	0.203	0.156
5mm LED	Green	55-2480	0.373	0.258	0.228	0.21
5mm LED	Cyan	55-2488	0.372	0.258	0.221	
5mm LED	Blue	55-2482	0.373	0.258	0.228	0.21

073421

Rapid
education

We bring
STEM to life



Standard 5mm LED

A range of industry standard 5mm diameter LEDs housed in a coloured diffused lens package.

- Suitable for PCB or panel mounting applications
- Viewing angle 60°
- Cathode is shorter lead
- Supplied in **packs of 100 or 1000**

Price per pack of 100				
Type	Order code	1+	10+	25+
Red	55-1790	5.32	4.96	4.47
Bright red	55-1796	6.97	5.57	
Yellow	55-1794	9.26	7.27	
Green	55-1792	9.26	7.27	6.59
Blue	55-1754	14.62	11.90	
White	55-1758	14.98	12.21	

Price per pack of 1000				
Type	Order code	1+	5+	
Red	55-1798	55.78	43.38	
Bright red	55-1804	54.48	46.30	
Yellow	55-1802	62.55	52.13	
Green	55-1800	59.58	50.65	
Blue	55-1756	101.75	84.64	
White	55-1760	99.26	82.59	

Kingbright

Ultrabright LED 5mm

The Kingbright Ultrabright LED employs the latest technology to produce lamps that are highly visible and therefore suitable for a wide variety of applications.

Available with diffused, water clear, or transparent lenses in a variety of colours and luminous intensities, the Ultrabright LEDs rugged design adds to their long life reliability. Meanwhile, these high intensity components have been manufactured with only the best materials - the color devices are made with Gallium Arsenide Phosphide.

Overall, these unique Ultrabright LEDs, along with low power consumption, offer excellent value and are a clear leader in their field - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- Cathode identified by flat on body
- Suitable for signalling applications and as an alternative to filament lamps
- General purpose leads
- Reliable and rugged
- Long life - solid state reliability
- Available on tape and reel
- RoHS compliant

MQQ 5 - In Multiples of 5							
Colour	Mfrs. pt. no.	Order code	5+	10+	100+	500+	1000+
Diffused lens							
SB red	L-7113SRD-C	55-0132	0.155	0.10	0.077	0.068	
SB red	L-7113SRD-D	55-0136	0.118	0.078	0.06	0.052	
SB red	L-7113SRD-E	72-8984	0.115	0.089	0.076		

MQQ 10 - In Multiples of 10							
Colour	Mfrs. pt. no.	Order code	10+	100+	1000+	5000+	
SB Red	L-7113SRD-J4	72-8989	0.266	0.24	0.177	0.154	

MQQ 5 - In Multiples of 5							
Colour	Mfrs. pt. no.	Order code	5+	10+	100+	500+	1000+
SB yellow	L-7113SYD	55-1520	0.331	0.251	0.179		
Blue	L-7113PBD	55-1495	0.531	0.456	0.38		
Blue	L-7113MBD	55-1480	0.423	0.354	0.311		

Transparent lens							
SB yellow	L-7113SYT	55-1525	0.272	0.22	0.163		
Blue	L-7113MBDL	55-1482	0.555	0.48	0.395		
Blue	L-7113MBT	55-1485	0.423	0.354	0.302		

Water clear lens							
SB red	L-1513SRC-C	72-8990	0.174	0.135	0.111		
SB Red	L-1513SRC-J4	72-8995	0.189	0.164	0.145		

MQQ 5 - In Multiples of 5							
Colour	Mfrs. pt. no.	Order code	5+	10+	100+	500+	1000+
SB red	L-7113SRC-C	55-0130	0.133	0.077	0.049	0.038	
SB red	L-7113SRC-DV	55-0131	0.155	0.077	0.063		
SB red	L-7113SRC-DW	55-0133	0.155	0.077	0.063		
SB Red	L-7113SRC-J4	55-9212	0.205	0.176	0.144		
Hyp red	L-1633SURC-E	72-8946	0.24	0.162	0.143		
Hyp red	L-2523SURC-E	72-8948	0.317	0.241	0.182		
Red-orig	L-7113SEC-H	55-1664	0.279				
SB yellow	L-7113SYC	55-1530	0.30	0.228	0.162	0.138	
SB green	L-7113SGC	55-0135	0.148	0.091	0.079		
Green	L-7113VGC-E	55-1668	0.44	0.344	0.306		
Blue	L-7113PBC	55-1490	0.337	0.278	0.214		
Blue	L-7113QBC-D	55-1662	0.481	0.283	0.215		
White	L-7113MWC	55-1602	0.423	0.393	0.319		
White	L-7114QWC-D	55-1640	0.423	0.367	0.302		



5mm White LEDs High Luminosity

These 5mm high intensity white LEDs are available in a choice of luminous intensities and are suitable for a wide range of applications such as: electronic signs and signals, small area illumination, and back lighting.

- High luminosity
- 5mm Round standard directivity
- Long operational lifetime
- Superior weather resistance
- UV Resistant epoxy
- Housed in a water clear package

MQQ 5 - In Multiples of 5					
Type	Order code	5+	25+	100+	500+
5mm White LED 5800mcd	55-1543	0.582	0.451	0.322	0.198
5mm White LED 1560mcd	55-1547	0.582	0.451	0.322	0.198



5mm High Brightness 15° LEDs

A range of 5mm high intensity LEDs that are suitable for a wide variety of illumination and indication applications such as: small area illumination, back lighting, general purpose indication.

- Housed in an industry standard 5mm water clear package
- Available in several colours including pink and violet
- Viewing angle 15°
- Superior weather resistance
- UV resistant epoxy
- Suitable alternative for filament lamps

MQQ 5 - In Multiples of 5							
Type	Colour	Order code	5+	10+	100+	500+	1000+
5mm LED (14cd)	Red	55-1806	0.182	0.156	0.116	0.089	
5mm LED (35cd)	Red	55-1807	0.251	0.198	0.145		
5mm LED	Orange	55-1808	0.155	0.116	0.097	0.066	
5mm LED	Yellow	55-1814	0.155	0.116	0.097		
5mm LED	Green	55-1816	0.373	0.311	0.238		
5mm LED	Blue	55-1810	0.554	0.479	0.42		
5mm LED	Violet	55-1818	0.309	0.257	0.183		
5mm LED	Pink	55-1822	0.251	0.21	0.172		



5mm Flashing LEDs

A range of high brightness 5mm LEDs in a water clear package. Each LED contains an IC that produces a continuous blink at a frequency of 1.5Hz (1.8Hz for **55-1210**).

- Superior weather resistance
- Suitable for warning devices, alarms, indicators, etc.

MQQ 5 - In Multiples of 5						
Type	Colour	Order code	5+	10+	500+	1000+
Flashing LED	Red	55-1892	0.317	0.156	0.148	
Flashing LED	Yellow	55-1894	0.317	0.156	0.148	
Flashing LED	Green	55-1896	0.309	0.156	0.148	
Flashing LED	Blue	55-1898	0.309	0.156	0.148	0.133
Flashing LED	Pink	55-1210	0.642	0.479	0.322	
Flashing LED	White	55-1891	0.683	0.503	0.333	

Kingbright

LED Low Current 5mm

Kingbright are a worldwide leading manufacturer of LEDs, offering a low current 5mm LED housed in diffused coloured packages.

These well designed components have been manufactured to last and are incredibly reliable, while using only the best materials, including source color devices made with Gallium Arsenide Phosphide.

The unique Kingbright LEDs have also been made RoHS compliant, while boasting low power consumption, in the process offering excellent value in the market place - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- Luminous intensity remains consistent down to 2mA
- Suited to portable equipment and are fully CMOS/MOS compatible
- General purpose leads
- Reliable and rugged
- Long life - solid state reliability
- Available on tape and reel

MQQ 20 - In Multiples of 5				
Type	Order code	20+	100+	1000+
5mm Red	56-0430	0.095	0.071	0.055
5mm Super red	56-0445	0.133	0.089	0.068
5mm Yellow	56-0440	0.078	0.054	0.036
5mm Green	56-0435	0.104	0.072	0.055
Super Green	56-0425	0.118	0.089	0.076

Price per reel of 1000		
Type	Order code	1+
5mm Red	56-0433	43.83

Kingbright

Flashing LED 5mm 14V

Kingbright are a worldwide leading manufacturer of LEDs, offering a superb range of flashing 5mm LEDs in a diffused package that have a built-in IC which produces continuous flashing at between 1.5 and 3.0Hz.

These well designed components from the L-56 Series have an operation voltage from 3.5V to 14V, and have been manufactured using only the best materials, including source color devices are made with Gallium Arsenide Phosphide.

These unique Kingbright LEDs do not require a series resistor, and offer excellent value in the market place - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- Supply voltage 3.5 to 14V
- Ideal for use in warning devices, alarms, etc
- Kingbright L-56 series
- With built-in blinking IC
- RoHS compliant

MQQ 5 - In Multiples of 5					
Type	Order code	5+	10+	500+	1000+
5mm Red	55-0140	0.714	0.603	0.513	0.505
5mm HE red	55-0138	0.443	0.397	0.329	0.324
5mm Green	55-0142	0.702	0.407	0.289	0.268
5mm Yellow	55-0144	0.433	0.385	0.341	0.284



5mm LED Warm White 1120mcd

An LED that has a warm white colour and a 5mm standard directivity design. Its very high luminosity and long lifetime operation makes it ideal for use in electronic signs and signals, small area illumination and back lighting.

- Luminosity 1120mcd
- Superior weather resistance
- UV Resistant epoxy
- Water clear lens
- Viewing angle 60°

MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
5mm Warm white LED	55-3000	0.172	0.138	0.109	0.102



AC 5mm LEDs High Brightness

5mm LEDs from TruOpto that are designed to work with an AC power supply.

These LEDs, available in various colours, use 80%+ less energy than their incandescent counterparts. These LED lamps also have water clear lenses and standard directivity along with a 15° viewing angle.

With features such as high luminous intensity and low energy consumption there are many applications suitable for these 5mm LEDs, such as: AV equipment, lighting, indicator panels, games and toys, etc. The red and yellow LEDs have a 26mm leg length and the green, blue and white LEDs have a shorter 13.5mm leg length.

Caution: These LEDs are not to be used with a rectifier.

- AC LED
- 5mm Round standard directivity
- Water clear lens
- High luminous intensity
- Long lifetime operation
- Superior weather-resistance
- UV Resistant Epoxy
- Temperature range -30°C to +85°C

MQQ 5 - In Multiples of 5					
Type	Leg length (mm)	Order code	5+	100+	1000+
Red	26	56-2311	0.322	0.256	0.194
Yellow	26	56-2316	0.322	0.256	0.194
Green	13.5	56-2309	0.44	0.377	0.322
Blue	13.5	56-2307	0.44	0.377	0.322
White	13.5	56-2314	0.44	0.377	0.322

Kingbright

LED Standard 5mm

Kingbright are a worldwide leading manufacturer of LED, offering a superb range of high efficiency 5mm LEDs that are suitable for PCB and panel mounting applications.

These well designed components from the Kingbright L-7113 series are available with diffused, transparent or water clear lenses in a variety of colours, while the source color devices are made with Gallium Arsenide Phosphide.

These unique Kingbright LEDs are also RoHS compliant, while boasting low power consumption, making them excellent value on the market place - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- All devices are intensity and colour matched
- Cathode identified by flat on body
- General purpose leads
- Reliable and rugged
- Long life - solid state reliability
- Available on tape and reel
- RoHS compliant

MQQ 10 - In Multiples of 5						
Colour	Mfrs. pt. no.	Order code	10+	100+	1000+	5000+
Diffused lens						
Bright red	L-7113HD	55-0117	0.106	0.079	0.05	0.045
HE Red	L-7113ID	55-0155	0.096	0.067	0.054	
Amber	L-7113ED	55-0127	0.124	0.079	0.054	0.048
Pure orange	L-7113ND	55-0124	0.145	0.089	0.068	0.063
Yellow	L-7113YD	55-0125	0.081	0.058	0.055	
Green	L-7113GD	55-0120	0.131	0.086	0.057	
Pure green	L-7113PGD	55-0122	0.06	0.047	0.044	0.04
Transparent lens						
Red	L-7113IT	56-0250	0.106	0.082	0.061	0.053
Yellow	L-7113YT	56-0260	0.225	0.164	0.123	0.111
Green	L-7113GT	56-0255	0.106	0.077	0.05	0.048
Water clear lens						
Red	L-7113EC	56-0200	0.072	0.063	0.045	
Yellow	L-7113YC	56-0210	0.063	0.054	0.036	
Green	L-7113GC	56-0205	0.07	0.063	0.045	
MQQ 5 - In Multiples of 5						
Colour	Mfrs. pt. no.	Order code	5+	100+	1000+	5000+
White	L-7113PPW-A	55-2490	0.397	0.354	0.302	0.252



5mm Oval High Power LEDs

These 5mm high power, oval LEDs from TruOpto feature a directivity pattern that is ideally suited to applications such as: traffic signals and portable light sources, signage and channel lettering, decorating and entertainment lighting, architectural lighting, small area illumination and back lighting.

- High power suitable for many applications
- 5.1 x 4.3mm lens
- Superior weather resistance
- UV Resistant epoxy

MQQ 5 - In Multiples of 5						
Colour	Lens	Order code	5+	100+	500+	1000+
Red	Diffused	55-2190	0.27	0.203	0.172	
Yellow	Diffused	55-2191	0.27	0.203	0.172	
Green	Diffused	55-2192	0.271	0.204	0.173	0.132
Blue	Diffused	55-2193	0.27	0.203	0.172	
White	Diffused	55-2194	0.422	0.333	0.28	
White	Water clear	55-2195	0.289	0.22	0.174	

Kingbright

5mm RGB LED High Brightness

A high brightness RGB LED in a 5mm through-hole package. The LED has low power consumption, a 50° viewing angle and a water clear lens.

- T1¾ (5mm) full colour LED lamp
- Uniform light output
- Long life-solid state reliability

Type	Order code	1+	25+	100+	500+
5mm Full colour LED	72-9661	1.07	1.01	0.833	0.698



5mm RGB Colour Changing LEDs 60s Cycle 30° 4.5V

These full colour RGB LEDs are 5mm round standard directivity lamps that have a 60s colour changing cycle. Ideal for applications such as toys, games, audio equipment, decorative lighting, etc.

- Available with a white diffused or water clear lens
- High luminosity
- Superior weather resistance

Type	Order code	1+	100+	500+
LED Diffused	55-9206	0.375	0.322	0.289
LED Water clear	55-9207	0.375	0.322	0.289



Full Colour 5mm LED 60°

Versatile full-colour RGB LEDs from TruOpto that are suitable for a very wide range of applications. These LED lamps can be used in products such as toys, electronic games, AV equipment, indicator panels, decorative lighting. These solid state LED lights also feature high luminous intensity and a common anode configuration. These LEDs can produce red, green, blue and white light, making them a versatile addition to any project.

- Full colour LED
- Available in water clear or diffused lens types
- Common anode type
- 5mm Round standard directivity
- Excellent weather resistance
- Wide 60° viewing angle

MQQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
LED Water clear lens	72-9643	0.964	0.818	0.693
LED Diffused lens	72-9647	0.964	0.818	0.693



High Brightness Tri-colour 5mm LED

Tri-colour LEDs that feature high luminous output. Available in red and green or red and blue these LEDs also provide a third colour when the two primary colours are combined.

- Red and blue available with water clear or white diffused lens
- 5mm Standard directivity
- Superior weather-resistance
- Common cathode type
- Suitable for many applications including toys, games and audio

MQQ 5 - In Multiples of 5						
Colour	Lens	Order code	5+	100+	250+	1000+
Red/green	Water clear	56-0350	0.422	0.367	0.333	0.292
Red/blue	Water clear	56-0352	0.422	0.367	0.333	0.292
Red/blue	White diff.	56-0353	0.396	0.358	0.328	0.292

Prototyping Breadboard

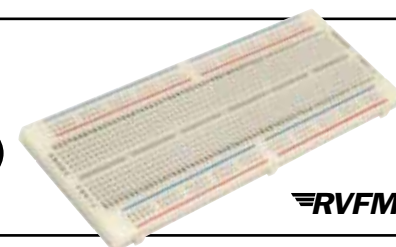
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840 Tie Points



RVFM

Kingbright

L-53 Series 5mm LEDs

A range of 5mm LEDs from the Kingbright L-53 Series, available in different colours with a choice of diffused, water clear and transparent lenses. Rugged construction offers long working life with solid state reliability.

- Low power consumption
- Popular T-1 3/4 diameter package
- General purpose leads
- RoHS compliant

MQQ 10 - In Multiples of 5					
Colour	Mfrs part	Order code	10+	100+	1000+
Diffused					
Orange	L-53ED	55-0858	0.074	0.055	0.05
HE Red	L-53ID	55-0864	0.144	0.122	0.099
Yellow	L-53YD	55-0872	0.097	0.074	0.066
Green	L-53GD	55-0868	0.101	0.082	0.068
Water Clear					
HE Red	L-53EC	55-0860	0.072	0.055	0.051
Yellow	L-53YC	55-0870	0.067	0.055	0.047
Blue	L-53MBC	55-0866	0.456	0.378	0.338
Transparent					
HE Red	L-53IT	55-0862	0.067	0.055	0.047
Yellow	L-53YT	55-0874	0.067	0.055	0.047

519065

Kingbright

LED 5mm 5V and 12V

The Kingbright 5mm LEDs are a superb, high quality range of components incorporating an inbuilt series resistor enabling the LED to be directly connected to 5V or 12V supply lines.

Tough, reliable and built to last, these high intensity components have been manufactured with only the best materials - the color devices are made with Gallium Arsenide Phosphide.

Overall, these unique 3mm LEDs, along with low power consumption, offer excellent value and are a clear leader in their field - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- High intensity
- Colour matched and housed in diffused coloured packages
- Cathode identified by shorter lead
- Low power consumption
- Long life - solid state reliability
- General purpose leads
- Kingbright L-7113 series

MQQ 5 - In Multiples of 5					
Type	Order code	5+	50+	100+	1000+
5mm 5V HE red	56-1500	0.177	0.158	0.133	0.104
5mm 5V Green	56-1505	0.19	0.158	0.14	0.10
5mm 5V Yellow	56-1510	0.141	0.125	0.115	0.10
5mm 12V HE red	56-1550	0.152	0.137	0.117	0.103
5mm 12V Green	56-1555	0.174	0.158	0.128	0.10
5mm 12V Yellow	56-1560	0.159	0.14	0.126	0.11

060113

Kingbright

5mm Cool White LED Low Current

A cool white LED that features low power consumption.

- High luminous intensity
- Low power consumption
- General purpose leads
- Reliable and rugged
- Long life - solid state reliability
- Kingbright L-9294VR41C-CTS-C1 type

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
LED L-9294VR41C-CTS-C1	56-0418	0.246	0.209	0.162

200113

TruOpto

5mm Ultraviolet LED

A high power ultraviolet 5mm LED. The features of this LED make it particularly suitable for use in applications such as: backlighting, security and detection applications, and automotive dashboard lighting.

- Water clear lens
- General purpose leads on a 2.54mm (0.1in) pitch
- Superior weather-resistance
- Made from UV resistant epoxy

MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
5mm UV LED	55-1835	0.856	0.756	0.664	0.496

082278



5mm LEDs Water Clear



These 5mm LEDs have an ultra high luminous efficacy and water clear lenses. Available in a choice of colours, these LEDs are suitable for a wide range of applications such as indicator lights, traffic signal light, marker lights, commercial outdoor advertising, energy saving lamp, backlighting, LED displays, electronic and optical indicators, etc.

- Low energy consumption
- High reliability
- Low current requirement
- Fast switching
- No UV/IR radiation
- Easy installation
- Versatile mounting on PC boards

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
Red 5mm LED	54-8486	0.198	0.142	0.123

MQQ 10 - In Multiples of 5				
Type	Order code	10+	100+	500+
Yellow 5mm LED	54-8487	0.158	0.135	0.124

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
Green 5mm LED	54-8488	0.168	0.145	0.123
Blue 5mm LED	54-8489	0.198	0.142	0.123

550407

Kingbright

5mm T-1 3/4 Super Bright LEDs

A range of low power consumption 5mm LEDs that are suitable for PCB and panel mounting applications.

- Low power consumption
- Popular T-1 3/4 diameter package
- General purpose leads
- Reliable and rugged
- Long life - solid state reliability
- All devices are intensity and colour matched
- Cathode identified by flat on body
- Kingbright L-53 series

MQQ 10 - In Multiples of 5				
Type	Order code	10+	100+	1000+
Red L-53SRC-DV	55-1700	0.132	0.091	0.055
Green L-53SGC	55-1678	0.093	0.063	0.059

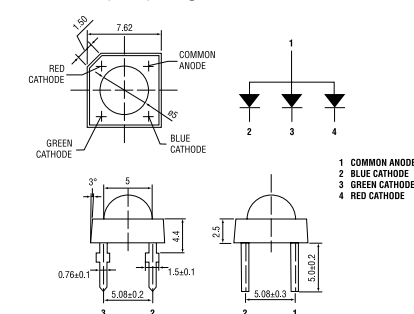
200111

TruOpto

Piranha RGB LED

A high luminosity LED that can produce a full range of colours and tones by varying the current to each of the red, green and blue dies. Comes in a compact package ideal for use in the manufacture of toys, games, audio equipment and in general indication.

- Common anode
- Superior weather-resistance
- Water clear 5mm lens
- 7.62mm Square package



Type	Order code	1+	25+	100+	500+
RGB LED	72-8998	1.08	0.843	0.713	0.585

016740

Kingbright

Ultrabright 8mm LEDs

A range of high brightness LEDs housed in 8mm water clear packages.

- These devices are particularly suited to warning devices, alarms, indication, etc.
- Red LEDs have GaAlAs dice, white LED has InGaN dice
- Kingbright L-793/794 series

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
8mm 1600mcd Red	55-0435	0.155	0.106	0.082
8mm 2000mcd Red	55-0440	0.202	0.151	0.096
8mm 3000mcd Blue	55-1889	0.458	0.405	0.341
8mm 1500mcd White	55-1888	0.531	0.495	0.405

064807

Kingbright

High Intensity 8mm LEDs

High efficiency 8mm LED in a diffused package.

- Particularly suited to warning devices, alarms, etc
- Kingbright L-793 series

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
8mm High intensity red	55-0400	0.149	0.124	0.095
8mm High intensity green	55-0405	0.143	0.117	0.089
8mm High intensity yellow	55-0410	0.15	0.127	0.095

064804

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Rainbow Colour Cycling 10mm LED

Innovative, eye catching colour change 10mm LED. Contains an inbuilt IC that causes the LED to cycle through the red, green and blue elements, individually and then in combination. Colours complete a cycle every 33 seconds. Ideal for use in audio systems, warning devices, indication panels, alarm systems, mood lighting, toys and games.

- Water clear lens
- High luminosity
- Superior weather resistance

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
LED 10mm rainbow clear	55-0780	0.864	0.80	0.503

123540



Ultrabright 10mm LED

A range of high brightness LEDs housed in 10mm water clear packages.

- These devices are particularly suited to warning devices, alarms, indication, etc.
- Red LEDs have GaAlAs dice, white LED has InGaN dice
- **Kingbright L-813/814** series

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
10mm 1600 mcd Red	55-0360	0.135	0.09	0.06
10mm 600mcd White	55-1890	0.713	0.62	0.546

093311



Premium 10mm White LED Through-Hole

A through-hole LED with a 10mm lens and pure white colour. A high luminous output and long life make this large LED suitable for portable lighting, interior and exterior automotive lighting, illuminated advertising, and general lighting.

- T-3 10mm Standard directivity
- Water clear lens
- Superior weather resistance
- UV Resistant epoxy
- Operating temperature -30°C to +85°C



MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
10mm Pure white LED	55-2879	0.305	0.261	0.237

532062



10mm White Diffused LED 10,000mcd 3.1V 30°

This **10mm White Diffused LED 10,000mcd 3.1V 30°** from **TruOpto** is a high luminous LED which is ideal for electronic signs and signals, small area illuminations and back lighting. Equipped with a host of excellent features such as the superior weather resistance, long lifetime operation and UV resistant epoxy.

- White diffused type
- High luminous intensity
- 10mm round standard directivity

MQQ 5 - In Multiples of 5				
Type	Order code	5+	10+	100+
White diffused LED	55-2885	0.146	0.131	0.116

533023



High Intensity LEDs 10mm

Kingbright are a worldwide leading manufacturer of LEDs, offering a superb range of high intensity 10mm diameter LEDs housed in a diffused package.

These well designed components from the Kingbright L-813 Series are particularly suited to warning devices and alarms, and have been manufactured using only the best materials, such as the source color devices that are made with Gallium Arsenide Phosphide.

These unique Kingbright LEDs also boast low power consumption, making them excellent value on the market place - to find out more about the full range of Kingbright products please visit Rapid's Kingbright page.

- 10mm diameter big lamp
- Low power consumption
- Reliable and rugged
- Long life - solid state reliability

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
10mm High intensity red	55-0300	0.149	0.147	0.105
10mm High intensity green	55-0305	0.109	0.097	0.075
10mm High intensity yellow	55-0310	0.15	0.127	0.095
10mm High intensity amber	55-0315	0.222	0.148	0.091

064870



Addressable RGB LED Strips

A range of LED strips containing data addressable full colour RGB LEDs. Using an SBC or development board with a suitable LED driver it is possible to build a simple and scalable light project that can achieve stunning effects, such as chasing, scanning and running water effects. There are two versions with either 30 LEDs per metre or 60 LEDs per metre. Each version comes in either 1m or 5m strips.

When choosing an SBC or development board it should be noted that the input data line has very specific timing requirements. The LED strip requires the use of a real-time microcontroller such as an AVR, Arduino, or PIC type device. Linux based single board computers such as the Raspberry Pi will not work without additional RTC hardware.

Each of the LEDs contains an integrated WS2812B constant current driver that can achieve 256 levels of brightness and up to 16.7m colours. The LEDs require an external power supply, with each LED using 60mA if the red, green and blue components are all on maximum brightness.

As a way to quickly get up and running, Adafruit have a very handy library that can be used (Adafruit call them NeoPixels, but they share the same WS2812B driver ICs).

- Control each colour separately
- High brightness
- Suitable for a wide range of commercial and artistic applications
- Terminated by 200mm of AWG22 cables
- Adhesive strip backing
- 5V Data signal required, to use 3.3V a logic level shifter is required

Note: It is recommended that a large capacitor (1000µF, 6.3V or higher) is added across the + and - terminals. Also place a 300 to 500Ω resistor between the data output pin and the input to the strip.

LEDs per metre	Length	Order code	1+
30	1m	60-8810	11.20
60	1m	60-8811	16.50
30	5m	60-8812	49.64
60	5m	60-8813	75.01

560551



HRM138BB5100 2.4-5.5V IR Reciever Module 38kHz

Miniaturised receivers for infra-red remote control systems.

- PIN diode and pre-amplifier are assembled on lead frame, the epoxy package is designed as IR filter
- Demodulated output signal can directly be decoded by a microprocessor
- Highly reliable
- No external parts, inner shield
- Highly sensitive
- Long transmission range
- High immunity against ambient light, power noise and electromagnetic interference
- Low power consumption
- TTL and CMOS compatibility

MQQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
Photo module 2.4-5.5V	55-0902	0.683	0.587	0.503

071292



LDRs



Miniature Light Dependent Resistor

A compact low cost cadmium sulphide light dependent resistor (LDR) housed in a small package.

- 5mm diameter
- Clear epoxy finish
- Resistance reduces as the light falling on the device increases
- Note: This product contains cadmium sulphide, the use of which is restricted by the RoHS directive

MQQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
Miniature LDR	58-0134	0.433	0.354	0.269

034796



Silonex

Light Dependent Resistor NORPS12

Cadmium sulphide light dependent resistor (LDR).

- Housed in a robust plastic package with clear end window
- Resistance reduces as the light falling on the LDR increases
- **Silonex type NORPS12**
- Note: This product contains cadmium sulphide, the use of which is restricted by the RoHS directive

Type	Order code	1+	25+	100+	500+
NORPS12	58-0132	1.37	1.17	1.05	0.89

034793



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Miniature Light Dependent Resistor - Lead Free Terminals

A compact cadmium sulphide light dependent resistor (LDR) housed in a compact 5mm diameter package.

- Radial leads with 3.4mm pitch
- Lead free terminals
- Note: This product contains cadmium sulphide, the use of which is restricted by the RoHS directive

MQQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+ 500+
LDR (lead free)	58-0128	0.755	0.682	0.652 0.498

029399



12mm Light Dependent Resistor Non-RoHS

A CdS (Cadmium Sulphide) light dependent resistor (LDR) that is housed in a small package. Typical applications for this device include: camera automatic photometry, photoelectric control, annunciator, light control switch, industrial control, and electronic toys.

- Resistance reduces as the light falling on the device increases
- Small volume
- Clear epoxy finish
- Fast response
- High sensitivity
- Very reliable
- Note: This product contains cadmium sulphide, the use of which is restricted by the RoHS directive

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
LDR Non-RoHS	58-0135	0.946	0.878	0.813

082715

Lasers



Red Laser Modules Aluminium Housing Battery Powered

A range of low cost, fixed focus laser modules that are battery powered and provide a constant illumination from a compact aluminium body. The modules are available in a choice of beam types (line, dot or cross) and all modules have an acrylic lens that helps to produce a sharp beam without the need for rotating polygonal mirrors or motors. The compact size and battery power makes these modules suitable for applications where space and accessibility are an issue.

- Wavelength 650nm
- Diode laser technology
- Acrylic lens
- Divergence 1mrad
- Long lifetime >3000h
- Dimensions $\phi 15 \times 68$ mm
- Operating temperature -20°C to +40°C

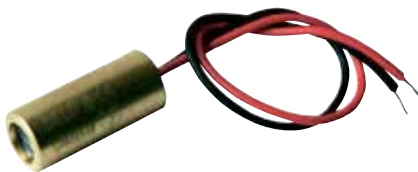
Powered by 2x LR44 alkaline button cells (included).

Type	Operating distance	Order code	1+
Line 90°	0.25m	57-5881	17.65
Line 90°	1m	57-5882	17.65
Class 2 dot	10m	57-5884	13.24
Cross 45°	1m	57-5885	22.06

545518



Red Laser Modules Brass Housing



A range of high quality laser modules that project a red beam in one of three types - line, spot or cross. The modules use a special acrylic lens that produces a sharp beam without the use of rotating polygonal mirrors or motors. The lens and electronics are built-in to a robust brass housing and can be operated under dusty and harsh industrial environments. Operation is possible without series resistors or control electronics, the module simply being connected to a power supply. Suitable applications include laser levels, laser marking systems, robotics, and laser entertainment areas.

- Diode laser technology
- Acrylic lens
- Divergence 1mrad
- Long lifetime >3000h
- Cable length 100mm
- Dimensions $\phi 9 \times 20$ mm
- Operating temperature -20°C to +40°C

Type	Operating distance	Order code	1+
Line 90°	0.25m	57-5862	13.24
Line 90°	1m	57-5863	12.02
Line 60°	1m	57-5864	12.02
Line 60°	2m	57-5865	16.40
Dot Class 1 0.3W	10m	57-5867	9.83
Cross 45°	1m	57-5869	13.24

545514

Displays

Kingbright

LED Display 14.2mm



Kingbright are a worldwide leading manufacturer of LEDs, offering a range of 14.2mm (0.56in high) seven segment displays available in red, high efficiency red, super red or green.

These well designed components have been categorised for luminous intensity, and use only the best materials with the source colour devices made of Gallium Phosphide on Light Emitting Diode. On top of that, the connectors along top and bottom simplify wiring in multi-digit applications.

The unique Kingbright LED Display is also economical to use, in the process making it excellent value on the market place - to find out more about the full range of Kingbright products please visit Rapid's Kingbrightpage.

- Low current operation
- White segments and grey display surface to maximise on/off contrast
- Attractive character appearance
- Easy mounting on PC Boards or sockets
- I.C. Compatible
- 14mm (0.56 inch) digit height

MQQ 5 - In Multiples of 5				
Type	Mfrs. suffix	Order code	5+	25+ 100+ 500+
Common anode				
CA Red	11HWA	57-0120	0.725	0.651 0.535 0.474
HE red	11EWA	57-0122	1.04	0.939 0.828 0.651
Super red	11SRWA	57-0124	0.779	0.728 0.656 0.51
Green	11GWA	57-0170	0.916	0.764 0.698
Common cathode				
Red	11HWA	57-0125	1.45	1.29 1.11
HE red	11EWA	57-0127	1.10	0.887 0.79 0.618
Super red	11SRWA	57-0129	0.959	0.745 0.679 0.508
Green	11GWA	57-0172	0.863	0.756 0.698 0.511
SB Red 1-digit	11LSRWA	57-1448	0.897	0.803 0.642
Price each				
Type	Mfrs. suffix	Order code	1+	
SB Red 4-digit	11LSRWA	57-1446	0.90	

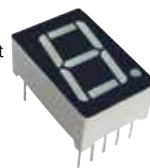
029374



14.2mm Single Digit Displays

A range of seven segment LED displays that are 14.2mm (0.56in high) and available in red, high output red, yellow, yellow green, pure green, blue and white.

- Available in common anode or common cathode configurations
- Right hand decimal point
- Long lifetime operation
- IC Compatible
- Low power dissipation



MQQ 5 - In Multiples of 5				
Colour	Order code	5+	25+	100+ 500+
Common anode				
Red (20mcd)	57-0126	0.524	0.441	0.313
Red (100mcd)	57-0128	0.429	0.36	0.256 0.211
Yellow	57-0136	0.429	0.36	0.256
Blue	57-0138	0.968	0.867	0.751
White	57-0143	0.882	0.77	0.679
Common cathode				
Red (20mcd)	57-0121	0.73	0.654	0.567
Red (100mcd)	57-0123	0.53	0.437	0.31
Yellow	57-0133	0.429	0.36	0.308 0.261
Pure green	57-0131	0.744	0.654	0.579
Blue	57-0137	0.744	0.654	0.579
White	57-0141	0.98	0.855	0.754

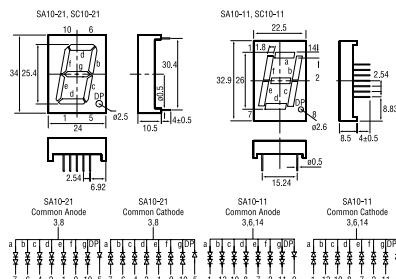
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Kingbright

25.4mm LED Display

A range of 25.4mm (1in high) seven segment displays available in red, high efficiency red, super red and green.

- Available with a choice of pinouts
- Right hand decimal point
- All displays are categorised for luminous intensity with white segment and grey display surface to maximise on/off contrast
- Each segment contains two LED chips, decimal point has one
- Kingbright SA/SC10 series



Colour	Pinout	Order code	1+	25+	100+	500+
Common anode						
SB red	SA10-11	57-0214	0.697			
SB red	SA10-21	57-0204	2.23	1.60	1.35	
HE red	SA10-11	57-0212	1.80	1.31	0.945	
HE red	SA10-21	57-0202	1.75	1.25	1.17	
Green	SA10-11	57-0182	1.31	1.09	1.00	
Green	SA10-21	57-0186	2.45	1.40	1.13	
Common cathode						
Red	SC10-21	57-0205	0.983	0.836		
SB red	SC10-11	57-0218	1.17	1.09	1.02	
SB red	SC10-21	57-0222	1.80	1.48	1.45	1.28
HE red	SC10-21	57-0207	1.63	1.04	0.99	
Green	SC10-21	57-0188	1.48	1.36	1.29	

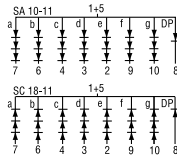
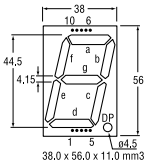
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Kingbright

45mm (1.8in) LED Display

A range of 45mm (1.8in high) seven segment displays available in high efficiency red or super red employing advanced GaAlAs technology to produce a very high output display.

- Right hand decimal point
- Connections running along the top and bottom of the display simplifying wiring in multi-digit applications
- All displays are categorised for luminous intensity
- White diffused segments on a grey background
- **Kingbright S18** series



Type	Order code	1+	25+	100+
CC HE red	57-0525	3.07	2.97	2.45
CA Super red	57-0530	3.40	2.32	1.94

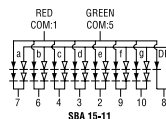
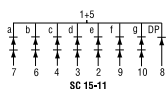
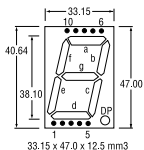
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Kingbright

38.1mm (1.5in) LED Display

38.1mm (1.5in high) seven segment displays available in high efficiency red or bi-colour red/green.

- Right hand decimal point
- Connections run along the top and bottom of the display simplifying wiring in multidigit applications
- All displays are categorised for luminous intensity with white diffused segments on a grey background
- Red version has common cathode configuration
- Bi-colour version has independent common anode pins for red and green segments
- **Kingbright types SC15-11EWA** (red) and **SBA23-11EGWA** (red/green)



Type	Order code	1+	25+	100+
CC HE red	57-0495	1.59	1.31	1.17
CA HE red/green	57-0498	6.96	5.33	4.00

029385

Power LEDs



5m LED Strips



These 5m LED strips are high brightness lighting systems that are available in a selection of colours, including RGB, and with a choice of LED quantity. The low voltage and power consumption together with the high level light output make these LED strips suitable for a wide range of illuminative and indicative lighting applications.

- Each 5m length is terminated by 2.1mm DC jack socket
- Extremely low cost
- Can be cut to length
- Viewing angle 120°
- Available in 300 LEDs per 5m or 600 LEDs per 5m

Colour	No. of LEDs	Order code	1+
Natural white	300	56-1012	19.00
White	300	56-1014	19.00
Warm white	300	56-1016	19.00
Red	300	56-1018	21.85
Blue	300	56-1022	21.85
White	600	56-1028	28.07
Warm white	600	56-1030	28.07
Red	600	56-1032	31.45
Blue	600	56-1036	21.00

528195



Flexible LED Strips 30-way

A range of separable LED strips on a flexible printed circuit board. The whole strip contains 30 LEDs and associated circuitry, and the strips are available in a spectrum of colours. Each strip can be separated in to 10 x 3 LEDs pieces and are adhesive backed.



The versatility and operating performance of these LEDs make them ideally suited to a wide range of applications including: channel letter signs, indirect accent decor light, large area back lighting, under counter lighting, building contour delineation, substitution for neon lighting and signage.

- Simple to use, just connect to suitable voltage
- Self-adhesive backing can be fixed almost anywhere
- High intensity output with low power consumption
- Energy saving
- Excellent beam control
- Long life
- Each LED has 120° viewing angle for even light distribution

Colour	Order code	1+	10+	25+
White	56-0480	12.01	11.22	9.57
Warm white	56-0478	10.27	9.62	9.57
Red	56-0482	5.22		

081568



Flexible LED Strips 24-way

A range of separable LED strips on a flexible printed circuit board. The whole strip contains 24 LEDs and associated circuitry, and the strips are available in white or warm white colours. Each strip can be separated in to 8 x 3 LEDs pieces and are adhesive backed.



The versatility and operating performance of these LEDs make them ideally suited to a wide range of applications including: channel letter signs, indirect accent decor light, large area back lighting, under counter lighting, building contour delineation, substitution for neon lighting and signage.

- Simple to use, just connect to suitable voltage
- Self-adhesive backing can be fixed almost anywhere
- High intensity output with low power consumption
- Energy saving
- Excellent beam control
- Long life
- Each LED has 120° viewing angle for even light distribution

Colour	Order code	1+	10+	25+
White	56-0452	10.41	9.61	8.00
Warm white	56-0450	10.41	9.61	8.00

081567

PowerPax UK

12V LED Strip Power Supplies

These 12V power supplies from PowerPax are ideal for use with the range of LED strips available from Rapid. The various power supply units can tackle anything from 1 to 20 metres of LED tape.

- Variety of fixing options available



Type	Order code	1+
60W	56-2434	19.81
90W	56-2436	27.77

519228

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PowerPax UK**12V LED Strips, 4.8W per metre**

These PowerPax 12V LED strips are available in a variety of colours and in a choice of 1m and 5m lengths. All the strips are supplied with a socket so the LEDs can be put to use without any need for soldering - just connect them up to a 12V DC power supply and they are ready to go.



Whatever your lighting needs, if you have a power supply handy these LED strips can offer a solution - under counters, in cupboards, shop windows or just to get your message across.

The long life super bright LEDs offer very low power consumption with just 4.8W per metre. The strips are supplied on a flexible printed circuit board with a sticky tape backing, making installation simple - just peel off the backing and apply the strip to any flat, clean surface.

A variety of power and connection options are available for these products.

- Choice of LED colours - cool white, warm white, red, blue and green
- Strips available in 1m and 5m lengths
- 60 super bright LEDs per metre
- 8mm backing tape and 2.1mm input socket supplied
- Flexible tape - minimum bend radius 2cm
- Strips can be cut to length at 50mm intervals
- Maximum continuous connection 5m without additional power source
- Dimmable LEDs

Colour	Length	Order code	1+	3+	5+
Cool White	1m	56-2330	13.38	11.74	9.96
Warm White	1m	56-2332	15.40	14.29	13.19
Red	1m	56-2334	15.40	14.29	
Blue	1m	56-2336	9.97		
Green	1m	56-2338	9.97		
Cool White	5m	56-2340	49.66		
Warm White	5m	56-2342	49.66		

519220

**1W High Luminosity Power LED Stars**

These power star LEDs are high luminosity modules that are mounted on an PCB substrate. Being more energy efficient than incandescent and most halogen lamps and available in a range of colours, including white and warm white, these LEDs are ideal for a wide range of applications including: electronic signs and signals, small area illumination, back lighting and other lighting, bollards, security and garden uses, traffic signalling and beacons.



- High luminous flux
- Super energy efficiency
- Long operational life
- Superior ESD protection
- Superior UV resistance

Colour	Order code	1+	25+	100+	250+
Red	55-2243	2.20	2.08	1.83	1.63
Green	55-2245	2.20	2.08	1.83	
Blue	55-2247	2.20	2.08	1.83	
White	55-2239	2.20	2.08	1.83	1.63
Warm white	55-2241	2.20	2.08	1.83	1.63

200093

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**3W High Luminosity Power LED Stars**

These power star LEDs are high luminosity modules that are mounted on a PCB substrate. Being more energy efficient than incandescent and most halogen lamps and available in a range of colours, including white and warm white, these LEDs are ideal for a wide range of applications including: electronic signs and signals, small area illumination, back lighting and other lighting, bollards, security and garden uses, traffic signalling and beacons.



- High luminous flux
- Super energy efficiency
- Long operational life
- Superior ESD protection
- Superior UV resistance

Colour	Order code	1+	25+	100+	250+
Red	55-2455	2.76	2.57	2.38	
Green	55-2457	2.76	2.57	2.38	
Blue	55-2253	2.76	2.57	2.38	2.27
White	55-2249	2.76	2.57	2.38	2.27
Warm white	55-2251	2.70	2.55	2.32	2.22

200094

**1W High Luminous Flux Power LEDs**

A range of 1W LEDs that feature high luminous flux with super energy efficient operation. Suitable applications for these LEDs include: reading lights, portable lighting, security/bollard/garden, traffic signalling and beacons, signage, etc.



- Silicon lenses
- High luminous flux
- Super energy efficiency
- Long lifetime operation
- Superior ESD protection
- Superior UV resistance
- Beam angle 120°

Type	Order code	1+	25+	100+	250+
High flux red	55-1867	1.83	1.63	1.46	
High flux green	55-1869	1.83	1.63	1.46	
High flux blue	55-1871	1.65	1.47	1.31	
White 80lm	55-1873	1.56	1.41	1.16	
Warm white 90lm	55-1865	1.83	1.63	1.46	1.32

200100

**3W 3-LED Round Module**

These round type LED modules consist of three power LEDs arranged on an aluminium substrate to produce a module that is ideal for a wide range of applications such as: small space lighting and mechanical equipment lights.



Also available are high efficiency lenses suitable for use with both LED modules. The lenses are available with either a diffused, transparent or crystal diffused surface treatment.

- Super bright
- Green light source
- Fast response
- Long lifetime
- Easy installation
- Large viewing angle
- Superior ESD protection
- Superior UV resistance

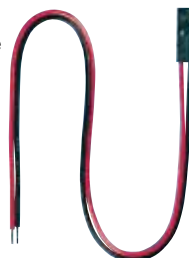
Note: For longer periods of use it is recommended that thermal management (e.g. heatsink) is employed.

Type	Colour	Order code	1+	5+	10+	15+
3W LED Module	White	55-2413	5.56	4.47	3.91	
3W LED Mod.	Warm white	55-2415	5.56	4.47	3.91	3.69
Diffused LED Lens		55-2421	0.551	0.526	0.476	0.441
Transparent LED Lens		55-2422	0.551	0.526	0.476	
Crystal Diff LED Lens		55-2423	0.22			

500235

LED Accessories**Solderless LED Holder**

A novel LED holder with 200mm leads prestripped and tinned which simply clips to the rear of the LED and is retained in position by a patented clamping device.



- Suitable for use with all LEDs with leads on a 2.54mm pitch, the holder will significantly reduce assembly time
- Dimensions 14.5 x 2.6mm
- Moulded in Toray
- **UL 94V-0** rating

MOQ 5 - In Multiples of 5					
Type	Order code	5+	25+	100+	1000+
LED holder	55-0167	0.526	0.452	0.40	0.374

029296

**Rapid Assembly LED Clip**

A panel mounting single part LED clip available in a 5mm style employing a novel design enabling the user to mount the LED assembly from front or rear.



- Panel cut-out 8mm
- Maximum panel thickness 1.2mm
- Manufactured in black samporene

MOQ 10 - In Multiples of 5					
Type	Order code	10+	100+	1000+	5000+
5mm Rapid assembly clip	55-0295	0.107	0.096	0.081	0.052

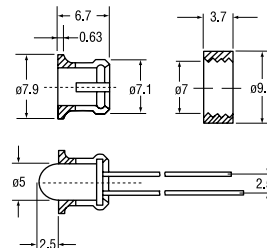
029308

**5mm Panel Clips**

A two part panel clip to secure 5mm LEDs. Insert the clip from the panel front and insert the LED from the rear and secure with the retaining ring. This will leave the LED protruding 2.5mm beyond the clip ring



- Panel thickness 2.8mm
- Panel hole 6mm dia



MOQ 20 - In Multiples of 5					
Type	Order code	20+	100+	1000+	
5mm Clip	55-0165	0.072	0.046	0.037	

029295

**Bezel LED Holders**

Attractive chrome plated brass recessed LED bezels which form a high quality panel



product when incorporated with our 3 or 5mm LEDs. The LED is held in position by retaining mount which push fits into the rear of the holder.

- Supplied complete with mounting nut and washer
- Maximum panel thickness 4mm
- Panel cut-out for 5mm type 8mm and 6.3mm for 3mm

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
3mm Recessed bezel	55-0270	0.554	0.432	0.387
5mm Recessed bezel	55-0275	0.427	0.335	0.282

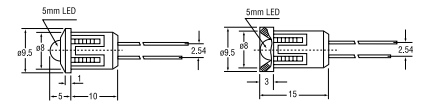
029305

Kingbright

LED Bezel 5mm

Attractive push fit panel clips for 5mm LEDs in black nylon offering professional appearance at low cost.

- Available in either recessed or prominent position styles
- Mounting hole is 8mm
- **Kingbright types RTF 5010** (prominent) and **RTF 5020** (recessed)



MQQ 5 - In Multiples of 5					
Type	Order code	5+	100+	1000+	5000+
5mm Prominent clip	55-0260	0.255	0.159	0.13	0.123
5mm Recessed clip	55-0265	0.378	0.292	0.241	

029304

Kingbright

8mm LED Bezel Panel Clip

Attractive push fit panel clip for 8mm LEDs in black nylon offering professional appearance at low cost.

- Mounting hole is 12mm
- **CML-IT type RTF8080**

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
8mm Prominent clip	55-0280	0.33	0.24	0.14

029306

Kingbright

10mm LED Bezel Panel Clips

Attractive push fit panel clips for 10mm LEDs in black nylon offering professional appearance at low cost.

- Mounting hole 14mm diameter
- **CML-IT type RTF1010**

MQQ 5 - In Multiples of 5				
Type	Order code	5+	100+	1000+
10mm Prominent clip	55-0285	0.17	0.131	0.094

029307

Miniature Lamps

RVFM

BA15D SBC Lamp Holders

A brass SBC (B15D) lampholder available either unmounted or mounted onto a base fitted with two 4mm sockets.



- Ideally suited to many applications in education
- A range of suitable bulbs of differing wattage and filament style are also available

Type	Order code	1+	5+	10+
SBC Brass lampholder	41-0452	3.43	2.92	2.62
SBC Mntd lampholder	41-0453	7.30	7.15	6.90

517584



BA15D SBC Lamps

A range of 12V filament lamps in a BA15D fitting.

- Available in a choice of wattages
- Ideally suited to many applications in education
- Lamp holders, either unmounted or mounted are also available



Technical specification				
Voltage	Wattage	Filament style	Order code	
12	21	Radial (horizontal)	41-0454	
12	24	Axial (vertical)	41-0455	
12	36	Axial (vertical)	41-0456	

Type	Order code	1+	5+	10+	100
12V 21W Lamp	41-0454	1.57	1.48	1.39	
12V 24W Lamp	41-0455	2.94	2.72	2.41	1.91
12V 36W Lamp	41-0456	2.94	2.72	2.41	

517585

RVFM

MES Lampholder (E10)

A robust MES lampholder with cross head screw connections.

- Spring loaded contact
- Diameter 10mm
- Fixing centres 23mm
- Black ABS



MQQ 5 - In Multiples of 5					
Type	Order code	5+	25+	100+	500+
MES Lampholder	41-0070	0.485	0.312	0.254	0.211

032664

RVFM

MES (E10) Lamp base

A miniature MES lampholder terminated by solder tags at the base of the holder.

- Will accept all MES lamps
- 10.6mm diameter, 12.8mm high



MQQ 10 - In Multiples of 10					
Type	Order code	10+	100+	500+	1000+
MES Lamp base	41-0090	0.116	0.07	0.066	0.062

029262



MES (E10) G3½ 11mm Lamps

A range of miniature MES lamps in a wide range of voltages.

- 11mm diameter, 23mm overall length



Technical specification				
Voltage (DC)	Current	Power	Nominal Life (hrs)	Order code
1.5V	300mA	0.45W	50	41-0130
2.5V	200mA	0.5W	100	41-0120
3.5V	200mA	0.7W	100	41-0132
3.5V	300mA	1.05W	1000	41-0125
6.0V	60mA	0.36W	10000	41-0105
6.0V	100mA	0.6W	100	41-0136
6.5V	150mA	0.6W	70	41-0138
6.5V	300mA	0.97W	70	41-0140
12.0V	100mA	1.2W	50	41-0142
12.0V	200mA	2.4W	3000	41-0110
24.0V	125mA	3W	50	41-0146

MQQ 10 - In Multiples of 10					
Type	Order code	10+	100+	500+	1000+
1.5V MES Lamp	41-0130	0.139	0.093	0.081	0.078
2.5V MES Lamp	41-0120	0.139	0.093	0.081	0.078
3.5V MES Lamp	41-0132	0.139	0.093	0.081	
3.5V MES Lamp	41-0125	0.139	0.093	0.081	0.077
6.0V MES Lamp	41-0105	0.116	0.104	0.093	0.077
6.0V MES Lamp	41-0136	0.127	0.104	0.093	0.082
6.5V MES Lamp	41-0138	0.127	0.104	0.093	
Spare bulb 6.5V	41-0140	0.127	0.104	0.093	0.082
12V 100mA MES Lamp	41-0142	0.185	0.127	0.104	0.092
12V 200mA MES Lamp	41-0110	0.116	0.104	0.093	0.077
24V MES Lamp	41-0146	0.232	0.161	0.127	

029264

Barthelemy

E10 Globe lamps

A range of E10 base, spherically-bulbed lamps available in a range of voltages and current ratings. There are lamps suitable for torches (including coloured lamps), bicycle lamps and for general purpose use.

- Clear lens
- Dimensions 11.5 x 24mm



Technical specification							
Product Code	Base	Dimensions (mm)	Voltage (V)	Current (mA)	Power (W)	Other	
57-6536	E10	11.5 x 24	1.2	150	-	Torch lamps	
57-6524	E10	11.5 x 24	1.5	200	-	Torch lamps	
57-6537	E10	11.5 x 24	2.2	200	-	Torch lamps	
57-6538	E10	11.5 x 24	2.5	100	-	Torch lamps	
57-6525	E10	11.5 x 24	2.5	200	-	Torch lamps	
57-6528	E10	11.5 x 24	2.5	300	-	Torch lamps	
57-6529	E10	11.5 x 24	3.5	200	-	Torch lamps	
57-6530	E10	11.5 x 24	3.5	200	-	Red	
57-6531	E10	11.5 x 24	3.5	200	-	Yellow	
57-6532	E10	11.5 x 24	3.5	200	-	Green	
57-6533	E10	11.5 x 24	3.5	200	-	Blue	
57-6534	E10	11.5 x 24	3.8	70	-	Torch lamps	
57-6535	E10	11.5 x 24	3.8	300	-	Torch lamps	
57-6526	E10	11.5 x 24	4.5	100	-	Torch lamps	
57-6527	E10	11.5 x 24	4.8	300	-	Torch lamps	
57-6539	E10	11.5 x 24	6.2	300	-	Bicycle lamps	
57-6540	E10	11.5 x 24	8	50	-	Bicycle lamps	
57-6541	E10	11.5 x 24	14	200	-	Bicycle lamps	
57-6542	E10	11.5 x 24	6	50	0.3	General purpose	
57-6543	E10	11.5 x 24	6	330	2	General purpose	
57-6544	E10	11.5 x 24	6	500	3	General purpose	
57-6545	E10	11.5 x 24	12	250	3	General purpose	
57-6546	E10	11.5 x 24	24	50	1.2	General purpose	
57-6547	E10	11.5 x 24	24	125	3	General purpose	

MQQ 5 - In Multiples of 5					
Rating	Usage	Order code	5+	25+	50+
1.2V 150mA	Torch	57-6536	0.205	0.194	0.184
1.5V 200mA	Torch	57-6524	0.226	0.205	0.199
2.2V 200mA	Torch	57-6537	0.207	0.196	0.186
2.5V 100mA	Torch	57-6538	0.205	0.194	0.184
2.5V 200mA	Torch	57-6525	0.226	0.205	0.199
2.5V 300mA	Torch	57-6528	0.226	0.205	0.199
3.5V 200mA	Torch	57-6529	0.226	0.205	0.199
3.5V 200mA	Red torch	57-6530	0.345	0.323	0.307
3.5V 200mA	Yel. torch	57-6531	0.357	0.334	0.323
3.5V 200mA	Green torch	57-6532	0.345	0.323	0.307
3.5V 200mA	Blue torch	57-6533	0.369	0.343	
3.8V 70mA	Torch	57-6534	0.205	0.194	0.184
3.8V 300mA	Torch	57-6535	0.205	0.194	0.184
4.5V 100mA	Torch	57-6526	0.226	0.205	0.199
4.8V 300mA	Torch	57-6527	0.205	0.194	0.184
6.2V 300mA	Bicycle	57-6539	0.205	0.194	0.184
8V 50mA	Bicycle	57-6540	0.207	0.196	
14V 200mA	Bicycle	57-6541	0.261	0.239	
6V 0.3W	GP	57-6542	0.258	0.237	0.23
6V 2W	GP	57-6543	0.258	0.237	0.23
6V 3W	GP	57-6544	0.258	0.237	0.23
12V 3W	GP	57-6545	0.258	0.237	0.23
24V 1.2W	GP	57-6546	0.261	0.239	
24V 3W	GP	57-6547	0.261	0.239	

545893

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Type	Order code	10+	100+	1000+	5000+
2.5mm pitch					
10pF	08-0040	0.0278	0.0138	0.006	
15pF	08-0042	0.013	0.0084	0.0042	0.0027
22pF	08-0046	0.0132	0.0086	0.0043	
33pF	08-0050	0.024	0.0124	0.0063	0.0042
47pF	08-0054	0.024	0.0124	0.0063	0.0042
68pF	08-0058	0.0118	0.0072	0.0037	
100pF	08-0140	0.0118	0.0097	0.0037	
150pF	08-0150	0.0127	0.0102	0.0039	0.0035
220pF	08-0160	0.0127	0.0102	0.0039	0.0035
330pF	08-0170	0.0127	0.0102	0.0039	
470pF	08-0180	0.0151	0.0125	0.0047	
560pF	08-0185	0.0177	0.0146	0.0057	
1n	08-0200	0.0174	0.0109	0.0053	0.004
10n	08-0232	0.0272	0.0098	0.0068	0.0042
5.0mm pitch					
2n2	08-0210	0.032	0.0112	0.0086	
10n	08-0230	0.0118	0.0091	0.0063	0.0039
47n	08-0237	0.033	0.0154	0.0104	0.0089
100n	08-0235	0.0245	0.0109	0.0102	0.0068

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Technical specification

Tolerance	±20%
Temperature range	-40°C to +85°C
Climatic category	40/085/56 (IEC 688)
Shelf life	Minimum 2 years
Manufactured to spec.	IEC 384-4, DIN 41316

Case code	L	D	Lead diameter (max.)
A	12	6	0.5
B	13	8	0.6
C	17	8	0.6
D	18	10	0.6
E	21	10	0.6
F	21	13	0.6
G	26	13	0.6
H	27	16	0.8
I	33	16	0.8
J	36	16	0.8

Value (µF)	Case	Ripple	Order code	1+	25+	100+	250+
10V							
1000	D	1000mA	11-0180	0.476	0.285	0.178	0.139
2200	F	1560mA	11-0185	0.658	0.396	0.246	
16V							
100	A	330mA	11-0015	0.25	0.151	0.132	0.097
220	C	490mA	11-0020	0.348	0.211	0.132	0.097
470	D	740mA	11-0025	0.441	0.265	0.164	0.147
2200	G	1750mA	11-0035	0.903	0.542	0.34	0.246
4700	I	2220mA	11-0040	1.63	0.981	0.614	0.448
25V							
10	A	90mA	11-0120	0.203	0.121	0.076	0.066
22	A	160mA	11-0125	0.212	0.126	0.08	0.058
47	A	240mA	11-0130	0.249	0.149	0.119	0.103
100	B	360mA	11-0135	0.282	0.17	0.119	0.103
220	C	540mA	11-0140	0.355	0.215	0.134	0.099
470	E	810mA	11-0145	0.533	0.322	0.199	0.145
1000	F	1130mA	11-0150	0.697	0.419	0.262	
2200	H	1870mA	11-0155	1.20	0.723	0.452	0.328
4700	J	2690mA	11-0160	2.32	1.39	0.87	
35V							
100	C	400mA	11-0060	0.297	0.18	0.119	0.103
220	D	600mA	11-0065	0.489	0.295	0.186	0.134
470	F	290mA	11-0070	0.584	0.349	0.22	0.159
63V							
1	A	5mA	11-0105	0.206	0.123	0.084	0.065
2.2	A	45mA	11-0110	0.203	0.121	0.086	0.065
4.7	A	80mA	11-0115	0.203	0.121	0.076	0.066
10	A	120mA	11-0075	0.206	0.122	0.083	0.065
100	D	450mA	11-0090	0.496	0.299	0.188	0.136

Forever

Radial Electrolytic Capacitor Kit 93-Piece



This 93-piece capacitor kit contains a range of micro-miniature radial lead electrolytic capacitors. The capacitors have a high capacitance per unit volume and are ideal for applications where high density packaging and low profile capacitors are required.

- Each value individually packed
- A total of 12 different values
- 7mm height
- Tolerance ±20%
- Temperature Range -40°C to +85°C

Technical specification

Number	Value	Voltage
15x	100µF	16V
5x	220µF	16V
5x	470µF	16V
3x	1000µF	16V
2x	2220µF	16V
15x	10µF	25V
5x	22µF	25V
10x	47µF	25V
3x	1000µF	25V
10x	1µF	63V
10x	2.2µF	63V
10x	4.7µF	63V

Type	Order code	1+	5+
Electrolytic capacitor kit	13-0220	7.76	6.73

Forever

85°C Radial Lead Aluminium Electrolytic Capacitor

Miniature radial lead aluminium electrolytic capacitors for mounting directly to PCBs. Manufactured to high technical and quality standards.

- All types are fully sleeved
- 85°C general purpose
- Forever RB series



Technical specification

Voltage	Value (µF)	Ripple (mA)	L (mm)	D (mm)	Pitch (mm)	Order code
10V	47	100	11	5	2	11-0305
	100	140	11	5	2	11-0310
	220	230	11	6	2.5	11-1400
	470	-	12	8	2.5	11-0271
	1000	-	14	8	3.5	11-0316
	2200	1080	20	10	5	11-0320
	47	100	11	5	2	11-0325
	100	-	11	5	2	11-0246
	220	290	11	6	2.5	11-0260
	220	-	11	6	3.5	11-0261
16V	330	350	11	8	3.5	11-1404
	470	460	11	8	3.5	11-0275
	1000	820	17	10	5	11-0290
	2200	1160	21	13	5	11-0300
	4700	1900	26	16	7.5	11-0750
	10	50	11	5	2	11-0220
	22	75	11	5	2	11-0230
	47	110	11	5	2	11-0235
	100	180	11	6	2.5	11-0250
	220	310	11	8	3.5	11-0265
25V	330	-	14	8	3.5	11-1411
	470	-	14	8	3.5	11-0281
	1000	880	21	10	5	11-0295
	2200	1350	26	13	5	11-0330
	3.3	35	11	5	2	11-1414
	22	90	11	5	2	11-0340
	47	-	11	6	2	11-0346
	100	230	11	8	3.5	11-0350
	330	-	16	10	5	11-1413
	470	670	17	10	5	11-0360
35V	1000	990	21	13	5	11-0760
	2200	1700	26	16	7.5	11-0765
	4700	2380	36	18	7.5	11-1418
	0.47	15	11	5	2	11-1420
	1	22	11	5	2	11-0205
	2.2	32	11	5	2	11-0210
	4.7	47	11	5	2	11-0215
	10	60	11	5	2	11-0225
	22	100	11	5	2.5	11-0335
	33	130	11	6	2.5	11-1422
63V	330	620	21	13	5	11-1424
	470	820	26	12	5	11-0390
	1000	1360	31	16	7.5	11-1426
	1	22	11	5	2	11-1428
	3.3	39	11	5	2	11-1432
	4.7	47	11	5	2	11-1434
	10	80	11	6	2.5	11-1436
	22	130	11	8	3.5	11-1438
	47	230	17	10	5	11-1442
	100	380	21	10	5	11-1444

Type	Order code	5+	10+	100+	500+
MOQ 5					
10V					
47µ	11-0305	0.037	0.0275	0.0201	0.0165
100µ	11-0310	0.036	0.0265	0.0194	0.0159
220µ	11-1400	0.071	0.055	0.046	0.039
470µ	11-0271	0.066	0.053	0.045	0.04
1000µ	11-0316	0.103	0.077	0.057	
2200µ	11-0320	0.213	0.159	0.139	0.118
16V					
47µ	11-0325	0.036	0.0265	0.0194	0.0159
100µ	11-0246	0.035	0.0257	0.0189	0.0154
220µ	11-0260	0.057	0.05	0.046	0.041
220µ	11-0261	0.066	0.054	0.048	0.039
330µ	11-1404	0.071	0.055	0.046	0.039
470µ	11-0275	0.071	0.055	0.047	0.039

MOQ 5 - In Multiples of 5					
Type	Order code	5+	10+	100+	500+
1000μ	11-0290	0.141	0.106	0.077	0.066
2200μ	11-0300	0.295	0.221	0.162	0.134
Price each					
Type	Order code	1+	10+	100+	500+
4700μ	11-0750	0.506	0.379	0.279	0.229
MOQ 5					
Type	Order code	5+	10+	100+	500+
25V					
10μ	11-0220	0.036	0.027	0.0198	0.016
22μ	11-0230	0.037	0.0275	0.0201	0.0165
47μ	11-0235	0.037	0.0275	0.0201	0.016
100μ	11-0250	0.073	0.058	0.049	0.042
220μ	11-0265	0.106	0.079	0.065	0.053
330μ	11-1411	0.099	0.074	0.063	0.053
470μ	11-0281	0.132	0.099	0.072	0.066
1000μ	11-0295	0.217	0.162	0.119	0.098
2200μ	11-0330	0.404	0.303	0.222	0.182
Price each					
Type	Order code	1+	10+	100+	500+
4700μ	11-0755	0.723	0.542	0.398	0.326
MOQ 5					
Type	Order code	5+	10+	100+	500+
35V					
3μ3	11-1414	0.037	0.0275	0.0201	
22μ	11-0340	0.037	0.0275	0.0201	
47μ	11-0346	0.066	0.054	0.046	0.04
100μ	11-0350	0.074	0.055	0.04	0.033
330μ	11-1413	0.099	0.074	0.066	
MOQ 5 - In Multiples of 5					
Type	Order code	5+	10+	100+	500+
470μ	11-0360	0.185	0.139	0.119	0.103
Price each					
Type	Order code	1+	10+	100+	500+
1000μ	11-0760	0.326	0.244	0.179	0.148
2200μ	11-0765	0.588	0.44	0.324	0.265
4700μ	11-1418	1.28	0.965	0.707	
MOQ 5					
Type	Order code	5+	10+	100+	500+
63V					
0.47μ	11-1420	0.037	0.0275	0.0201	0.0165
MOQ 5 - In Multiples of 5					
Type	Order code	5+	10+	100+	
1μ	11-0205	0.047	0.0239	0.0181	
MOQ 5					
Type	Order code	5+	10+	100+	500+
2μ2	11-0210	0.037	0.0275	0.0201	0.0165
4μ7	11-0215	0.037	0.0275	0.0201	0.0165
10μ	11-0225	0.037	0.0275	0.0201	0.0165
22μ	11-0335	0.068	0.054	0.045	0.039
33μ	11-1422	0.071	0.055	0.046	0.039
100μ	11-0256	0.132	0.099	0.072	0.066
220μ	11-0385	0.217	0.162	0.119	0.098
Price each					
Type	Order code	1+	10+	100+	500+
470μ	11-0390	0.433	0.326	0.24	0.195
1000μ	11-1426	0.796	0.596	0.438	
MOQ 5					
Type	Order code	5+	10+	100+	500+
100V					
1μ	11-1428	0.037	0.0275	0.0201	0.0165
3μ3	11-1432	0.037	0.0275	0.0201	0.0165
4μ7	11-1434	0.037	0.0275	0.0201	0.0165
10μ	11-1436	0.071	0.055	0.046	0.039
22μ	11-1438	0.111	0.083	0.061	0.049
47μ	11-1442	0.185	0.139	0.102	
100μ	11-1444	0.221	0.165	0.121	

Forever

Microminiature 85°C
Electrolytic Capacitors

These microminiature radial electrolytic capacitors offer high capacitance per unit volume.

- 7mm height
- Tolerance $\pm 20\%$
- Temperature Range -40°C to $+85^{\circ}\text{C}$

Technical specification

Voltage	Value (μF)	Ripple (mA) ϕ (mm)	L (mm)	Pitch (mm)	Order code
10V	22	36	4	7	11-0810
	47	-	7	-	11-0816
	100	100	6	7	11-0820
16V	220	125	6	7	11-0870
	10	26	4	7	11-0825
	22	44	4	7	11-0830
35V	22	-	7	1.5	11-1509
	47	74	5	7	11-0835
	100	90	6	7	11-0875
50V	10	36	5	7	11-0840
	22	-	7	-	11-0846
	0.47	7	4	7	11-0850
	1	11	4	7	11-0855
	2.2	16	4	7	11-0860
	4.7	20	4	7	11-0865

MOQ 5

Value (μF)	Order code	5+	50+	100+	500+
10V	22	11-0810	0.049	0.037	0.033
	47	11-0816	0.069	0.055	0.046
	100	11-0820	0.069	0.055	0.046
	220	11-0870	0.069	0.055	0.046
16V	10	11-0825	0.038	0.0282	0.0193
	22	11-0830	0.042	0.031	0.0268
	22	11-1509	0.058	0.043	0.038
	47	11-0835	0.069	0.055	0.046
35V	100	11-0875	0.069	0.055	0.046
	22	11-0840	0.069	0.055	0.046
	22	11-0846	0.069	0.055	0.046
	0.47	11-0850	0.057	0.034	0.0246
50V	1	11-0855	0.057	0.034	0.0246
	2.2	11-0860	0.042	0.031	0.0268
	4.7	11-0865	0.057	0.034	0.0246

MOQ 5 - In Multiples of 5						
Value	Tolerance	Order code	5+	100+	1000+	5000+
63V						
100nF	10%	10-3260	0.081	0.052	0.04	0.038
150nF	10%	10-3262	0.113	0.078	0.066	
220nF	10%	10-3264	0.095	0.063	0.051	0.042
220nF	5%	10-5828	0.086	0.071	0.057	
330nF	10%	10-3266	0.182	0.153	0.137	
330nF	5%	10-5830	0.134	0.105	0.094	
470nF	10%	10-3268	0.171	0.095	0.075	
470nF	5%	10-5833	0.144	0.12	0.108	
680nF	10%	10-3270	0.187	0.144	0.108	
1uF	10%	10-3272	0.223	0.148	0.118	
100V						
1nF	10%	10-3240	0.075	0.044	0.038	
1nF	5%	10-5810	0.073	0.046	0.039	
1n5	10%	10-3242	0.103	0.068	0.054	
2n2	10%	10-3244	0.061	0.04	0.033	
3n3	10%	10-3246	0.072	0.05	0.046	
3n3	5%	10-5816	0.078	0.072	0.066	
4n7	10%	10-3248	0.061	0.04	0.033	
10nF	10%	10-3250	0.061	0.039	0.032	0.0298
15nF	10%	10-3252	0.072	0.052	0.046	
22nF	10%	10-3254	0.074	0.046	0.037	
22nF	5%	10-5822	0.072	0.047	0.04	
33nF	10%	10-3256	0.178	0.15	0.139	
47nF	10%	10-3258	0.078	0.05	0.039	
47nF	5%	10-5824	0.076	0.069	0.065	
68nF	10%	63-1159	0.14	0.08	0.07	
100nF	5%	10-5826	0.078	0.072	0.066	

061744

Suntan®

Double Layer Gold Capacitor

5.5V electrolytic double layer capacitor.

- 5mm pitch
- Excellent voltage holding and capacitance
- Low profile
- Ideal alternative to rechargeable batteries.
- Suitable for backing up of CMOS, microcomputers and memory
- Long life

Technical specification

Operating voltage	5.5V DC
Operating temperature	-25°C to $+70^{\circ}\text{C}$
Capacitor tolerance	-20% to $+80\%$
Dimensions	8mm x ϕ 21.5mm
Pitch	5mm
Load life	1000hrs at $+70^{\circ}\text{C}$
Shelf life	1000hrs at $+70^{\circ}\text{C}$

Type	Order code	1+	10+	50+	100+
0.47F	11-2161	1.90	1.51	1.41	1.36

071359

R82 Series Miniature Metallised
Polyester Capacitors

A range of miniature metallised polyester capacitors from the Kemet R82 series.

The R82 series are encapsulated in thermosetting resin in a UL 94V-0 rated case and have radial leads of 5mm pitch. These capacitors are ideal for inline use in applications such as blocking, coupling, decoupling, timing and oscillator circuits.

- Width 7.2mm - ideal for high packing density
- Working voltage 100V
- Self-healing
- Formerly Arcotronics R82 series

Note: Not for new designs. Contact Rapid for details and samples of the replacement series.

Technical specification

Tolerance	5% / 10%
Dielectric	Polyester film
Pitch	5mm
Case size	1nF - 100nF 7.2 x 6.5 x 2.5mm
	150nF - 220nF 7.2 x 7.5 x 3.5mm
	330nF - 470nF 7.2 x 9.5 x 4.5mm
	680nF 7.2 x 11 x 5mm
	1uF 7.2 x 11 x 6mm
Case material	Plastic, resin filled UL 94V-0
Operating temperature	-55°C to $+105^{\circ}\text{C}$

No minimum order value
UK mainland only



High Capacity Condenser Capacitors



High-capacity condensers, which can serve as a replacement or as a supplement for battery systems.

Technical specification

Order Code	Capacitance Tolerance (%)	Dimensions (ϕ x L) (mm)	Capacitance (F)	Grid pitch (mm)	Nominal Voltage (V DC)	Temperature range ($^{\circ}\text{C}$)
50-7480	± 20	8 x 20	3	3.5	2.5	-25 to $+70$
50-7481	± 20	10 x 20	5	5	2.5	-25 to $+70$
50-7482	± 20	10 x 30	10	5	2.5	-25 to $+70$
50-7483	± 20	16 x 25	25	7.5	2.5	-25 to $+70$
50-7485	± 20	8 x 20	3	3.5	2.7	-40 to $+60$
50-7487	± 20	10 x 30	10	5	2.7	-40 to $+60$
50-7488	± 20	16 x 25	25	7.5	2.7	-40 to $+60$
50-7491	± 20	35 x 60	400	10	2.5	-25 to $+70$
50-7492	± 20	22 x 45	100	10	2.7	-40 to $+60$
50-7493	± 20	30 x 45	200	10	2.7	-40 to $+60$
50-7494	± 20	35 x 50	300	10	2.7	-40 to $+60$
50-7495	± 20	35 x 60	400	10	2.7	-40 to $+60$
50-7496	± 20	63.5 x 130	2700	28.6	2.5	-25 to $+60$
50-7497	± 20	51 x 100	1400	22	2.5	-25 to $+60$
50-7498	± 20	63.5 x 100	2700	28.6	2.5	-25 to $+60$

Value (F)	WV (V)	Order code	1+	50+
Radial				
3	2.5	50-7480	0.782	0.735
5	2.5	50-7481	0.988	
10	2.5	50-7482	1.62	1.54
25	2.5	50-7483	2.60	
3	2.7	50-7485	0.849	
10	2.7	50-7487	1.69	
25	2.7	50-7488	2.67	2.52
Snap-in				
400	2.5	50-7491	15.58	14.80
100	2.7	50-7492	8.51	8.08
200	2.7	50-7493	9.93	9.42
300	2.7	50-7494	14.18	13.46
400	2.7	50-7495	19.18	18.22
Screw terminal				
2700	2.5	50-7496	162.31	154.11
1400	2.5	50-7497	91.73	87.10
2700	2.5	50-7498	141.12	134.00

519710

Resistors &
PotentiometersCR25 0.25W Carbon Film Resistors
Packs of 100

Miniature high stability 0.25W carbon film resistors for industrial and consumer electronic equipment. A zero-Ohm resistor is also available which is a useful alternative to jumper or wire links on PCBs.

- 5% tolerance
- 0.25W rated
- Supplied in packs of 100

Technical specification

Power rating	0.25W
Resistance range	0 Ω - 10M Ω
Tolerance	$\pm 5\%$
Temperature coefficient	± 400 ppm/ $^{\circ}\text{C}$
Operating voltage max.	300V
Temperature range	-25°C to $+70^{\circ}\text{C}$
Dimensions	body 6.5 x 2.3mm
	leads 30 x 0.6mm

Price per pack of 100		
Value (Ω)	Order code	1+
0R-82R		
1R	62-0303	0.689
1R2	62-0304	0.689
1R5	62-0305	0.689
1R8	62-0306	0.689
2R2	62-0307	0.689
2R7	62-0308	0.689
3R3	62-0309	0.689
3R9	62-0310	0.689
4R7	62-0320	0.689
5R6	62-0313	0.689
6R8	62-0324	0.689
8R2	62-0316	0.689
10R	62-0326	0.689

Price per pack of 100		
Value (Ω)	Order code	1+
12R	62-0319	0.689
15R	62-0328	0.689
18R	62-0322	0.689
22R	62-0330	0.689
27R	62-0332	0.689
33R	62-0334	0.689
39R	62-0336	0.689
47R	62-0338	0.689
56R	62-0340	0.689
68R	62-0342	0.689
75R	62-0295	0.689
82R	62-0344	0.689
100R-820R		
100R	62-0346	0.689
120R	62-0348	0.689
150R	62-0350	0.689
180R	62-0352	0.689
220R	62-0354	0.689
270R	62-0356	0.689
330R	62-0358	0.689
390R	62-0360	0.689
470R	62-0362	0.689
560R	62-0364	0.689
680R	62-0366	0.689
820R	62-0368	0.689
1K-8K2		
1K	62-0370	0.689
1K2	62-0372	0.689
1K5	62-0374	0.689
1K8	62-0376	0.689
2K2	62-0378	0.689
2K7	62-0380	0.689
3K3	62-0382	0.689
3K9	62-0384	0.689
4K7	62-0386	0.689
5K6	62-0388	0.689
6K8	62-0390	0.689
8K2	62-0392	0.689
10K-82K		
10K	62-0394	0.689
12K	62-0396	0.689
15K	62-0398	0.689
18K	62-0400	0.689
22K	62-0402	0.689
27K	62-0404	0.689
33K	62-0406	0.689
39K	62-0408	0.689
47K	62-0410	0.689
56K	62-0412	0.689
68K	62-0414	0.689
82K	62-0416	0.689
100K-820K		
100K	62-0418	0.689
120K	62-0420	0.689
150K	62-0422	0.689
180K	62-0424	0.689
220K	62-0426	0.689
270K	62-0428	0.689
330K	62-0430	0.689
390K	62-0432	0.689
470K	62-0434	0.689
560K	62-0436	0.689
680K	62-0438	0.689
820K	62-0440	0.689
1M-10M		
1M	62-0442	0.689
1M2	62-0444	0.689
1M5	62-0446	0.689
1M8	62-0448	0.689
2M2	62-0450	0.689
2M7	62-0452	0.689
3M3	62-0454	0.689
3M9	62-0456	0.689
4M7	62-0458	0.689
5M6	62-0460	0.689
6M8	62-0462	0.689
8M2	62-0464	0.689
10M	62-0466	0.689



CR50 0.5W Carbon Film Resistors Pack of 100



Miniature high stability 0.5W carbon film resistors for industrial and consumer electronic equipment.

- 5% tolerance
- 0.5W rated
- Supplied in packs of 100

Technical specification

Power rating @ 70°C	0.5W
Resistance range	4.7Ω to 8.2MΩ
Tolerance	±5%
Temperature coefficient	10Ω below ±200ppm/°C
	56KΩ below ±300ppm/°C
	68K-470KΩ -500ppm/°C
	560K-1MΩ -700ppm/°C
	1MΩ up -1000ppm/°C
Operating voltage max.	350V
Temperature range	-25°C to +70°C
Dimensions	body 8.8 x 2.8mm
	leads 2.7 x 0.6mm

Price per pack of 100			
Value (Ω)	Order code	1+	10+
4R7-82R			
4R7	62-0510	1.01	
5R6	62-0500	1.33	1.04
6R8	62-0502	1.36	1.04
10R	62-0518	1.01	
15R	62-0522	1.01	
18R	62-0508	1.36	1.04
22R	62-0524	1.01	
33R	62-0526	1.01	
39R	62-0514	1.01	
47R	62-0528	1.01	
56R	62-0516	1.01	
68R	62-0532	1.01	
82R	62-0520	1.01	
100R-820R			
100R	62-0536	1.01	
120R	62-0530	1.01	
150R	62-0538	1.01	
180R	62-0540	1.01	
220R	62-0542	1.01	
270R	62-0544	1.01	
330R	62-0546	1.27	
390R	62-0534	1.01	
470R	62-0548	1.01	
560R	62-0550	1.01	
680R	62-0552	1.01	
820R	62-0554	1.01	
1K-8K2			
1K	62-0556	1.01	
1K2	62-0558	1.01	
1K5	62-0560	1.01	
1K8	62-0562	1.01	
2K2	62-0564	1.01	
2K7	62-0566	1.01	
3K3	62-0568	1.01	
3K9	62-0570	1.01	
4K7	62-0572	1.01	
5K6	62-0574	1.01	
6K8	62-0576	1.01	
8K2	62-0578	1.01	
9K1	62-0489	0.77	
10K-82K			
10K	62-0580	1.01	
15K	62-0584	1.01	
18K	62-0586	1.01	
22K	62-0588	1.01	
27K	62-0590	1.01	
33K	62-0592	1.01	
39K	62-0594	1.01	
47K	62-0596	1.01	
56K	62-0598	1.01	
68K	62-0600	1.01	
82K	62-0602	1.01	

Price per pack of 100			
Value (Ω)	Order code	1+	10+
100K-820K			
100K	62-0604	1.01	
120K	62-0606	1.01	
150K	62-0608	1.01	
180K	62-0610	1.01	
220K	62-0612	1.01	
270K	62-0614	1.01	
430K	62-0493	1.29	1.01
470K	62-0620	1.01	
560K	62-0622	1.01	
820K	62-0630	0.964	
1M-8M2			
1M	62-0628	1.01	
1M5	62-0634	1.01	
1M8	62-0638	0.991	
2M2	62-0636	1.01	
3M3	62-0642	1.01	
4M7	62-0644	1.01	
5M6	62-0495	0.83	
8M2	62-0499	1.36	1.04

029579



CR25 Carbon Film Resistor Kit



CR25 TruOhm CR25 series carbon film resistor kit containing 1000 pieces supplied in 8 packs containing 0.25W 5% Carbon Film Resistors.

These range from 4.7R to 10M, equalling a total of 63 different values throughout the resistor range provided.

- Values ranging from 4.7Ω through to 10MΩ
- A total of 63 different values
- Supplied in 8 packs

See **Storage/Packing Equipment** section for suitable storage cabinets.

Technical specification

10 x 4R7	10 x 150R	15 x 1K2	30 x 10K	15 x 68K	25 x 470K
10 x 10R	15 x 180R	15 x 1K5	15 x 12K	10 x 82K	10 x 560K
10 x 15R	20 x 220R	10 x 1K8	15 x 15K	30 x 100K	10 x 680K
10 x 22R	20 x 270R	25 x 2K2	15 x 18K	20 x 120K	5 x 820K
10 x 33R	20 x 330R	20 x 2K7	20 x 22K	15 x 150K	20 x 1M
20 x 47R	10 x 390R	20 x 3K3	15 x 27K	15 x 180K	10 x 2M2
10 x 56R	30 x 470R	15 x 3K9	20 x 33K	20 x 220K	5 x 3M3
10 x 68R	20 x 560R	25 x 4K7	10 x 39K	15 x 270K	10 x 4M7
10 x 82R	20 x 680R	20 x 5K6	30 x 47K	15 x 330K	5 x 6M8
20 x 100R	10 x 820R	15 x 6K8	20 x 56K	10 x 390K	20 x 10M
10 x 120R	30 x 1K	10 x 8K2			

Type	Order code	1+	5+
CR25 0.25W Resistor kit	13-0200	15.78	13.28

028374

Order online

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24 hours a day



CR50 Carbon Film Resistor Kit



A pack containing a total of 1000 0.5W 5% carbon film resistors.

- A total of 58 different values

See www.rapidonline.com for suitable storage cabinets.

Technical specification

10 x 4R7	10 x 120R	10 x 820R	20 x 5K6	10 x 39K	15 x 330K
15 x 10R	10 x 150R	30 x 1K	15 x 8K8	30 x 47K	10 x 390K
10 x 15R	10 x 180R	15 x 1K2	10 x 9K2	20 x 56K	25 x 470K
10 x 22R	20 x 220R	15 x 1K5	40 x 10K	15 x 68K	10 x 560K
10 x 33R	20 x 270R	10 x 1K8	15 x 12K	10 x 82K	10 x 680K
20 x 47R	20 x 330R	25 x 2K2	15 x 15K	40 x 100K	25 x 1M
10 x 56R	10 x 390R	20 x 2K7	15 x 18K	20 x 120K	10 x 2M2
10 x 68R	30 x 470R	20 x 3K3	20 x 22K	15 x 150K	15 x 4M7
10 x 82R	20 x 560R	15 x 3K9	15 x 27K	20 x 220K	
20 x 100R	20 x 680R	30 x 4K7	20 x 33K	15 x 270K	

Type	Order code	1+	5+
CR50 0.5W Resistor kit	13-0260	11.85	9.92

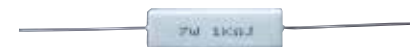
Technical specification

Power rating @25°C	25W
Max AC working voltage	550V
Dimensions (body) L x H x D (mm)	27.3 x 14.6 x 14
Fixing centres (mm)	18.3 x 19.8
Fixing holes	x2
Standard heatsink area (cm ²)	535

		Price each			
Value	Order code	1+	10+	25+	50+
0R1	62-8100	1.16	1.03	0.91	
0R22	62-8102	1.40	1.25	1.11	1.05
0R33	62-8103	1.19	1.05	0.937	
0R47	62-8104	1.30	1.16	1.03	
1R	62-8106	1.52	1.35	1.19	1.12
2R2	62-8108	1.43	1.27	1.12	1.06
3R3	62-8109	1.59	1.37	1.17	
4R7	62-8110	1.36	1.21	1.08	
6R8	62-8111	1.43	1.27	1.12	
10R	62-8112	1.39	1.23	1.10	1.04
15R	62-8430	1.36	1.21	1.08	1.02
22R	62-8114	1.36	1.21	1.08	1.02
33R	62-8116	1.43	1.27	1.12	1.06
47R	62-8118	1.59	1.37	1.17	1.10
68R	62-8120	1.36	1.21	1.08	
75R	62-8435	1.30	1.16	1.03	
100R	62-8122	1.12	1.00	0.892	0.843
120R	62-8440	2.38	2.04	1.69	
150R	62-8445	1.58	1.41	1.25	1.19
220R	62-8124	1.41	1.25	1.10	1.04
270R	62-8450	2.45	2.09	1.75	
470R	62-8126	1.46	1.31	1.16	1.10
560R	62-8460	2.52	2.21	1.84	
680R	62-8465	1.51	1.35	1.20	1.11
1K	62-8128	1.46	1.31	1.16	1.10
2K2	62-8400	1.33	1.20	1.08	
4K7	62-8130	1.79	1.60	1.41	
10K	62-8415	1.78	1.59	1.41	1.35
15K	62-8420	1.92	1.66	1.37	1.29
25K	62-8425	1.90	1.61	1.37	1.29



7W Axial Ceramic Resistors



Axial ceramic 7W power resistors.

- Heat and flame resistant
- 7W power rating

Technical specification

Dimensions	35 x 10 x 9mm
Power rating at 70°C	7W
Resistance tolerance	5%
Temperature coefficient	±300ppm/°C
Temperature range	-55°C to +155°C
Max. working voltage	500V

		MOQ 5 - In Multiples of 5			
Type	Order code	5+	25+	100+	500+
R47	62-8250	0.206	0.173	0.15	
1R	62-8252	0.206	0.173	0.15	
4R7	62-8254	0.185	0.131	0.111	
10R	62-8256	0.213	0.151	0.128	
22R	62-8258	0.185	0.131	0.111	
33R	62-8260	0.221	0.166	0.129	0.118
47R	62-8262	0.196	0.148	0.136	0.123
100R	62-8264	0.237	0.199	0.173	0.123
1K	62-8268	0.192	0.15	0.135	
4K7	62-8270	0.192	0.15	0.135	
10K	62-8272	0.185	0.131	0.111	
22K	62-8274	0.192	0.15	0.135	



25W 5% Arcol Power Resistor (Aluminium Clad) HS Series

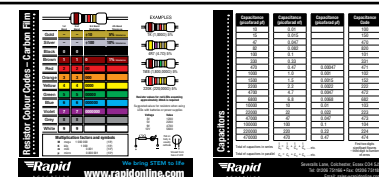


25W Aluminium clad resistors designed for applications requiring high power dissipation in a limited space. These resistors are designed for direct heatsink mounting using thermal compound to achieve maximum performance. To find out more about our range of Arcol resistors, please visit our Arcol brand page at www.rapidonline.com.

- Resistance tolerance 5%
- High power to volume
- Wound to maximise high pulse capacity
- Temperature coefficient = 1k 100ppm/°C, >1k 25ppm/°C
- Solder terminations
- Wide range of resistances
- Manufactured in line with the requirements of IEC 115 and MIL-18546

FREE RESISTOR COLOUR CODE CARDS

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KNP Series 3W Wirewound Resistors 5%



Wirewound resistors wound on a ceramic former with flame retardant silicone resin coating that offers high resistance stability, excellent heat dissipation and low noise.

- 5% tolerance
- 3W rated (2.5W for **62-0236**)
- Maximum working voltage 300V
- TruOhm KNP series

Technical specification

Power rating @ 70°C	3W (2.5W for 62-0236) (derate to zero @ 275°C)
Working voltage max.	300V
Resistance tolerance	5%
Max. temp coefficient	±300ppm/°C
Temperature range	-40°C to +200°C
Dimensions:	body leads 15.0(L) x 5.0(D)mm 35(L) x 0.8(D)mm

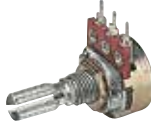
		MOQ 5 - In Multiples of 5			
Value (Ω)	Order code	5+	100+	500+	1000+
0R1	62-0210	0.152	0.119	0.072	
0R12	62-1350	0.151	0.118	0.071	
0R15	62-0266	0.152	0.119	0.072	0.067
0R18	62-0267	0.152	0.119	0.072	
0R22	62-0215	0.152	0.119	0.072	
0R33	62-0220	0.152	0.119	0.072	
0R47	62-0225	0.152	0.119	0.072	0.067
0R56	62-0268	0.152	0.119	0.072	
0R68	62-1353	0.151	0.118	0.071	
0R82	62-1354	0.151	0.118	0.071	
1R	62-0230	0.152	0.119	0.072	
1R2	62-1355	0.151	0.118	0.071	
1R5	62-0270	0.152	0.119	0.072	
1R8	62-1356	0.151	0.118	0.071	
2R	62-0271	0.152	0.119	0.072	
2R2	62-0235	0.152	0.119	0.072	0.067
2R7	62-1357	0.151	0.118	0.071	
3R3	62-0272	0.152	0.119	0.072	
3R9	62-1358	0.151	0.118	0.071	
4R7	62-0240	0.152	0.119	0.072	0.067
5R6	62-1359	0.151	0.118	0.071	
6R8	62-0275	0.152	0.119	0.072	
8R2	62-1360	0.151	0.118	0.071	
10R	62-0245	0.152	0.119	0.072	
12R	62-1361	0.151	0.118	0.071	
15R	62-1362	0.151	0.118	0.071	
18R	62-1363	0.151	0.118	0.071	
22R	62-0250	0.152	0.119	0.072	
27R	62-1364	0.151	0.118	0.071	
33R	62-1365	0.151	0.118	0.071	
39R	62-1366	0.151	0.118	0.071	
47R	62-0255	0.152	0.119	0.072	
56R	62-1367	0.144	0.115	0.069	
68R	62-1368	0.151	0.118	0.071	
82R	62-1369	0.151	0.118	0.071	
100R	62-0260	0.152	0.119	0.072	
120R	62-1370	0.151	0.118	0.071	
150R	62-0265	0.152	0.122	0.074	
180R	62-1371	0.151	0.118	0.071	
220R	62-1372	0.151	0.118	0.071	
270R	62-1373	0.151	0.118	0.071	
330R	62-1374	0.151	0.118	0.071	
470R	62-1376	0.151	0.118	0.071	
560R	62-1377	0.042			
680R	62-1378	0.151	0.118	0.071	
820R	62-1379	0.151	0.118	0.071	
1K	62-1380	0.151	0.118	0.071	
1K2	62-1381	0.151	0.118	0.071	
1K5	62-1382	0.151	0.118	0.071	
2K2	62-1384	0.151	0.118	0.071	

Pricing correct at time of going to press. For up-to-date pricing visit www.rapidonline.com.



16mm Commercial Potentiometers 20% Metal Case PCB Mounting

A range of ø16mm carbon track single potentiometers suitable for PCB mounting in commercial applications. Offered in a range of popular values with 20% tolerance.



- Choice of Linear or Log taper
- Metal case
- Supplied with serrated 6mm diameter shaft
- Bush mount

Technical specification

Dimensions	17 x 16.5mm
Pitch	5mm
Tolerance	20%
Power rating	0.125W linear, 0.06W log.
Maximum voltage	150V
Electrical rotation	300° ±5°
Rotation torque	20-200gm/cm
Temperature range	-25°C to +70°C

Value (Ω)	Taper	Order code	1+	50+	250+
470R	Lin	65-0700	0.84	0.63	0.525
1K	Lin	65-0705	0.84	0.63	0.525
4K7	Lin	65-0710	0.84	0.63	0.525
10K	Lin	65-0715	0.84	0.63	0.525
22K	Lin	65-0720	0.84	0.63	0.525
47K	Lin	65-0725	0.84	0.63	0.525
100K	Lin	65-0730	0.84	0.63	0.525
220K	Lin	65-0735	0.84	0.63	0.525
470K	Lin	65-0740	0.84	0.63	0.525
1M	Lin	65-0745	0.84	0.63	0.525
4K7	Log	65-0810	0.84	0.63	0.525
10K	Log	65-0811	0.84	0.63	0.525
22K	Log	65-0820	0.84	0.63	0.525
47K	Log	65-0812	0.84	0.63	0.525
100K	Log	65-0830	0.84	0.63	0.525
470K	Log	65-0813	0.84	0.63	0.525
1M	Log	65-0845	0.84	0.63	0.525

065222



24mm Commercial Potentiometers 20% Metal Case

A range of ø24mm carbon track single potentiometers suitable for panel mounting in commercial applications. Offered in a range of popular values with 20% tolerance.



- Choice of Linear or Log taper
- Metal case
- Supplied with 6mm shaft
- Shaft length (including bush) 50mm
- Solder tag termination

Technical specification

Dimensions	ø 24mm
Tolerance	20%
Power rating	0.5W linear, 0.25W log.
Maximum voltage	125V AC
Electrical rotation	300° ±5°
Rotation torque	20 to 200gm/cm
Temperature range	-25°C to +70°C

Value	Taper	Order code	1+	50+	250+
470Ω	Lin	65-0500	0.777	0.62	0.556
1K	Lin	65-0505	0.777	0.62	0.556
4K7	Lin	65-0510	0.777	0.62	0.556
10K	Lin	65-0515	0.777	0.62	0.556
22K	Lin	65-0520	0.777	0.62	0.556
47K	Lin	65-0525	0.777	0.62	0.556
100K	Lin	65-0530	0.777	0.62	0.556
220K	Lin	65-0535	0.777	0.62	0.556
470K	Lin	65-0540	0.777	0.62	0.556
1M	Lin	65-0545	0.819	0.651	0.588
2M2	Lin	65-0550	0.819	0.651	0.588

Value	Taper	Order code	1+	50+	100+
1K	Log	65-2661	0.756	0.61	0.55
4K7	Log	65-2662	0.756	0.61	0.55
Value	Taper	Order code	1+	50+	250+
10K	Log	65-0615	0.777	0.62	0.556
22K	Log	65-0651	0.777	0.62	0.556
47K	Log	65-0625	0.777	0.62	0.556
100K	Log	65-0630	0.777	0.62	0.556
220K	Log	65-0652	0.777	0.62	0.556
470K	Log	65-0635	0.777	0.62	0.556
1M	Log	65-0645	0.819	0.651	0.588
2M2	Log	65-0650	0.819	0.651	0.588

065224



Wirewound Potentiometers

Wirewound potentiometers in various values. The enclosed pots have a nominal width of 24 mm.



- Solder tag terminals
- Angle of rotation (electrical) 280° (±5°)
- Metal axle diameter 6mm
- Electrical load capacity 4W
- Nominal resistances 10Ω to 25kΩ
- Resistance tolerance ±10%
- Linearity ±2%
- Continuous voltage 500V
- Electrical adjustment range 280° (±5°)
- Case diameter 24mm
- Spindle length 42mm
- Spindle diameter 6mm
- Thread size M10 x 0.75
- Test voltage 1kV/AC

Technical specification

Order code	Resistance value
50-3980	10Ω
50-3981	25Ω
50-2303	50Ω
50-3982	100Ω
50-3983	250Ω
50-3984	500Ω
50-3985	1kΩ
50-3986	5kΩ
50-3988	25kΩ

Value	Order code	1+	25+	50+
10R	50-3980	5.99	5.61	
25R	50-3981	5.46	4.17	
50R	50-2303	4.84	4.35	
100R	50-3982	6.84	6.35	5.45
250R	50-3983	5.23	4.35	
500R	50-3984	4.76	4.06	
1K	50-3985	7.75	6.50	
5K	50-3986	5.74	4.55	
25K	50-3988	5.10	4.90	

519692



Carbon Preset Potentiometers

Miniature single turn carbon track preset potentiometers.



- Horizontal mounting
- Linear law
- 30% tolerance
- 0.1W rated

Technical specification

Dimensions	8.2 x 11.2 x 2.6mm
Pitch	5 x 10mm
Tolerance	±30%
End resistance	>20Ω
Power rating	0.1W
Maximum operating voltage	100V AC, 20V DC
Electrical rotation	250 ±5°
Rotational torque	30-60 gf/cm

MQQ 5 - In Multiples of 5				
Value (Ω)	Order code	5+	100+	500+
100R	67-0400	0.10	0.08	0.054
220R	67-0402	0.10	0.08	0.054
470R	67-0404	0.10	0.08	0.054
1K	67-0406	0.10	0.08	0.054

MQQ 5 - In Multiples of 5					
Value (Ω)	Order code	5+	100+	500+	1000+
2K2	67-0408	0.129	0.099	0.078	
4K7	67-0410	0.10	0.08	0.054	0.049
10K	67-0412	0.10	0.08	0.054	0.049
22K	67-0414	0.10	0.08	0.054	
47K	67-0416	0.129	0.099	0.078	0.064
100K	67-0418	0.10	0.08	0.054	0.049
200K	67-0420	0.10	0.08	0.054	
500K	67-0422	0.10	0.08	0.054	0.049
1M	67-0424	0.10	0.08	0.054	0.049

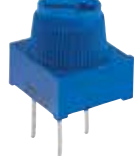
060205

060265



3/8in Single Turn Finger Adjustable Cermet Potentiometer

A range of fully enclosed single turn potentiometers that feature a finger adjustment knob with adjustment slot. Suitable for a wide range of applications.



- Single turn adjustment
- 10% tolerance
- 0.1 x 0.2in pitch spacing
- UL 94V-0 flammability

Technical specification

Withstand voltage	600V AC
Insulation resistance	≥1GΩ
Effective travel	300°
Power rating	0.5W
Temperature range	-55°C to +125°C
Temperature coefficient	±100ppm/°C
Starting torque	≤35mN m

Type	Order code	1+	25+	100+	500+
3386FT series					
500R	68-0238	0.687	0.575	0.511	
1K	68-0239	0.687	0.575	0.511	0.461
2K	68-0240	0.687	0.575	0.511	
5K	68-0241	0.687	0.575	0.511	0.461
10K	68-0242	0.555	0.459	0.409	0.371
20K	68-0243	0.671	0.562	0.50	0.452
50K	68-0244	0.687	0.575	0.511	
100K	68-0245	0.687	0.575	0.511	
500K	68-0247	0.687	0.575	0.511	
1M	68-0248	0.687	0.575	0.511	

081825



Resistance Substitution Box

A six decade resistance substitution box ideally suited to educational establishments.



- Box will simulate resistances from 1Ω to 999,999Ω in 1Ω steps
- Required resistance is set by selecting the correct value from six rotary decade switches which clearly indicate the value selected
- An additional 1kΩ resistor is provided connected between one of the terminals of the internal resistance and a third terminal so the unit can be used as an accurate potential divider
- All outputs are on 4mm terminals with 4mm sockets
- Housed in an ABS box with non-slip rubber feet
- Voltage rating 250V
- Power rating 600mW
- Dimensions 110 x 75 x 50mm

Technical specification

Voltage rating	250V max.
Resistance range	1Ω to 999,999Ω in 1Ω steps
Resistor power rating	600mW @ 70°C
Resistor tolerance	±1%
Temperature coefficient	100ppm/°C (1 - 9Ω) 50ppm/°C (10Ω+)
Maximum switching current	150mA at 250V AC/DC
Maximum carry current	0.5A
Dimensions (excluding decade switches)	11(L) x 7.5(W) x 5(D)cm

Type	Order code	1+	2+
Resistance sub box	85-1502	82.20	66.04

071538

Discretes



Selected brands

Low Power NPN Transistors

Low power, small signal, general purpose and RF, NPN transistors.

- Low power NPN transistors



Technical specification

Device	Mfr.	Case style	V _{CE} max. (V)	V _{AS} max. (V)	V _{ES} max. (V)	I _C max. (mA)	P _{tot} max. (mW)	h _{FE} min. @I _C (mA)	f _T MHz
2N2222A	CDIL	TO-18	30	60	5	800	500	100@150	250
2N3053	CDIL	TO-39	40	60	5	700	500	50@150	100
2N3704	CDIL	TO-92 (A)	30	50	5	600	625	100@50	100
2N3705	CDIL	TO-92 (A)	30	50	5	600	625	50@50	100
2N3904	TRU	TO-92 (B)	40	60	6	200	625	100@10	30
2N4401	TRU	TO-92 (B)	40	60	5	600	625	100@150	250
2N4401	CDIL	TO-92	40	60	6	600	625	100 to 300@150	250
BC107	CDIL	TO-18	45	50	6	200	600	100@2	150
BC107B	CDIL	TO-18	45	50	6	200	600	200@2	150
BC108	CDIL	TO-18	25	30	5	200	600	100@2	150
BC108B	CDIL	TO-18	25	30	5	200	600	200@2	150
BC108C	CDIL	TO-18	25	30	5	200	600	420@2	150
BC109	CDIL	TO-18	25	30	5	200	600	200@2	150
BC182L	FCH	TO-92 (A)	50	60	6	100	350	120@2	150
BC183L	CDIL	TO-92 (A)	30	45	6	100	350	120@2	150
BC184	CDIL	TO-92 (C)	30	45	6	100	350	250@2	150
BC184L	FCH	TO-92 (A)	30	45	6	100	350	250@2	150
BC238B	CDIL	TO-92 (C)	25	30	5	100	350	200@2	150
BC337-16	TRU	TO-92 (C)	45	50	5	800	625	100@100	210
BC337-16	DIO	TO-92	50	45	5	800	625	100@100	100
BC337-25	DIO	TO-92	50	45	5	800	625	100@100	100
BC547	CDIL	TO-92	45	50	6	100	500	110@2	100
BC547B	TRU	TO-92	45	50	6	100	500	110@2	300
BC548B	CDIL	TO-92 (C)	30	30	6	100	500	220@2	150
BC548B	FCH	TO-92	30	30	5	100	500	110@2	300
BC548B	TRU	TO-92	30	30	5	100	500	110@2	300
BC548C	ONS	TO-92	30	30	6	100	625	300@100	300
BC549B	TRU	TO-92	30	30	5	100	625	450@2	250
BC549C	TRU	TO-92 (C)	30	30	5	100	625	420@2	-
MPSA42	FCH	TO-92 (B)	300	300	6	500	625	40@30	50
P2N2222A	ONS	TO-92	40	75	6	600	625	40@500	300

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
2N2222A	81-0256	0.376	0.35	0.316	0.255
2N3053	81-0264	0.417	0.403	0.364	0.325
BC107	81-0010	0.298	0.271	0.245	0.223
BC108	81-0014	0.259	0.235	0.23	0.224
BC108B (CDIL)	81-0016	0.296	0.272	0.259	
BC108C	81-0018	0.323	0.299	0.288	0.276
BC109	81-0020	0.983	0.698	0.556	0.453
BC548C (ONS)	50-0297	0.145	0.123	0.101	

MOQ 20 - In Multiples of 10

Type	Order code	20+	50+	100+	500+
2N3704	81-0272	0.105	0.081	0.067	0.046
2N3705	81-0274	0.077	0.065	0.045	0.039
2N3904 (TRU)	81-0484	0.113	0.078	0.054	0.043
2N4401 (CDIL)	81-0487	0.041	0.034	0.0298	0.0239
2N4401 (TRU)	81-0486	0.113	0.091	0.058	0.03
BC107B	81-0012	0.227	0.211	0.199	
BC182L	81-0034	0.137	0.111	0.059	0.046
BC183L	81-0036	0.116	0.092	0.049	0.038
BC184	81-0038	0.097	0.07	0.042	0.0273
BC184L	81-0040	0.092	0.066	0.039	0.0284
BC238B	81-0048	0.152	0.108	0.049	0.037
BC337-16 (TRU)	81-0472	0.063	0.042	0.03	0.0247
BC337-16 (Diotec)	81-0395	0.075	0.039	0.0252	0.023
BC337-25 (Diotec)	81-0397	0.072	0.038	0.0252	0.023

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
BC337-40 (Diotec)	81-0399	0.061	0.035	0.031	0.0255

MOQ 20 - In Multiples of 10

Type	Order code	20+	50+	100+	500+
BC547 (CDIL)	81-0469	0.063	0.034	0.0238	0.0225
BC547B (TRU)	81-0468	0.063	0.036	0.0252	0.0218
BC548B (CDIL)	81-0066	0.067	0.041	0.0299	0.0261
BC548B (FCS)	81-0079	0.089	0.077	0.067	
BC548B (TRU)	81-0466	0.08	0.065	0.04	0.0266
BC549B (TRU)	81-0068	0.054	0.045	0.0285	0.0182
BC549C (TRU)	81-0441	0.0267			
MPSA42	81-0144	0.084	0.061	0.05	
P2N2222A (ONS)	81-0257	0.11	0.084	0.072	0.06

066245

Free Delivery*

on all orders over £30 (excl. VAT)
(UK mainland only)

* See Terms & Conditions for full details



Selected brands

Medium Power NPN Transistors

Medium power, NPN transistors.



Technical specification

Device	Mfr.	Case style	V _{CE} max. (V)	V _{AS} max. (V)	V _{ES} max. (V)	I _C max. (mA)	P _{tot} max. (mW)	h _{FE} min. @I _C (mA)	f _T MHz
BFY52	CDIL	TO-39	20	20	6	1	0.8	60@150	50
ZTX689B	Zetex	E LINE	20	20	5	3	1.5	400@2A	150
BFY51	CDIL	TO-39	30	60	6	1	0.8	40@150	50
BFY50	CDIL	TO-39	35	80	6	1	0.8	30@150	60
ZTX450	Zetex	E LINE	45	60	5	1	1	100@150	150
ZTX451	Zetex	E LINE	60	80	5	1	1	150@150	150
BFX85	CDIL	TO-39	60	100	6	1	0.8	70@150	50
ZTX651	Zetex	E LINE	60	80	5	2	1	100@500	140
BC639	CDIL	TO-92 (A)	80	80	5	1	0.8	40@150	200

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
ZTX689B	81-0228	0.578	0.473	0.36	0.329
BFY51	81-0122	0.393	0.345	0.307	0.27
ZTX450	81-0202	0.277	0.252	0.228	0.194
ZTX451	81-0204	0.437	0.409	0.249	
BFX85	81-0116	0.681	0.61	0.516	0.447
ZTX651	81-0224	0.558	0.50	0.359	0.322
BC639	81-0080	0.152	0.111	0.072	0.047

066248



Selected brands

Darlington NPN Transistors

NPN Darlington transistors.



MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
TMPSA13 (CDIL)	81-0143	0.208	0.191	0.16	0.148
BCX38C (ZETEX)	81-0004	0.333	0.258	0.229	0.206
BD679	81-0106	0.538	0.463	0.355	
TIP121 (CDIL)	81-0170	0.492	0.434	0.321	

Type	Order code	5+	50+	100+
TIP121 (ST)	38-2027	0.292	0.21	0.187

Type	Order code	5+	25+	100+	500+
TIP122 (ST)	81-0186	0.405	0.294	0.191	
TIP126	81-0179	0.49	0.44	0.28	0.23
BDX33C	81-0428	1.02	0.717	0.638	
TIP142 (ST)	81-0190	1.39	1.05	0.903	
BDW93C	81-0110	0.609	0.554	0.487	
ZTX614	81-0376	0.333	0.299	0.229	
ZTX605	81-0220	0.543	0.474	0.43	0.389

066250

Order online

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www.rapidonline.com/activate



N Channel Low Power MOSFET Transistors

A range of low power MOSFETs available in various packages.

- N channel



Technical specification

Device	V _{GS}	R _{DS(on)}	I _{DSS}	I _{DS}	P _D	Package	Manufacturer
2N7000	60	5	0.2	0.5	0.4	T092b	ST
ZVN3306A	60	5	0.27	3	0.625	E-line	ZTX
ZVN2106A	60	2	0.45	8	0.7	E-line	ZTX
BS170	60	5	0.5	1.2	0.83	T092a	FCH
ZVN4206*	60	1.5	0.6	8	0.7	E-line	ZTX
ZVN4306A*	60	0.45	1.1	15	0.85	E-line	ZTX

* Logic level device with optimised design for 5V device.

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	250+
2N7000	47-0180	0.108	0.087	0.067	0.059
ZVN3306A	47-0160	0.34	0.259	0.239	0.21
ZVN2106	47-0156	0.566	0.519	0.40	
BS170	47-0142	0.18	0.122	0.099	0.062
ZVN4206A	47-0162	0.428	0.386	0.346	
ZVN4306A	47-0166	0.79	0.718	0.639	0.572

518575

Selected brands

N Channel TO-220 Power MOSFETs

A range of standard N channel power MOSFETs supplied in TO-220 packages from the industry's leading manufacturers.

Their combination of fast switching times, rugged device construction and low ON resistance give a device which is versatile yet cost-effective.

- Wide range of voltages
- Applications include switch mode power supplies, DC to DC converters and low voltage motor controllers



Note: Vishay devices previously manufactured under the International Rectifier name.

Technical specification

V _{GS}	Polarity	R _{DS(on)}	I _{cont.}	I _{DS}	P _D	V _{DS}	Manufacturer	Device
60	N	0.09	30	120	70	4	ST	STP36NF06
60	N	0.018	50	200	110	4	ST	STP55NF06
100	N	0.54	5.6	20	43	4	Vishay	IRF510
100	N	0.16	14	56	88	4	Vishay	IRF530
100	N	0.13	15	60	60	4	ST	STP14NF10
100	N	0.077	28	110	150	4	Vishay	IRF540PBF
100	N	0.028	50	200	150	4	ST	STP40NF10
200	N	0.4	10	40	100	4	ST	IRF630
200	N	0.15	18	72	125	4	Vishay	IRF640
400	N	1.0	5.5	-	74	4	Vishay	IRF730
400	N	0.55	10	-	125	4	Vishay	IRF740
500	N	0.85	8	32	125	4	Vishay	IRF840
500	N	1.5	4.5	-	100	4	Vishay	IRF830
500	N	0.85	8	32	125	4	Vishay	IRF840

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	250+
STP36NF06	47-0207	0.825	0.469	0.391	0.346
STP55NF06	47-0530	0.639	0.617	0.484	
IRF510	47-0334	0.336	0.304	0.279	
IRF530	47-0522	0.71	0.635	0.584	0.508
STP14NF10	47-0313	0.677	0.536	0.41	
IRF540PBF	47-0317	1.10	0.68	0.634	

Price each

Type	Order code	1+	25+	100+	250+
STP40NF10	47-0494	1.55	1.29	0.978	0.938

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	250+
IRF630	47-0290	0.605	0.489	0.441	0.405
IRF640	47-0524	0.949	0.843	0.645	0.528
IRF730	47-5614	0.669	0.575	0.57	0.541
IRF740	47-5616	0.667	0.603	0.53	0.492
IRF840	47-5620	0.878	0.787	0.779	

518570



1A Standard Recovery Rectifier Diodes - 1N4000 Series

1N4000 series from DC

Components. Miniature 1A plastic diodes in an industry standard DO-41 package.

- 1A maximum average forward current
- 0.8mm diameter leads
- Supplied taped
- Supplied in **small quantities** or in **boxes of 2500**



MOQ 20 - In Multiples of 10

Type	Order code	20+	100+	1000+	5000+
1N4001 50V	47-3130	0.048	0.0155	0.0103	0.0093
1N4002 100V	47-3132	0.04	0.0221	0.0104	0.0069
1N4003 200V	47-3134	0.0231	0.0147	0.0075	
1N4004 400V	47-3136	0.058	0.032	0.0151	0.01
1N4006 800V	47-3140	0.047	0.033	0.0159	
1N4007 1000V	47-3142	0.046	0.0155	0.0125	0.0095

Price per box of 2500

Type	Order code	1+
1N4001 50V	47-3800	19.82
1N4002 100V	47-3802	20.45
1N4003 200V	47-3804	26.60
1N4004 400V	47-3806	26.60
1N4005 600V	47-3808	16.09
1N4006 800V	47-3810	23.47
1N4007 1000V	47-3812	22.75

066257

Selected brands

High Voltage SCRs

A range of high voltage SCRs in TO-220 and TO-126 packages. Acting as a 'switched diode', when a one-off voltage is applied to the gate, the diode conducts. It will continue to conduct until the current between the anode and cathode is reduced.

- TO-220 and TO-126 plastic packages
- High current rating
- High current and voltage control for applications such as lighting and heating
- Supplied in **small quantities**



Technical specification

Mfr. code	V _{DRM} (V)	I _T (A)	V _{GT} (V)	I _{GT} (mA)	Package	Mfr.
TYN225	200	25	1.3	40	TO-220AB	ST
C106D1	400	4	0.8	200	TO-225AA (TO-126)	FAG
C106D	400	4	0.8	200	TO-225AA (TO-126)	ONS
FS0809DH	400	8	1.5	20	TO-220	BNS/FAG
C106M1G	600	4	0.8	0.2	TO-225AA (TO-126)	ON
CDR05	600	4	0.8	0.2	TO-225AA (TO-126)	CDIL
BT151-800R	800	12	1.5	15	TO-220AB	NXP
TYN825RG	800	25	1.3	40	TO-220AB	ST
2N6509G	800	25	1.5	30	TO-220AB	ON
FS2510NH	800	25	1.3	40	TO-220AB	FAG

066240

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
C106D	47-3270	0.494	0.405	0.355	0.331
C106M1G	47-3388	0.47	0.382	0.317	0.298
CDR05	47-3273	0.373	0.327	0.305	
BT151-800R	47-3204	1.06	0.86	0.678	
2N6509G	47-3386	1.22	0.963	0.853	0.744

066240



2N5060 SCR 30V 0.8A TO-92

A 30V 0.8A SCR in a TO-92 package. Designed for control systems and sensing circuit applications.

- Low current/voltage applications



Technical specification

Order code	Device	V _{DRM}	I _{T(RMS)}	I _{GM}	I _{TSM}	P _{GM}	T _J
47-3267	2N5060	30V	0.8A	1A	10A	0.1W	-40°C to +125°C

Type	Order code	1+	25+	100+	500+
2N5060	47-3267	0.409	0.296	0.228	0.194

564568

Pricing correct at time of going to press. For up-to-date pricing visit www.rapidonline.com.



Selected brands

Transistor Arrays

Transistor arrays housed in standard DIL and surface mount packages.



Technical specification

Device	Description	Manufacturer	Package	Order code
ULN2003	7x NPN matched transistor array (TTL/CMOS)	ST	DIL-16	82-0618
ULN2004	7x NPN matched transistor array (TTL/CMOS)	ST	DIL-16	82-0622
ULN2803	8x NPN Darlington array (TTL/CMOS)	ST	DIL-18	82-0668
ULN2803ADWG4	8x NPN Darlington array (TTL/CMOS)	TI	SO-18	82-0669
ULN2804A	8x NPN Darlington transistor array (CMOS)	ST	DIL-18	82-0670
ULN2003AD	7x NPN matched transistor array	TI	SO-16	82-5036

MOQ 5 - In Multiples of 5

Type	Order code	5+	10+	100+	500+
ULN2003	82-0618	0.347	0.227	0.20	
ULN2004	82-0622	0.368	0.259	0.20	
ULN2803	82-0668	0.689	0.50	0.397	
ULN2803ADWG4	82-0669	1.35	0.98	0.78	
ULN2804A	82-0670	0.688	0.531	0.491	0.465
ULN2003AD	82-5036	0.479	0.443	0.272	

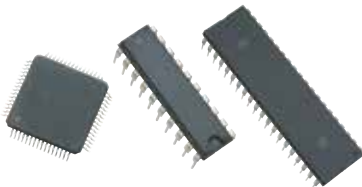
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Integrated Circuits



Atmega 8-bit AVR Microcontrollers

A range of high performance, 8-bit FLASH-based microcontrollers featuring a wide range of peripherals. **MegaAVR** offers substantial program and data memory and performance approaching 1 MIPS per MHz. Shares the same AVR instruction set and memory organisation as **ATtiny**, allowing for easy migration.



- 130 Powerful instructions, most of which execute within a single clock cycle
- Self-programming FLASH memory with boot block
- High accuracy 10-bit ADC and up to x200 analogue gain stage options
- UART/USMART and SPI interfaces on all models
- Two Wire Interface (compatible with I²C) on all models except **Atmega162**
- Low power device options offer 1.8V operations, optimising battery life
- Choice of through-hole and QFP packages
- **IEEE 1149.1** compliant JTAG interface options

Technical specification

Order code	Device	Clock speed max. (MHz)	VCC min.	VCC max.	Flash (KB)	EEPROM (Bytes)	RAM (Bytes)	I/O Pins	Package
73-4300	ATMEGA8L-8PU	8	2.7	5.5	8	512	1K	23	DIL-28
73-4284	ATMEGA32L-8PU	8	2.7	5.5	32	1K	2K	32	DIL-40
73-4298	ATMEGA88V-10PU	10	1.8	5.5	8	512	1K	23	DIL-28
73-5086	ATMEGA644PV-10PU	10	1.8	5.5	64	2K	4K	32	DIL-40
73-4294	ATMEGA8535-16PU	16	4.5	5.5	8	512	512	32	DIL-40
73-4290	ATMEGA8-16PU	16	4.5	5.5	8	512	1K	23	DIL-28
73-5068	ATMEGA16-16AU	16	4.5	5.5	16	512	1K	32	TQFP-44
73-4282	ATMEGA32-16PU	16	4.5	5.5	32	1K	2K	32	DIL-40
73-4286	ATMEGA48-20PU	20	2.7	5.5	4	256	512	23	DIL-28
73-4276	ATMEGA168-20PU	20	2.7	5.5	16	512	1K	23	DIL-28
73-5074	ATMEGA168P-20PU	20	2.7	5.5	16	512	1K	23	DIL-28
73-4281	ATMEGA328P-PU	20	1.8	5.5	32	1K	2K	23	DIL-28
73-4283	ATMEGA328P-AU	20	1.8	5.5	32	1K	2K	23	DIL-28
73-4285	ATMEGA328P-AU	20	1.8	5.5	32	1K	2K	23	TQFP32
73-5080	ATMEGA324P-20PU	20	2.7	5.5	32	1K	2K	32	DIL-40

Price each

Device	Order code	1+	10+	100+
Atmega8L-8PU	73-4300	2.47	2.24	
Atmega32L-8PU	73-4284	7.93	6.55	6.18
Atmega88V-10PU	73-4298	3.19	2.76	2.54

MOQ 5+

Device	Order code	5+	10+	100+
Atmega644PV-10PU	73-5086	7.67	5.19	3.90

MOQ 10+

Device	Order code	10+	100+
Atmega8535-16PU	73-4294	3.30	2.80

Price each

Device	Order code	1+	10+
Atmega8-16PU	73-4290	3.09	2.60

MOQ 20+

Device	Order code	20+	100+
Atmega16-16AU	73-5068	3.19	3.02

Price each				
Device	Order code	1+	10+	100+
Atmega32-16PU	73-4282	6.96	5.72	
Atmega48-20PU	73-4286	2.49	1.86	
Atmega168-20PU	73-4276	3.44	2.95	
Atmega328-PU	73-4281	2.38	2.13	1.68
Atmega328P-AU	73-4283	3.02	2.35	2.13
ATMEGA328P-AU	73-4285	2.42	2.13	
MOQ 10+				
Device	Order code	10+	100+	
Atmega324P-20PU	73-5080	4.42	3.91	

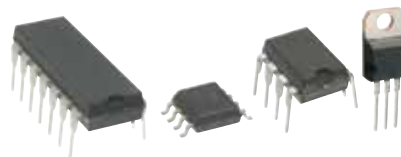
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Selected brands

Audio Power ICs

A range of audio ICs with power outputs.



Technical specification

Device	Description	Manufacturer	Package	Order code
LM380	2W Audio amplifier	NSC	DIL-14	82-0262
LM384N	5W audio power amplifier	NSC	DIL-14	82-5020
LM386	325mW low voltage power amplifier	NSC	DIL-8	82-0264
LM386M-1	325mW low voltage power amplifier	NSC	SO-8	82-0266
TBA820M	500mW audio amplifier	ST	DIL-8	82-0484
LM1875N	20W Hi-Fi audio amplifier	NSC	TO-220	82-5006
TDA2030H	14W Hi-Fi power amplifier	ST	TO-220	82-0628
TDA2030AV	18W Hi-Fi audio power amplifier	ST	Pentawatt V	82-0630
TDA2050V	32W audio amplifier	ST	TO-220	82-0632
NJM2073D	Superior TDA2822M version	JRC	DIL-8	82-2154
TDA2822M	1W+1W stereo audio amplifier	ST	DIL-8	82-0672
LM2876T	40W Audio amplifier with mute	NSC	SIL-11	82-0674
LM3876T	56W audio power with mute	NSC	SIL-11	82-5002
TDA2822D	1W Bridge or 380mW + 380mW stereo	ST	SO-8	82-0690
TDA7057AQ/N2	2x 8W Stereo BTL audio amp. DC vol. cont.	NXP	SIL-13	82-0624

Price each

Type	Order code	1+	10+	25+	100+
LM380	82-0262	1.14	1.02	0.913	0.697
LM384N	82-5020	1.50	1.37	1.31	
LM386	82-0264	0.741	0.69	0.648	0.597
LM386M-1	82-0266	0.638	0.567	0.515	
TBA820M (Tru)	82-0485	0.803	0.728	0.663	0.621
TDA2030AV	82-0630	3.05	2.81	2.69	2.58
NJM2073D	82-2154	0.96			
TDS2822L	82-0673	1.93	1.80	1.62	1.55
TDA2009A	82-0940	1.67	1.41	1.25	
TDA7266	82-0942	2.87	2.18	1.90	
TEA2025B	82-0944	0.64	0.59	0.52	

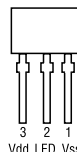
067347



LED Flashing Controller IC

The M34 is a low voltage single output LED flashing controller IC that can drive several LEDs simultaneously (max current 25mA). The IC has an in-built RC oscillator circuit, so requires minimum external components.

- M34-1 has a flash rate of 1Hz
- M34-2 has a flash rate of 2Hz
- The device is designed for a 3V DC supply
- Housed in a TO-92 package



TO-92 FORM (Front View)

Top Marking

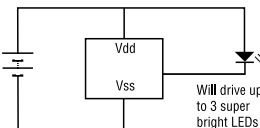
M34-1H

M34-2H

Frequency

1 Hz

2 Hz



Will drive up to 3 super bright LEDs

MOQ 5 - In Multiples of 5					
Type	Order code	5+	10+	25+	100+
M34-1	82-0030	0.467	0.403	0.34	0.259
M34-2	82-0032	0.394	0.327	0.287	0.209

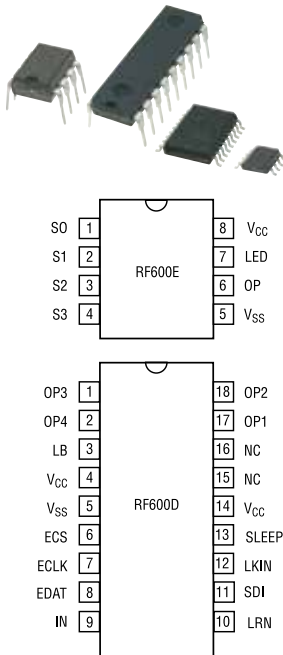
034523



RF600 RF Encoder/Decoder ICs

These encoder and decoder ICs from RF Solutions have been designed to achieve the maximum possible range from any radio/infra-red transmitter receiver set. Unlike other encoder/decoder devices, the RF600s, provide an unprecedented level of security which prevents copying whilst also obtaining optimum range from the transmitter and receiver. May be used in conjunction with RF modules (Tx **43-0295**, Rx **43-0296**) as part of a system.

- Highly secure KeeLoq Protocol
- Manchester Modulation
- 2.0 to 6.0V operation (encoder)
- 4.5V to 5.5V operation (decoder)
- 4-digital outputs (15 states)
- Optimum range - up to 100m AM, up to 200m FM
- Ideal for burglar alarm systems, gate and garage openers, electronic door locks etc.
- Available in DIL or SO packages



Note: For example circuits using the encoder/decoder and the tx/rx modules, please see attached datasheets.

Technical specification

Order code	Mfrs Part No.	Device	Package
82-4090	RF600E	Encoder	DIL-8
82-4092	RF600DR6	Decoder	DIL-18
82-4098	RF600DR6-SO	Decoder	SO-18
43-0295	FM-RTFQ2-433P	Tx module 433MHz	SIL

Device	Package	Order code	1+	10+	25+
Encoder	DIL-8	82-4090	3.43	3.29	
Decoder	DIL-18	82-4092	4.62	4.33	
Decoder	SO-18	82-4098	4.49	4.20	3.18
Tx module 433MHz	SIL	43-0295	10.26	9.23	

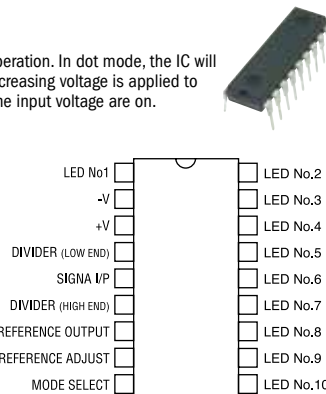
061643



Bargraph Display Drivers

These bargraph displays have two modes of operation. In dot mode, the IC will sequentially light 10 LEDs when a gradually increasing voltage is applied to pin 5. In bar mode all LEDs indicating below the input voltage are on.

- A brightness control can set the LED current
- The ICs are stackable
- Supply voltage 3-18V
- LM3914 produces linear steps
- LM3915 produces -3dB steps
- LM3916 will display a VU scale
- Supplied in a DIL-18 package (PLCC-20 package for **82-0713**)



Technical specification

Order code	Mfrs Part No.	Type	Package
82-0712	LM3914N-1	LM3914N	DIL-18
82-0713	LM3914V/NOBP	LM3914V	DIL-18

Type	Package	Order code	1+	10+	25+	100+
LM3914N	DIL-18	82-0712	3.54	2.80	2.53	1.56
LM3914V	DIL-18	82-0713	2.37	2.13	1.99	

034524

Pricing correct at time of going to press.
For up-to-date pricing visit www.rapidonline.com.



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Selected brands

4000 Series CMOS Logic Family

4000 Series CMOS logic devices with a DC supply voltage rating of up to 20V. The family has a large number of functions including analogue switches, monostable multivibrators, level converters, counters, timers, display drivers, and phase-locked loops (PLLs).

- Through hole packages
- CMOS technology for low power consumption
- Wide operating voltage range
- Applications include instrumentation, control and communications



Technical specification

Device	Function	Package	Mfr.	Order code
4001B	Quad 2 input Nor gate	DIL-14	TI	83-0316
4001BM	Quad 2 input Nor gate	SO-14	TI	51-6326
4007UBE	Two CMOS pairs plus inverter	DIL-14	TI	51-6311
4011B	Quad 2-input NAND gate	DIL-14	TI	83-0328
4012BE	Dual 4 input NAND gates	DIL-14	TI	51-6314
4013B	Dual D-type flip-flop	DIL-14	TI	83-0332
4014B	8-bit shift register	DIL-16	TI	83-0334
4015BE	Dual 4 stage shift reg. (serial in/parallel out)	DIL-16	TI	83-0337
4016B	Quad bilateral switches	DIL-14	TI	83-0338
4017B	Decade counter/divider	DIL-16	TI	83-0340
4021B	8-bit shift register	DIL-16	TI	83-0348
4022B	Octal counter	DIL-16	TI	83-0792
4023B	Triple 3-input NOR gate	DIL-14	TI	83-0353
4024B	7 stage binary counter	DIL-14	TI	83-0354
4025B	Triple 3-input NOR gate	DIL-14	ST	83-0356
4026B	Decade ctr w dec 7 seg output	DIL-16	TI	83-0359
4027BE	Dual JK master/slave flip flops	DIL-16	TI	51-6312
4028B	BCD-to-decimal decoder	DIL-16	NXP	83-0363
4030B	Quad XOR gate	DIL-14	ST	83-0366
4035BE	4 stage shift register (parallel in/parallel out)	DIL-16	TI	51-6318
4041UB	Quad true/complement buffer	DIL-14	TI	83-0800
4042B	Quad clocked D-type latches	DIL-16	ST	83-0370
4044BE	Quad NAND SR latches	DIL-16	TI	51-6014
4046B	Micropower PLL	DIL-16	ST	83-0376
4047B	Monostable/astable	DIL-14	TI	83-0378
4049UB	Hex inverters/buffers	DIL-16	TI	83-0380
4050B	Hex buffers	DIL-16	TI	83-0382
4051B	Analogue MUX/DEMUX	DIL-16	TI	83-0384
4053B	Analogue MUX/DEMUX	DIL-16	TI	83-0388
4056B	7-segment display driver	DIL-16	TI	83-0812
4060B	14 stage ripple carry binary ctr	DIL-16	TI	83-0390
4066B	Quad bilateral switches	DIL-14	TI	83-0392
4069UB	Hex inverters	DIL-14	TI	83-0398
4070B	Quad 2-input XOR gate	DIL-14	TI	83-0400
4071BE	Quad 2-input OR gate	DIL-14	TI	83-0491
4078B	8-input NOR/OR gate	DIL-14	TI	83-0816
4081B	Quad 2-input AND gate	DIL-14	TI	83-0414
4093B	Quad 2-input NAND Schmitt	DIL-14	TI	83-0420
4094B	8 stage shift-store bus register	DIL-16	TI	83-0422
40106B	Hex Schmitt trigger	DIL-14	TI	83-0482
40109BE	Quad non-inverting level shifter	DIL-16	TI	51-6325
4508B	Dual 4-bit latch	DIL-24	TI	83-0848
4510B	BCD up/down counter	DIL-16	TI	83-0442
4511B	BCD to 7 segment dec/ driver	DIL-16	TI	83-0436
4516B	Binary up/down counter	DIL-16	TI	83-0445
4536BE	Programmable 24bit timer	DIL-16	TI	51-6323
4538B	Dual monostable multivibrator	DIL-17	TI	83-0466
4541B	Programmable timer	DIL-14	TI	83-0468

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
4001B	83-0316	0.357	0.261	0.195	
4001BM	51-6326	0.29	0.20	0.15	
4007UBE	51-6311	0.354	0.289	0.195	
4011B	83-0328	0.237	0.211	0.161	
4012BE	51-6314	0.351	0.278	0.201	
4013B (TI)	83-0332	0.516	0.387	0.321	
4014B	83-0334	0.398	0.303	0.222	
4015B	83-0337	0.346	0.319	0.22	
4016B (TI)	83-0338	0.34	0.26	0.194	
4017B	83-0340	0.381	0.332	0.22	0.198
4021B	83-0348	0.362	0.321	0.206	0.203
4022B	83-0792	0.372	0.27	0.199	
4023B	83-0353	0.354	0.323	0.195	
4024B (TI)	83-0354	0.352	0.296	0.201	
4025B	83-0356	0.317	0.224	0.187	
4026B	83-0359	0.366	0.257	0.208	
4027BE	51-6312	0.372	0.263	0.205	
4028B	83-0363	0.544	0.433	0.335	
4030B	83-0366	0.354	0.258	0.215	
4035BE	51-6318	1.09	0.971	0.863	

Continued on next page

From previous page

MOQ 5 - In Multiples of 5					
Type	Order code	5+	25+	100+	500+
4042B	83-0370	0.667	0.505	0.394	
4044BE	51-6014	0.387	0.304	0.215	
4046B	83-0376	0.40	0.319	0.211	
4047B (TI)	83-0378	0.384	0.264	0.219	
4049UB (TI)	83-0380	0.372	0.246	0.199	
4050B	83-0382	0.372	0.29	0.199	
4051B	83-0384	0.441	0.336	0.194	
4053B (TI)	83-0388	0.365	0.28	0.197	0.186
4056B	83-0812	0.382	0.284	0.21	
4060B (TI)	83-0390	0.257	0.206	0.158	
4066B	83-0392	0.383	0.308	0.223	
4070B	83-0400	0.319	0.212	0.16	
4071BE	83-0491	0.354	0.227	0.207	0.20
4078B	83-0816	0.354	0.268	0.195	
4081B	83-0414	0.363	0.263	0.195	0.149
4093B	83-0420	0.306	0.233	0.164	0.142
4094B	83-0422	0.402	0.268	0.21	0.205
4096UB	83-0398	0.36	0.262	0.201	
40106B (TI)	83-0482	0.319	0.255	0.20	0.195
40109BE	51-6325	0.394	0.281	0.21	
4510B	83-0442	0.397	0.314	0.215	
4511B	83-0436	0.521	0.29	0.171	
4516B (TI)	83-0445	0.387	0.306	0.211	
4536BE	51-6323	0.39	0.347	0.31	0.282
4538B	83-0466	0.684	0.497	0.399	
4541B	83-0468	0.503	0.376	0.315	

Price each					
Type	Order code	1+	25+	100+	500+
4508B	83-0848	2.51	1.48	1.15	0.84

077018

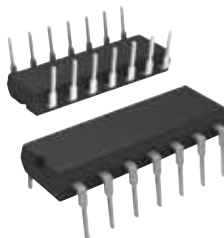


NXP 4000 Series Logic Devices

The HEF4000 series of logic devices is one of the oldest CMOS logic families but is still frequently used due to the ease of design incorporation, wide operating supply range, excellent noise immunity, and low power consumption.

Suitable for applications such as medical equipment, general industrial equipment, consumer electronics, toys and games, glue logic applications, etc.

- Large operating supply range 3 to 15V
- Low power consumption



MOQ 10 - In Multiples of 5					
Type	Package	Order code	10+	100+	500+
4044	SO-16	63-1275	0.144	0.132	0.122

MOQ 5 - In Multiples of 5					
Type	Package	Order code	5+	100+	500+
4046	SO-16	63-1281	0.206	0.189	0.174
4069	SO-14	63-1278	0.128	0.116	0.108

553734

Stripboard
95 x 127mm

Only

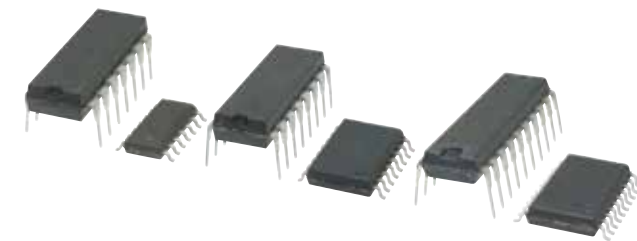
£1.60

Order code 34-0515

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Selected brands

74HC Series Logic



MOQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+ 500+
Through hole				
74HC165	83-0106	0.341	0.234	0.182
74HC174	83-0108	0.403	0.301	0.187
74HC193	83-0115	0.587	0.439	0.409
74HC244	83-0122	0.528	0.403	0.327
74HC245	83-0124	0.37	0.301	0.20
74HC259	83-0130	0.992	0.669	0.524
74HC273	83-0132	0.296	0.242	0.215
74HC373	83-0142	0.37	0.251	0.20
74HC374 (TI)	83-0145	0.39	0.369	0.209 0.162
74HC390	83-0147	0.619	0.495	0.348
74HC393	83-0148	0.354	0.246	0.193
74HC573	83-0152	0.583	0.427	0.362
74HC574 (TI)	83-0155	0.361	0.261	0.198
74HC4040	83-0164	0.458	0.343	0.233
74HC4543	83-0174	0.804	0.657	0.65
Surface mount				
74HC04D	83-0886	0.273	0.187	0.121
74HC74D	83-0483	0.285	0.217	0.182 0.143
74HC132D	83-0487	0.217	0.182	0.136 0.098
74HC138D	83-0884	0.257	0.19	0.144
74HC259D	83-0880	0.222	0.179	0.154
74HC595N	82-0265	0.377	0.289	0.202 0.20

079408



ST Stepper Motor Control/Driver

The L293D is a monolithic integrated, high voltage, high current, 4-channel driver.

- L293E is a quad push-pull driver capable of delivering output currents up to 1A per channel
- L297 generates four phase drive signals for two phase bipolar and four phase unipolar stepper motors in microcomputer controlled applications



Technical specification			
Device	Function	Package	Order code
L293D	Accepts DTL/TTL logic levels, will drive inductive loads, DC and stepper motors, switching power transistors.	DIL-16	82-0192
L293E	TTL compatible control, inhibit input on each pair of drivers, external connections for sensing resistors.	DIL-20	82-0194
L297	Motor can be driven in half-step, normal and wave drive modes, on-chip PWM chopper circuits permit switch-mode control of the current in the windings. Requires only clock, direction and mode input signals.	DIL-20	82-0198

Type	Order code	1+	10+	25+	100+
L293D	82-0192	3.71	2.58	2.24	1.73
L293E	82-0194	2.75	2.26	2.22	
L297	82-0198	6.40	5.40	5.05	

034476



4-Channel Half-H Bridge Drivers

These quadruple output half-H bridge drivers are high current devices that are ideal for driving a wide range of inductive loads such as relays, solenoids, DC and bipolar stepper motors and other high current/high voltage loads in positive-supply applications.

Device **SN754410NE (82-0203)** has a wider input voltage range and a wider operating temperature range.

- 1A output current per channel
- Separate input-logic supply
- All inputs are TTL compatible
- Each output is a complete totem-pole drive circuit
- Drivers are enabled in pairs
- Thermal shutdown
- Internal ESD protection
- High noise-immunity inputs



Technical specification			
Device		L293NE 82-0201	SN754410NE 82-0203
Order code			
Supply voltage	V_{CC1}	36V	36V
Output supply voltage	V_{CC2}	36V	36V
Input voltage	V_i	7V	36V
Output voltage range	V_o	-3V to $V_{CC2} + 3V$	-3V to $V_{CC2} + 3V$
Peak output current	I_o	±2A	±2A
Continuous output current	I_o	±1A	±1.1A
Junction temperature max.	T_j	150°C	150°C
Operating temperature	T_a	0°C to +70°C	-40°C to +85°C
Type	Order code	1+	10+ 100+
L293NE	82-0201	2.86	2.48 2.05
SN754410NE	82-0203	1.84	1.62 1.29

517647

Help

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Selected brands

FET Operational Amplifiers

High performance FET op amps.

- Single, dual and quad configurations
- DIL and surface mount packages



Technical specification				
Device	Description	Manufacturer	Package	Order code
TL061	Single low power op-amp	ST	DIL-8	82-0036
TL062	Dual low power op-amp	ST	DIL-8	82-0038
TL062CD	Dual low power op-amp	ST	SO-8	82-0890
TL064	Quad low power op-amp	ST	DIL-14	82-0040
TL064CD	Quad low power op-amp	ST	SO-8	82-0892
TL071	Single low noise, low distortion op-amp	ST	DIL-8	82-0046
TL072	Dual low noise, low distortion op-amp	ST	DIL-8	82-0050
TL072CD	Dual low noise, low distortion op-amp	TI	SO-8	82-0053
TL074	Quad low noise, low distortion op-amp	ST	DIL-14	82-0054
TL081	Single low noise, low distortion op-amp	ST	DIL-8	82-0062
TL081CD	Single low noise, low distortion op-amp	ST	SO-8	82-0894
TL082	Dual low noise, low distortion op-amp	ST	DIL-8	82-0064
TL082CD	Dual low noise, low distortion op-amp	ST	SO-8	82-0896
TL084	Quad low noise, low distortion op-amp	ST	DIL-14	82-0066
LF347BN	Quad wideband, low noise op-amp	NSC	DIL-14	82-0248
LF351	Single wide bandwidth op-amp	ST	DIL-8	82-0252
LF351	Dual wide bandwidth op-amp	ST	DIL-8	82-0254
LF356	Single low noise, wide bandwidth op-amp	NSC	DIL-8	82-0256
LF411N	Single high performance op-amp	NSC	DIL-8	82-5046
LF412N	Dual high performance op-amp	NSC	DIL-14	82-5048
LF442N	Dual low power op-amp	NSC	DIL-8	82-5042
LF444CN	Quad low power op-amp	NSC	DIL-14	82-5044
AD712JNZ	Dual precision, high speed op-amp	Analog Devices	DIL-8	82-0455
AD820ANZ	Single supply, precision low power op-amp	Analog Devices	DIL-8	82-0487
AD822ANZ	Single supply, dual precision low pwr op-amp	Analog Devices	DIL-8	82-0489
CA3130E	Single MOSFET op-amp	Intersil	DIL-8	82-0686
CA3140E	Single MOSFET op-amp, 741 replacement	Intersil	DIL-8	82-0688
CA3240EZ	Dual MOSFET op-amp, 741 replacement	Intersil	DIL-8	82-0693

MOQ 5 - In Multiples of 5				
Type	Order code	5+	10+	100+ 500+
TL062	82-0038	0.405	0.314	0.284 0.228
TL071 (TI)	82-0046	0.601	0.457	0.244
TL072 (TI)	82-0050	0.841	0.554	0.47 0.372
TL074CN	82-0054	0.60	0.488	0.348 0.319
TL081	82-0062	0.372	0.308	0.20
TL081CD	82-0894	0.344	0.253	0.193
TL082CP	82-0064	0.619	0.50	0.419 0.399
TL082CD	82-0896	0.584	0.466	0.278
TL084 (TI)	82-0066	0.707	0.535	0.248
LF353N/NOPB	82-0254	0.678	0.615	0.529 0.469
LF356	82-0256	0.638	0.544	0.478 0.415
LF412N	82-5048	0.812	0.752	0.628
CA3130E	82-0686	1.43	1.24	1.12
CA3140E	82-0688	1.35	1.25	1.19 1.12
CA3240EZ	82-0693	2.18	1.66	1.15

067381

840 Tie Points



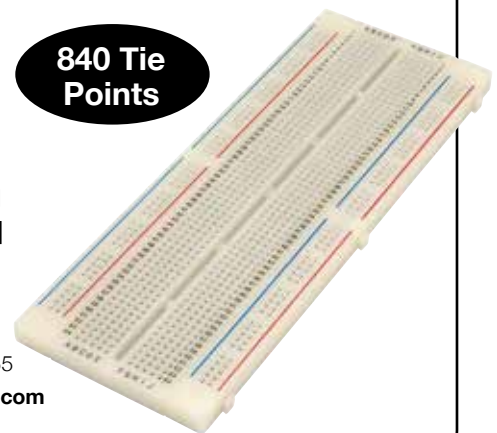
Prototyping Breadboard

Only

£6.14

Order code 34-0655

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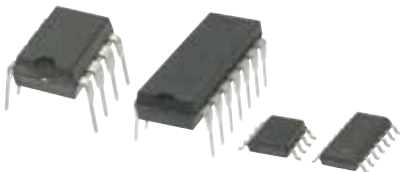


Selected brands

Operational Amplifiers

A wide range of operational amplifiers covering a broad band of applications.

- Available in single, dual and quad configurations in through hole and surface mounting packages



Technical specification

Device	Description	Mfr.	Package	Order code
AD8042ARZ	Dual low-power 160MHz op amp	AD	SO-8	82-0009
LM318P	Single precision high-speed op amp	TI	DIL-8	51-6306
LM324DT	Quad Operational Amplifier	ST	SO-14	38-2023
LM324M	Quad general purpose op amp	NSC	SO-14	82-0230
LM324SNG	Quad general purpose op amp	ONS	DIL-14	82-0229
LM324N	Quad general purpose op amp	TI	DIL-14	51-7524
LP324N	Quad micro-power op amp	NSC	DIL-14	82-0232
LM358AD	Dual low-power, single supply op amp	ST	SO-8	82-0334
LM358AP	Dual low-power, single supply op amp	TI	DIL-8	82-0332
LM358D	Dual low-power, single supply op amp	ST	SO-8	82-0322
LM358DT	Dual Operational Amplifier	ST	SO-8	38-2021
LM358NG	Dual low power op amp	ONS	DIL-8	82-0263
LM392N	Single op amp and voltage comparator	TI	DIL-8	82-0270
LM741	Single general purpose compensated op amp	NSC	DIL-8	82-0458
LM1458N	Dual general purpose op amp	NSC	DIL-8	82-0568
LM2904N	Dual low-power op amp	NSC	DIL-8	82-0748
LM3900N	Quad Norton op amp	TI	DIL-14	51-7526
OP07CP	Single low-noise op amp	TI	DIL-8	82-0006
OP07CPZ	Single ultra-low offset voltage op amp	AD	DIL-8	82-1202
OP177GPZ	Single ultra-precision op amp	AD	DIL-8	82-0093
OP400GPZ	Quad low-power op amp	AD	DIL-14	82-0277
RC4136N	Quad general purpose op amp	TI	DIL-14	51-7511
RC4558P	Dual high performance op amp	TI	DIL-8	82-0716
RC4559P	Dual high performance op amp	TI	DIL-8	51-7516
TL062ID	Dual low-power JFET input op amp	TI	DIL-8	51-7521
TL084ACN	Quad JFET input op amp	TI	DIL-14	51-7523
TL084CDR	Quad JFET input op amp	TI	SO-14	51-7525
TLC271CD	Single programmable low-power op amp	TI	SO-8	51-7520
TLC272CD	Dual general purpose op amp	TI	SO-8	51-7513
TLC272CP	Dual general purpose op amp	TI	DIL-8	51-7512
TLC274CD	Quad general purpose op amp	TI	SO-14	51-7514
TLC274CN	Quad precision op amp	TI	DIL-14	51-6304
UA741CD	Single general purpose op amp	ST	SO-8	82-0460
UA741CP	Single general purpose op amp	TI	DIL-8	82-0462
UA741CP	Single general purpose op amp	TI	DIL-8	51-7510
LM675T	Power operational amplifier	TI	TO-220	82-0090

MQQ 5 - In Multiples of 5					
Device	No. of amps.	Order code	5+	10+	50+

Through hole

Device	No. of amps.	Order code	5+	10+	100+	500+
LM318P	1	51-6306	1.18	1.12	1.01	
LM324SNG	4	82-0229	0.338	0.273	0.203	0.157
LM324N	4	51-7524	0.369	0.329	0.254	0.236
LP324N	4	82-0232	0.768	0.671	0.553	
LM358AP	2	82-0332	0.322	0.239	0.155	0.147
LM358NG	2	82-0263	0.379	0.309	0.241	0.211
LM741	1	82-0458	0.527	0.457	0.362	0.305
LM1458N	2	82-0568	0.649	0.598	0.515	
LM2904N	2	82-0748	0.728	0.61	0.488	
LM3900N	4	51-7526	0.338	0.272	0.219	
NE5534AP	1	51-7508	0.797	0.754	0.557	
OP07CP	1	82-0006	0.906	0.863	0.564	

Price each					
Device	No. of amps.	Order code	1+	10+	100+
OP177GPZ	1	82-0093	1.74	1.54	1.41
OP400GPZ	4	82-0277	8.79	8.66	

			MQQ 5 - In Multiples of 5			
Device	No. of amps	Order code	5+	10+	100+	500+

RC4136N	4	51-7511	0.909	0.814	0.69	
RC4558P	2	82-0716	0.467	0.312	0.232	
TL084AC	4	51-7523	0.909	0.675	0.58	
TLC272CP	2	51-7512	0.751	0.723	0.687	0.661
Device	No. of amps.	Order code	5+	10+	50+	
TLC274CN	4	51-6304	1.17	1.08	0.966	
Device	No. of amps.	Order code	5+	10+	100+	500+
UA741CP	1	82-0462	0.284	0.265	0.163	0.14
UA741CP	1	51-7510	0.361	0.261	0.221	0.188

Surface mount

LM324M	4	82-0230	0.638	0.549	0.413	
LM358AD	2	82-0334	0.286	0.25	0.183	
LM358D	2	82-0322	0.114	0.097	0.09	
TL062ID	2	51-7521	0.383	0.337	0.304	0.282
TL084CDR	4	51-7525	0.496	0.439	0.395	0.359
TLC271CD	1	51-7520	0.753	0.672	0.61	
TLC272CD	2	51-7513	0.68	0.65	0.592	

MQQ 5 - In Multiples of 5

Device	No. of amps.	Order code	5+	10+	100+	500+
TLC274CD	4	51-7514	1.22	1.07	0.827	
UA741CD	1	82-0460	0.311	0.264	0.165	

Price each

Device	No. of amps.	Order code	1+	10+	100+	500+
LM392N	1	82-0270	1.05	0.877	0.742	
OP07CPZ	1	82-1202	1.71	1.28		
OP27GPZ	1	82-1216	2.45	1.81		
RC4559P	2	51-7516	1.01	0.914	0.809	0.741

Device	No. of amps.	Order code	1+	10+	25+
LM675T	1	82-0090	4.75	3.84	3.61

MQQ 5 - In Multiples of 5

Device	No. of amps.	Order code	5+	50+	100+
LM358DT	2	38-2021	0.11	0.085	0.082
LM324DT	4	38-2023	0.10	0.074	0.07

06/379



PICKIT 3 Microcontroller In-Circuit Debugger/Programmer

The **PICKIT 3** from Microchip is an in-circuit debugger/programmer for PIC and dsPIC FLASH microcontrollers and is a low cost tool that requires a minimum of additional hardware and no expensive sockets or adaptors. The kit is controlled using the powerful and easy to use graphical interface of the MPLAB X IDE software (supplied) running on a Windows PC.

The PICKIT 3 can now also reprogram any PIC microcontroller with a simple push of a button with the Programmer-To-Go function. The device can also be connected to the target via an Microchip debug (RJ-11) connector (compatible with MPLAB ICD 2, MPLAB ICD 3 and MPLAB REAL ICE). The connector uses two device I/O pins and the reset line to implement in-circuit debugging and In-Circuit Serial Programming.

Application usage can vary from software development to hardware integration.

- Totally enclosed
- Connection via USB
- Real-time execution
- Supplied with MPLAB IDE
- Built-in over-voltage/short circuit monitor
- Firmware upgradeable from PC/web download
- Supports low voltage to 2V (2 to 6V range)
- Diagnostic LEDs (power, busy, error)
- Read/write program and data memory of microcontroller
- Erase of program memory space with verification
- Freeze-peripherals at breakpoint
- Program up to 512K byte flash with the Programmer-to-Go
- Supplied with USB cable

Type	Order code	1+
PICKIT 3	97-0109	40.00

553944



PIC12F6 8-bit Microcontrollers

This powerful yet easy-to-program CMOS Flash-based 8-bit microcontroller packs Microchip's powerful PIC architecture into an 8-pin package. The device has only 35 single word instructions with a 200ns instruction cycle. Operating speed is a faster 20MHz, and with a comparator, 128 bytes of EEPROM data memory makes this device ideal for education, industrial, appliances and consumer entry-level product applications that require to be field re-programmable. The PIC12F675 has an on-board 10-bit A/D converter.

- 16 special function hardware registers
- 8-level deep hardware stack
- 6 I/O pins with individual direction control
- High current sink/source for direct LED drive
- 64 bytes of general purpose RAM
- Programmable input multiplexing from device inputs
- Low power consumption 1mA 5.5V, 4.0MHz
- Extended temperature ranges devices available



Technical specification

Device	Max freq. (MHz)	Flash SRAM	Data memory	I/O lines	Package	Order code
PIC12F609-I/P	20	1024	64	5	DIL-8	73-3664
PIC12F615-I/P	20	1024	64	5	DIL-8	73-3668
PIC12F615-I/SN	20	1024	64	5	SO-8	73-3670
PIC12F629-I/P	20	1024	64	8	DIL-8	73-3262
PIC12F629-I/SN	20	1024	64	8	SO-8	73-3264
PIC12F675-I/P	20	1024	64	8	DIL-8	73-3284
PIC12F675-I/SN	20	1024	64	6	SO-8	73-3674
PIC12F675-E/SN *	20	1024	64	6	SO-8	73-3676
PIC12F683-I/P	20	2048	128	8	DIL-8	73-3374
PIC12F683-I/MD	20	2048	128	8	DFN-8	73-5154
PIC12F683-I/SN	20	2048	128	6	SO-8	73-3680

* Extended temperature range

MOQ 5 - In Multiples of 5

Device	Extended temp.	Order code	5+	25+	100+
PIC12F609-I/P		73-3664	0.65	0.58	0.54
PIC12F615-I/P		73-3668	0.627	0.572	0.53
PIC12F615-I/SN		73-3670	0.559	0.513	0.454
PIC12F629-I/P		73-3262	0.74	0.72	0.70
PIC12F629-I/SN		73-3264	0.597	0.563	0.542
PIC12F675-I/P		73-3284	0.778	0.732	0.704
PIC12F675-I/SN		73-3674	0.644	0.619	0.593

Price each

Device	Extended temp.	Order code	1+	25+	100+
PIC12F675-E/SN	Yes	73-3676	0.84	0.82	0.78

MOQ 5 - In Multiples of 5

Device	Extended temp.	Order code	5+	25+	100+
PIC12F683-I/P		73-3374	1.02	0.996	0.872
PIC12F683-I/SN		73-3680	0.798	0.722	0.692

061387



MICROCHIP

PIC16F 8-bit CMOS Flash/EEPROM Microcontrollers

The PIC16F series fits perfectly in applications ranging from high-speed automotive and appliance control to low power remote sensors. Flash/EEPROM technology makes customisation of code extremely fast and convenient. Other features include:

- Mid-range architecture, 14-bit wide instructions
- 1 Million data memory EEPROM ERASE/WRITE cycles
- Direct LED drive
- 8-bit timer/counter with 8-bit programmable prescaler
- In circuit serial programming (ICSP) featured



Technical specification

Device	Max freq. (MHz)	Flash SRAM	Data memory	I/O lines	Package	Order code
PIC16F84-04/P	4	1792	68/64E ²	13	DIL-18	73-2424
PIC16F84A-04/P	4	1792	68/64E ²	13	DIL-18	73-2634
PIC16F648A-I/P	20	4096	256/256	16	DIL-18	73-2654
PIC16F872-I/SP	20	3584	128/64E ²	22	DIL-28	73-2652
PIC16F73-I/SP	20	7168	4096 OTP	22	DIL-28	73-2400
PIC16F684A-I/P	20	2048	128/256E ²	12	DIL-14	73-3388
PIC16F874A-I/P	4	72K	192/128	33	DIL-40	73-3404
PIC16F616-I/P	20	2048	128	11	DIL-14	73-3684
PIC16F616-I/SL	20	2048	128	11	SO-14	73-3686
PIC16F630-I/P	20	1024	64	12	DIL-14	73-3688
PIC16F630-I/SL	20	1024	64	12	SO-14	73-3690
PIC16F676-I/P	20	1024	64	12	DIL-14	73-3692
PIC16F684-I/SL	20	2048	128	12	SO-14	73-3696
PIC16F688-I/P	20	4096	256	12	DIL-14	73-3698
PIC16F688-I/SL	20	4096	256	12	SO-14	73-3700
PIC16F690-I/P	20	4096	256	18	DIL-20	73-3702
PIC16F716-I/SO	20	2048 x 14	128 x 8	13	SO-18	73-3708

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+
PIC16F84-04/P	73-2424	3.64	3.58	3.51
PIC16F84A-04/P	73-2634	2.69	2.61	2.55
PIC16F648A-I/P	73-2654	1.49	1.39	1.36
PIC16F73-I/SP	73-2400	2.58	2.46	2.38
PIC16F874A-I/P	73-3404	3.18	2.99	2.90
PIC16F616-I/P	73-3684	0.815	0.741	0.665
PIC16F616-I/SL	73-3686	0.806	0.648	0.57
PIC16F630-I/P	73-3688	1.00	0.96	0.93
PIC16F630-I/SL	73-3690	0.851	0.797	0.779
PIC16F676-I/P	73-3692	0.929	0.911	0.885
PIC16F684-I/SL	73-3696	0.868	0.85	0.828
PIC16F688-I/P	73-3698	1.24	1.16	1.10
PIC16F688-I/SL	73-3700	1.00	0.933	0.88
PIC16F690-I/P	73-3702	1.59	1.49	1.43

Price each

Type	Order code	1+
PIC16F716-I/SO	73-3708	0.388

026890



Selected brands

555 Timer ICs

The **555** timer is a highly stable controller capable of producing accurate time delays or oscillation. The **556** timer combines two 555 timers on a single chip.

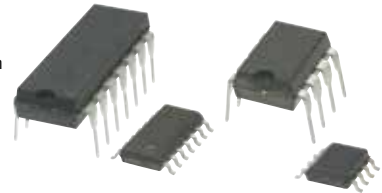
The 555 can be used in countless applications and has three recognised operating modes. In monostable mode the 555 functions as a one-shot or pulse stretcher. Applications include timers, missing pulse detection and bouncefree switches.

In astable mode the 555 can operate as an oscillator. Applications include LED and lamp flashers, pulse clocks, tone generation, security alarms and Pulse Width Modulation (PWM).

In bistable mode the 555 can operate as a flip-flop or changeover. Applications include bouncefree latched switches.

The **ICM7555** and **ICM7556** are improved versions including lower supply current and a wide supply voltage range.

- Bipolar and CMOS technologies, CMOS offering lower power consumption (1mW typ at VDD=5V)
- TTL logic compatible
- Through hole and surface mount
- Choice of leading brands



Technical specification

Device	Function	Manufacturer	Package	Order code
NE555N	Single timer	TI	DIL-8	82-0336
NE555D	Single timer	TI	SO-8	82-0338
TS555CD	Low power CMOS single timer	TI	SO-8	82-1050
TLC555CP	LinCMOS timer	TI	DIL-8	82-0342
SA555P	Single timer TTL compatible	TI	DIL-8	51-7531
ICM7555IPA	Single low power timer	Intersil	DIL-8	82-0774
ICM7555IBA	Single low power timer	Intersil	SO-8	82-0772
TLC556CN	Dual LinCMOS timer	TI	DIL-8	51-7532
NE556D	Dual timer TTL compatible	TI	SO-14	51-7533
NE556N	Dual timer	TI	DIL-14	82-0344
TS556CN	Low power CMOS dual timer	ST	DIL-14	82-1052
ICM7556IPD	Dual low power timer	Intersil	DIL-14	82-0776

MOQ 5 - In Multiples of 5

Type	Order code	5+	10+	100+	500+
NE555N	82-0336	0.356	0.276	0.15	0.132
TI NE555D	82-0338	0.262	0.177	0.13	
TS555CD	82-1050	0.669	0.52	0.357	
TLC555CP	82-0342	0.736	0.57	0.455	0.399
ICM7555IPA	82-0774	0.465	0.416	0.329	0.293
ICM7555IBA	82-0772	0.737	0.39	0.259	
SA555P	51-7531	0.331	0.251	0.199	
NE556N	82-0344	0.471	0.384	0.234	0.207
TS556CN	82-1052	0.424	0.378	0.29	

Type	Order code	5+	25+	100+
TLC556CN	51-7532	1.06	0.943	0.738
NE556D	51-7533	0.276	0.25	0.219

Price each

Type	Order code	1+	10+	100+
ICM7556IPD	82-0776	1.07	1.02	0.956

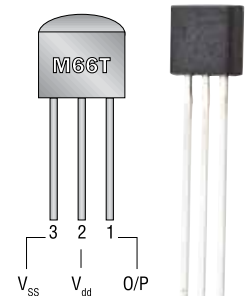
067451

RVFM

Melody Generator IC

This low cost melody generator IC is very easy to use.

- Ideal for simple melody projects such as greetings cards, toys etc.
- Plays 'It's a Small World'
- Requires only a 3V battery and a small 8Ω speaker to make a working project



V_{SS}

V_{DD}

O/P

3 2 1

MC6T

034461

MC6T-68L

82-0044

0.394

0.327

0.287

0.209

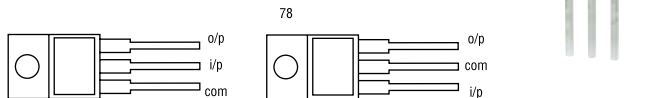
034461



1A Fixed Voltage Insulated TO-220FP Voltage Regulators

An insulated range of the standard 78 series voltage regulator. Supplied in a TO-220FP fully moulded package.

- Can be mounted directly to a heatsink
- Protected by internal current limiting and thermal shut-down



MOQ 5 - In Multiples of 5

Mfrs. pt. no.	Voltage	Order code	5+	25+	100+	500+
L7805CP	+5V	47-3550	0.55	0.444	0.375	0.306
L7812CP	+12V	47-3552	0.444	0.349	0.284	
L7815CP	+15V	47-3554	0.392	0.33	0.299	

060863



100mA Fixed Voltage Regulators 78L/79L Series

Miniature fixed voltage regulators with internal overload, thermal and short circuit protection.

- TO-92 plastic case



pin 1 = OUT
pin 2 = GND
pin 3 = IN

Bottom view



MOQ 5 - In Multiples of 5

Mfrs. pt. no.	Voltage	Order code	5+	25+	100+	1000+
78L05 +5V	+5V	47-3278	0.281	0.242	0.168	0.093
78L12 +12V	+12V	47-3280	0.147	0.135	0.112	
78L15 +15V	+15V	47-3282	0.099			
79L05 -5V	-5V	47-3284	0.22	0.173	0.126	

029554

Selected brands

1A Fixed Voltage - 78/79 series TO-220 Single Gauge

The 7800 and 7900 series of three-terminal positive and negative voltage regulators can deliver over 1A of regulated output current in a choice of several output voltages (subject to adequate heat sinking). Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

- TO-220 single gauge package
- Internal current limiting, thermal shut-down and safe area protection

For suitable heat sinks and thermal pads visit www.rapidonline.com.

Technical specification

Device	V _I max. (V)	V _O typ. (V)	V _O min. (V)	V _O typ. (V)	V _O max. (V)	Line regulation	Load regulation	Quiescent current (mA)	Order code
L7805CV	35	2	4.8	5	5.2	100	100	8	47-3290
L7806CV	35	2	5.75	6	6.25	120	120	8	47-3334
L7808CV	35	2	7.7	8	8.3	160	160	8	47-3600
L7812CV	35	2	11.5	12	12.5	240	240	8	47-3292
L7815CV	35	2	14.4	15	15.6	300	300	8	47-3295
L7818CV	35	2	17.3	18	18.7	360	360	8	47-3605
L7824CV	40	2	23	24	25	480	480	8	47-3608
L7905CV	-35	1.1	-4.8	-5	-5.2	100	100	3	47-3296
L7908CV	-35	1.1	-7.7	-8	-8.3	160	160	3	47-3602
L7912CV	-35	1.1	-11.5	-12	-12.5	240	240	3	47-3298
L7915CV	-35	1.1	-14.4	-15	-15.6	300	300	3	47-3301
MC7918CTG (ONS)	-35	1.1	-17.3	-18	-18.7	360	360	3	47-3607

MOQ 5 - In Multiples of 5

Mfrs. pt. no.	Voltage	Order code	5+	25+	100+	500+
L7805CV	+5V	47-3290	0.294	0.245	0.203	0.152
L7806CV	+6V	47-3334	0.275	0.191	0.157	
L7808CV	+8V	47-3600	0.257	0.204	0.163	
L7812CV	+12V	47-3292	0.415	0.298	0.22	0.178
L7815CV	+15V	47-3295	0.311	0.211	0.163	
L7818CV	+18V	47-3605	0.304	0.23	0.17	
L7824CV	+24V	47-3608	0.531	0.406	0.314	0.219
L7905CV	-5V	47-3296	0.332	0.268	0.205	
L7908CV	-8V	47-3602	0.175	0.148	0.129	
L7912CV	-12V	47-3298	0.515	0.368	0.223	
L7915CV	-15V	47-3301	0.343	0.264	0.216	
MC7918CTG (ONS)	-18V	47-3607	0.172			

029653



Transistor Holders

Printed circuit mounting transistor sockets.

- Moulded in thermoplastic
- Gold flashed contacts
- Temperature range -176 to +150°C



MOQ 5 - In Multiples of 5

Type	Order code	5+	100+
3-pin TO18	22-0100	0.585	0.531
3-pin TO5	22-0105	1.18	0.862

063782

Relays & Solenoids



Miniature Relays DPDT

A range of industry standard vertical PCB or socket mounted relays.

- The **Finder 40.52** series incorporate 8mm isolation gap between coil and contacts as required by **VDE0700**
- Housed in a dustproof **IP40** tinted case (AC versions have an orange tint)
- Widely approved including **VDE, BEAB, UL, CSA, SEV, NF-USE, SETI, IMQ, SEMKO** and **DEMKO**
- **Finder 40.52** series



Technical specification

Dimensions	29 x 12.4 x 25mm
Contact rating	8A at 240V AC/30V DC
Contact arrangement	Double pole changeover
Contact material	Silver nickel
Operate/release time	10ms/7ms
Coil operating range	70-150%
Coil consumption	500mW*/650mW/1.2VA**
Temperature range	-20°C to +70°C

Coil	Resistance	Order code	1+	25+	100+	250+
6V DC	55Ω	60-1110	4.20	3.18	2.91	
12V DC	300Ω	60-1115	3.50	2.80	2.48	
24V DC	1200Ω	60-1140	3.20	2.58	2.28	2.11
48V DC	3500Ω	60-1145	4.22	3.18	2.82	
60V DC	5500Ω	49-4248	3.31	2.94	2.65	
12V AC	80Ω	49-4250	5.11	4.64	3.48	
24V AC	320Ω	60-1170	4.07	3.29	2.89	
120V AC	9000Ω	49-4251	7.27	6.44	5.78	
240V AC	31500Ω	60-1180	6.46	5.97	5.83	5.65

029524



Miniature PCB Power Relay SPDT

Power relay with a very low power consumption, 360mW coil for PCB mounting.

- Offered in two switching capacities with either 10A or 15A contacts
- Sealed construction suitable for flow soldering
- **UL** approved



Technical specification

Series	RW	RWH
Rated current	10A	15A
Voltage max.	240V AC 110V DC	240V AC 110V DC
Power max.	1500VA 240W	1800VA 360W
Minimum switching load	10mA 5V DC	15mA 5V DC
Contact material	Ag alloy	AgSnO ₂
Contact form	SPDT	SPDT

Coil specification

Series	Voltage nom. (V DC)	Current nom. (mA)	Coil resistance (Ω)	Power (W)	Pull-in voltage (V DC)	Drop-out voltage (V DC)	Voltage max. (V DC)	Order code
RW	6	60	100	0.36	75% max.	5% min.	130%	60-4660
RW	12	30	400	0.36	75% max.	5% min.	130%	60-4662
RW	24	15	1600	0.36	75% max.	5% min.	130%	60-4664
RWH	5	73	70	0.36	75% max.	5% min.	130%	60-4661
RWH	6	60	100	0.36	75% max.	5% min.	130%	60-4666
RWH	12	30	400	0.36	75% max.	5% min.	130%	60-4668
RWH	24	15	1600	0.36	75% max.	5% min.	130%	60-4670

Performance

Contact resistance	100mΩ max.
Dielectric strength (coil and contact)	1000V AC
Surge resistance	3000V
Insulation resistance	100MΩ min.
Temperature range	-30°C to +55°C
Mechanical life	10 ⁷
Electrical life	10 ⁵
Dimensions	19 x 15.4 x 15.5mm
Weight	11g

MOQ 5 - In Multiples of 5					
Coil	Resistance	Order code	5+	25+	100+ 250+
RW Series 10A contacts					
6V DC	100Ω	60-4660	0.813	0.765	0.706
12V DC	400Ω	60-4662	0.628	0.589	0.56 0.54
24V DC	1600Ω	60-4664	0.736	0.689	0.645
RWH Series 15A contacts					
5V DC	70Ω	60-4661	0.719	0.674	0.627 0.552
6V DC	100Ω	60-4666	0.799	0.731	0.672
12V DC	400Ω	60-4668	0.64	0.576	0.54 0.49
24V DC	1600Ω	60-4670	0.633	0.589	0.56 0.54

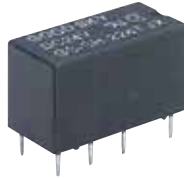
035148

GOODSKY

Subminiature Relay DPCO 1A - GS

A range of compact, lightweight double pole changeover relays to give high density PCB mounting.

- Coil consumption is 360mW
- 92/8 gold silver alloy on silver palladium contacts allows low level switching (1V DC 1mA)
- Casing is epoxy resin sealed for washing
- **BT47** style relays
- **GS-D** series



Technical specification

Dimensions	20.3 x 10.1 x 15.6mm
Contact rating	1A 24V DC/120V AC
Max. switching power	30W
Contact arrangement	Double pole changeover
Contact material	Ag Alloy
Operate/release time	6ms/4ms max.
Pull in voltage	75% max.
Drop out voltage	10% min.
Life expectancy	10 ⁷ operations
	mechanical electrical

Coil	Resistance	Order code	1+	25+	100+ 250+
5V DC	70Ω	60-4690	0.98	0.84	0.78
12V DC	400Ω	60-4692	0.98	0.89	0.83 0.78
24V DC	1600Ω	60-4694	1.25	1.04	0.862

035156

finder

Miniature Relays DPDT 10A

A compact relay, having the switching capability of 10A 250V AC or 30V DC, that has double pole contacts.

- Design features include guided contacts, separate arcing chambers, low power consumption and 4kV-8mm isolation between coil and contacts
- Flux-free base
- **VDE, BEAB, UL, CSA, SEV, NF-USE, SETI, IMQ, SEMKO, and DEMKO** approved
- **Finder 44.62** series



Technical specification

Dimensions	29 x 12.4 x 25mm
Contact rating	10A 240V AC/30V DC
Contact arrangement	DPDT
Contact material	AgSnO2
Operate/release time	10ms/7ms
Coil operating range	70-150%
Coil consumption	500mW
Temperature range	-20°C to +70°C
Finder Part Nos	4462-7006-4000 60-4170 4462-7012-4000 60-4172 4462-7024-0000 60-4174

Coil	Resistance	Order code	1+	25+	100+ 250+
6V DC	75Ω	60-4170	4.46	3.99	3.73
12V DC	300Ω	60-4172	4.43	3.87	3.45
24V DC	1200Ω	60-4174	4.55	4.05	3.60 3.22

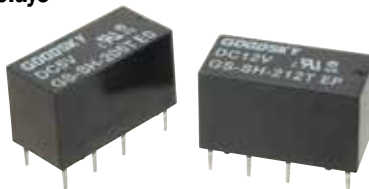
028671

GOODSKY

Subminiature DPDT 2A Relays

A compact lightweight relay for high density PCB mounting.

- Low coil power consumption
- Available in 5V, 12V and 24V versions
- Fully sealed construction
- Applications include telecommunications and audio equipment
- **UL** approved



Technical specification

	GS-SH-205T	GS-SH-212T	GS-SH-224T
Nominal voltage	5V DC	12V DC	24V DC
Max. allowable voltage	150%	150%	150%
Coil resistance	125Ω ±10%	720Ω ±10%	2880Ω ±10%
Contact arrangement	DPDT	DPDT	DPDT
Contact material	Ag alloy	Ag alloy	Ag alloy
Operate time	8ms max.	8ms max.	8ms max.
Release time	4ms max.	4ms max.	4ms max.
Nominal current	40mA	16.7mA	8.3mA
Coil operating range	150% max.	150% max.	150% max.
Temperature range	-30°C to +80°C	-30°C to +80°C	-30°C to +80°C
Mechanical life	10 ⁷ operations at no load condition	10 ⁷ operations at no load condition	10 ⁷ operations at no load condition
Electrical life	10 ⁷ operations at rated resistive load	10 ⁷ operations at rated resistive load	10 ⁷ operations at rated resistive load
Dimensions	21 x 12 x 10mm	21 x 12 x 10mm	21 x 12 x 10mm

Mfrs. pt. no.	Coil	Order code	1+	25+	100+ 250+
GS-SH-205T	5V DC	60-4754	1.59	1.28	1.10 0.97
GS-SH-212T	12V DC	60-4756	1.27	1.13	0.97 0.88
GS-SH-224T	24V DC	60-4758	1.53	1.23	1.13 1.05

071347

Intertec
Components

Linear Solenoids Open Frame

This series of open-frame linear solenoids are economical and lightly constructed devices that are suitable for a very wide range of applications.

- Metal bracket
- Includes damping ring
- Open mounting position with closed yoke



Voltage DC	Solenoid type	Order code	1+	25+	100+
20 x 10 x 8mm					
24	Pull	50-6100	2.47	2.27	
12	Push	50-6097	2.37	2.18	2.01
22 x 11 x 10mm					
12	Pull	50-6085	5.29	4.85	
12	Push	50-6086	5.83	5.36	
40 x 29.5 x 24.2mm					
12	Pull	50-6089	8.43	7.74	
24	Pull	50-6091	8.60	7.89	7.28
12	Push	50-6090	9.70	8.25	
24	Push	50-6092	9.90	8.50	
64 x 38 x 30mm					
12	Pull	50-6093	20.87	19.13	
24	Pull	50-6095	19.31	17.96	
12	Push	50-6094	17.37	16.62	
24	Push	50-6096	21.02	19.26	

520744

Intertec
Components

Cylindrical Linear Solenoids

A comprehensive range of cylindrically-bodied solenoids. There is a choice of push or pull linear actuators and the further choice of diameter and voltage means that there is a solenoid to suit any of the many applications that these devices are designed for.

- Closed design
- Higher efficiency than bar magnets
- Can be used in harsh environments
- Installation via screw caps
- Push type includes return spring
- Fixings M3



Diameter	Voltage (V DC)	Solenoid type	Order code	1+	25+
ø13mm					
6	12	Pull 4mm	50-6034	7.99	6.25
6	12	Pull 4mm	50-6036	8.34	7.68
6	12	Push 4mm	50-6035	8.49	7.79
6	12	Push 4mm	50-6037	9.90	8.40
6	24	Push 4mm	50-6040	8.68	7.95
ø16mm					
12	12	Pull 9 to 16mm	50-6052	11.52	10.57
12	24	Pull 9 to 16mm	50-6054	8.06	7.41
12	12	Push 9 to 16mm	50-6051	8.53	7.83
ø20mm					
6	12	Pull 10mm	50-6039	18.21	16.69
6	12	Pull 10mm	50-6046	8.91	8.16
6	24	Pull 10mm	50-6041	9.97	9.35
6	12	Push 10mm	50-6045	10.99	9.50
6	12	Push 10mm	50-6047	10.99	10.52
6	24	Push 10mm	50-6042	12.00	10.99
ø25mm					
6	12	Pull 18mm	50-6048	12.50	10.50
6	12	Pull 18mm	50-6050	10.90	9.99
6	24	Pull 18mm	50-6043	14.50	11.50
6	12	Push 18mm	50-6049	14.90	13.75
6	12	Push 18mm	50-6033	13.80	12.65
6	24	Push 18mm	50-6044	9.90	9.10

520738

Sounders, Buzzers & Speakers

RVFM

Electronic Buzzers



A range of compact, low-cost electronic buzzers.

- Available with either flying leads (10cm long) or PCB mounting pins
- 3V, 6V or 12V operating versions
- Resonant frequency is 400Hz
- Black ABS case material

Suitable for education and hobbyist use only.

Technical specification	
Operating voltage	2V to 5V DC or 4V to 8V DC or 9V to 15V
Rated voltage	2V to 5V type 4V to 8V type 9V to 15V
Max rated current	2V to 5V type 4V to 8V type 9V to 15V
Min sound pressure level	2V to 5V type 4V to 8V type 9V to 15V
Resonant frequency	400Hz ± 100Hz
Operating temperature	-20°C to +60°C
Weight	PCB type with lead PCB type
Dimensions	23 x 17 x 15mm with PCB pins on 7.6mm centres with lead 33.5 x 17 x 15mm with 100mm leads fixing centres 27.5mm, 2mm dia fixing hole

Type	Order code	1+	25+	100+	500+
3V Buzzer + lead	35-3592	0.978	0.825	0.735	
3V PCB Mount buzzer	35-3594	0.978	0.825	0.735	
6V Buzzer + lead	35-3596	0.978	0.825	0.735	
6V PCB Mount buzzer	35-3598	0.978	0.825	0.735	
12V Buzzer + lead	35-3610	1.05	0.882	0.827	
12V PCB Mount buzzer	35-3612	0.957	0.807		

036172

RVFM

Piezo Buzzer

A miniature piezo buzzer available with flying leads.

- Offers a high output with low power consumption

Technical specification	
Operating voltage	3-30V DC
Sound output	90dB at 50cm
Current consumption at 12V	10mA
Frequency	2.7kHz

Type	Order code	1+	25+	100+	500+
Piezo buzzer	35-0115	1.37	1.05	0.942	

030205

RVFM

Low Profile Buzzers

These PCB mounting buzzers have a loud but pleasant 85dB tone and operate from a either 6 or 12V DC supply. They are only 7.5mm high when mounted on the PCB. They will work with supply voltages ranging from 3 to 8V DC or 8 to 15V DC depending which version is required. Supply polarity is marked on the bottom of the top of the housing as an aid to installation. The case is finished in black.

- The base of the device is potted to maximise protection against flux contamination
- Masking label is included over the sound emission hole to permit board cleaning



- Encapsulated in a low profile housing making them particularly suitable for inclusion in miniature electronics instrumentation
- Supplied with PCB pins for direct mounting to PCBs
- Small/low profile design
- Compact rich sound
- Pitch 7.6mm
- Application: cellular phones, pagers, communication equipment, computers, household appliances, security of electronic devices
- Dimensions 11.6 x 11.6 x 7.5mm

Technical specification	
Order code	35-0040
Rated voltage	6V DC
Operating voltage	3 to 8V DC
Current consumption	30mA
Sound output at 10cm	>85dB
Frequency	3100Hz ±500Hz
Housing material	PBT
Weight	2g
Operating temperature	-20°C to +85°C
Storage temperature	-20°C to +88°C
Dimensions	11.6 x 11.6 x 7.5(D)mm

Type	Order code	1+	25+	100+	500+
6V low profile buzzer	35-0040	0.852	0.659	0.568	0.466
12V low profile buzzer	35-0041	0.852	0.659	0.568	0.466

083003

RVFM

Electronic Buzzers with 20cm Flying Leads

A range of rectangular electronic buzzers offering a high but rich sound.

- Supplied with 20cm flying leads
- 2mm fixing holes in base
- KPMB-2200L series
- Available with 6 and 12V operating voltages



Technical specification	
Sound output	75dB
Rated current max.	20mA
Response time	<50ms
Operating temperature	-20°C to +60°C
Dimensions	34(L) x 16(W) x 15(H)mm
Weight	10g

Type	Order code	1+	25+	100+	500+
6V	35-3601	1.04	0.841	0.786	
12V	35-3603	0.956	0.786	0.735	

071396



6V and 12V Low Profile Electromagnetic Buzzers

The Sonicrest HCM12BX series of electromagnetic sound generators are low profile buzzer units that have a sealed structure and are washable and compatible with wave soldering.

These low profile sounders are efficient, board mounting devices that are suitable for a wide applications such as: multi-tone audio signals (e.g. GSM), mobile phones and pagers, PDAs, automotive, domestic appliances, portable equipment, medical devices and computer motherboards.

- Available in 6V or 12V variants
- Supply polarity marked on housing as an aid to installation
- Supplied with PCB pins for direct mounting to PCBs
- Sealing label for wash protection
- Sonicrest HCM12BX series

Technical specification	
Order code	35-0052
Mfrs. pt. no.	HCM1206BX
Rated voltage	6V
Operating voltage range	4 to 7V
Rated current	≤30mA
Sound output @ 10cm	≥83dB
Generated frequency	2.3kHz ±400Hz
Operating temperature	-20°C to +80°C
Dimensions	7.5 x ø12mm
Weight	1.6g

Type	Order code	1+	100+	500+
Low Profile Buzzer 6V	35-0052	0.795	0.527	
Low Prof. Buzzer 12V	35-0053	0.795	0.527	

500352

RVFM

Miniature Electronic Buzzer

These electronic buzzers offer a high but rich sound. They are ideal for all applications and can be applied to telephone times, calling devices, time pieces electronic toys, safety equipment.

- Base of the buzzer is potted to maximise protection against flux contamination
- Masking label is included over the sound emission hole to permit board cleaning
- Supplied with PCB pins for direct mounting to PCBs
- Encapsulated in a low profile housing
- Suitable for inclusion in miniature electronics instrumentation
- Small / low profile design
- Available in 5, 12V operating versions
- 7.6mm pitch
- Dimensions 12mm dia x 7.5(H)mm



Technical specification	
Order code	35-0049
Rated voltage	12V DC
Operating voltage max.	3 - 15V DC
Sound output	88dB
Frequency	2300 ±300Hz
Response time	50ms
Housing material	PST
Operating temperature	-20°C to +85°C
Storage temperature	-20°C to +88°C
Pitch	7.6mm
Dimensions	12mm diameter
Weight	2g

Type	Order code	1+	25+	100+	500+
5V Buzzer	35-0048	0.928	0.721	0.619	0.502
12V Buzzer	35-0049	0.967	0.721	0.619	0.502

083008

RVFM

Transistor Oscillator Buzzers

A 1.5V miniature transistor oscillator buzzer with flying leads.

- Frequency 400Hz
- Sound output 75dB at 30cm
- Height 15.5mm
- Length 33.5mm
- Width 16.5mm
- Lead length 150mm
- Voltage 1.5V



Technical specification	
Operating voltage	1.3 to 2V
Current consumption	25mA
Sound output	75dB at 30cm

Type	Order code	1+	25+	100+	500+
1.5V buzzer (leads)	35-0086	1.06	0.85	0.806	

030204

RVFM

Round Electronic Buzzers with 20cm Flying Leads

A range of round electronic buzzers offering a high but rich sound.

- Supplied with 20cm flying leads
- 2mm fixing holes in base
- KPMB-2600L series
- Available with 3, 6 and 12V operating voltages



Technical specification	
Sound output	80dB
Rated current max.	40mA
Response time	<50ms
Operating temperature	-20°C to +60°C
Dimensions	25mm diameter x 18mm (height)
Weight	20g

Type	Order code	1+	25+	100+	500+
3V DC	35-3587	1.01	0.845	0.766	0.697
6V DC	35-3588	1.01	0.845	0.766	
12V DC	35-3589	1.04	0.898	0.807	

071394

RVFM

Uncased Piezo Transducer

An uncased miniature piezo transducer offering an ultra low profile.

- Ideal for use with speech and music modules as fitted to greetings cards and toys
- Connection is by means of 95mm flying leads



Technical specification				
Overall diameter	20mm			
Ceramic plate diameter	15mm			
Overall thickness	0.42mm excluding leads			
Brass plate thickness	0.21mm			
Resonant frequency	6.8 ±0.7kHz			
Resonant resistance	1E 300Ω			
Capacitance	15,000pF ±30%			
MQ5 - In Multiples of 5				
Type	Order code	5+	50+	300+
Uncased piezo transducer	35-0200	0.362	0.302	0.259

035847



5V and 12V Miniature Electromagnetic Buzzers

A miniature profile electromagnetic buzzer that is available in 5V or 12V versions. The **SoniCrest HCM12X** series of PCB mounting sounders feature a sealed construction making them suitable for washing and wave soldering manufacturing techniques.

These miniature buzzers have PCB pins for direct board mounting and are suitable for a wide applications such as: GSM, PDAs, cell phones and pagers, automotive, domestic appliances, portable equipment, medical devices and computer motherboards.

- Available in 5V or 12V variants
- Supply polarity marked on housing as an aid to installation
- Supplied with PCB pins for direct mounting to PCBs
- Sealing label for wash protection
- SoniCrest HCM12X series



Technical specification				
Order code	35-0055	35-0056		
Mfrs. pt. no.	HCM1205X	HCM1212X		
Rated voltage	5V	12V		
Operating voltage range	3 to 7V	8 to 15V		
Rated current	≤30mA	≤30mA		
Sound output @ 10cm	≥85dB	≥85dB		
Generated frequency	2.3kHz ±400Hz	2.3kHz ±400Hz		
Operating temperature	-40°C to +85°C	-40°C to +85°C		
Dimensions	9.5 x ø12mm	9.5 x ø12mm		
Weight	2g	2g		

Type	Order code	1+	100+	1000+
Miniature Buzzer 5V	35-0055	0.87	0.588	
Miniature Buzzer 12V	35-0056	0.795	0.527	0.453

500354



90dB Piezo Sound Generator 5V

SoniCrest have produced a sound generator that operates using the piezoelectronic effect. Producing a loud 90dB of sound, this 5V buzzer is suitable for use in alarms, sirens, audio alerts, telephone ringers, industrial/household appliances, control modules, high end toys, medical instruments, etc.

- Unsealed structure and non-washable
- With PCB pins for direct board mounting
- **SoniCrest HPA17F** type



Technical specification				
Rated voltage	5V			
Operating voltage range	1 to 30V			
Rated current	≤2mA			
Sound output @ 10cm	≥90dB			
Rated frequency	4kHz			
Capacitance	15nF			
Operating temperature	-40°C to +85°C			
Dimensions	6.8 x ø17mm			
Weight	1.5g			

Type	Order code	1+	100+	1000+
Piezo Sound Gen 5V	35-0054	0.577	0.379	0.333

500353

RVFM

8Ω Speaker Sound Generator

A low-cost, low power sound generator has been designed for use in toy and other applications. This very compact sound module is ideal for PCB fitting and produces a sound of up to 83dB.

- Good quality
- Suitable for soldering directly to a circuit board
- Dimensions: 30mm (dia) x 11mm (depth)



Technical specification	
Rated power	0.15W
Input power max.	0.3W
Frequency range	700 - 5000Hz
Rated frequency	1200 ±200Hz
Rated impedance	8Ω
Sound pressure level	83dB
Housing material	ABS/black
Operating temperature	-20°C - +60°C
Weight	12g

Type	Order code	1+	25+	100+
Speaker sound generator	35-0043	1.04	0.839	0.763

083005

RVFM

5V Electro-Magnetic Sound Generator

A 5V electro-magnetic sound generator encapsulated in a low profile housing making it particularly suitable for inclusion in miniature electronics instrumentation.

- Electro magnetic sound generator
- 5V voltage rating
- 45mA current
- 85dB at 10cm sound output
- 2400Hz frequency
- 12mm diameter
- 1.2g weight
- Noryl housing
- Sealed base
- Positive terminal marked
- PCB pins
- Requires external drive circuit



Technical specification	
Rated Voltage	5V
Operating Voltage	4-8V
Rated Current	≤60mA
Coil Resistance	45 ±4mA
Sound Output	≥85dB
Rated Frequency	2400Hz
Dia.	12mm
Operating Temperature	-40°C to +85°C

MQ5 - In Multiples of 5				
Type	Order code	5+	25+	100+
5V	35-3611	0.543	0.468	0.39

073358



Megaphones with Sirens



Compact and lightweight megaphones available in 25W or 30W power outputs. The feature sets of these compact and durable loudhailers make them ideal for a variety of outdoor uses in schools, work, construction sites, etc.

The megaphones all feature a good quality built-in microphone, comfortable pistol grip handle, rotary volume control and carrying strap. In addition, the 25W and 30W versions also include a hand-held microphone that gives the option of a different operating style.

- Comfortable strong strap included
- Built-in switchable siren function
- Pistol grip handle with push-to-talk trigger switch
- Anti-feedback hand-held microphone
- Rotary volume control
- Robust ABS construction

Technical specification			
Order code	35-4641	35-4642	35-4643
Power max.	10W	25W	30W
Power supply	12V DC (8x AA batteries)	12V DC (8x C batteries)	12V DC (8x D Alkaline batteries)
Range	500 to 600m	700m - 1km	600m
Dimensions	235 x ø150mm	335 x ø230mm	340 x ø230mm
Weight	630g	1.65kg	2kg

Type	Order code	1+
25W Siren megaphone	35-4642	51.35
30W Siren megaphone	35-4643	28.04

500292



Miniature Speakers 80

These KEPO Miniature Speakers 80 are a compact round size, suitable for signal output in machines and other equipment where space is at a premium. Typical applications include voice and signal output in machines and other equipment both indoors and outdoors.



- Available from 330-1280Hz

Technical specification				
Order code	51-7383	51-7384	51-7386	51-7387
Basket diameter	36mm	50mm	50mm	32mm
Height	4.9mm	17mm	8.3mm	7mm
Nominal load	0.5W	0.25W	0.5W	1W
Resonant frequency	500Hz	450Hz	330Hz	400Hz
Order code	51-7388	51-7389	51-7390	51-7391
Basket diameter	13mm	15mm	16mm	20 x 14mm
Height	3mm	3.4mm	3.5mm	3.6mm
Nominal load	0.5W	0.5W	0.5W	0.5W
Resonant frequency	1200Hz	850Hz	900Hz	950Hz
Order code	51-7395	51-7396	51-7397	
Basket diameter	28mm	28mm	30mm	
Height	5mm	6.1mm	4mm	
Nominal load	0.7W	0.5W	0.8W	
Resonant frequency	650Hz	530Hz	650Hz	

Input power	Height	Order code	1+	25+	100+
330Hz					
0.5W/Max.1W	8.3mm	51-7386	2.72	2.15	
400Hz					
1.5W/Max.1.8W	7mm	51-7387	3.18	2.88	
450Hz					
0.8W/Max.1.5W	17mm	51-7384	1.21	1.11	0.968
500Hz					
0.5W/Max.1W	4.9mm	51-7383	3.02	2.75	
530Hz					
0.5W/Max.1W	6.1mm	51-7396	2.41	2.15	
650Hz					
0.8W/Max.1.5W	4mm	51-7397	1.39	1.32	
0.5W/Max.1W	5mm	51-7395	2.32	2.11	
850Hz					
0.5W/Max.0.7W	3.4mm	51-7389	1.61	1.46	
900Hz					
0.5W/Max.0.8W	3.5mm	51-7390	2.56	2.18	
950Hz					
0.5W/Max.1W	3.6mm	51-7391	1.46	1.33	
1200Hz					
0.5W	3mm	51-7388	1.38	1.26	

526112



Miniature Speakers 8Ω 1.1/1.2kHz

These KEPO Miniature Speakers 8 O 1.1/1.2kHz are able to generate a range of audible tones and frequencies and have a transfer range of 500-5000Hz.



Technical specification				
Order code	51-7662			
Type (manufacturer type)	SH1770			
Basket diameter	30mm			
Dimensions ø x H	23 x 10mm			
Grid pitch	15mm			
Height	13.25mm			
Impedance	8Ω			
Nominal load	150mW			
Resonant frequency	1.1 kHz			
Transfer range	500 to 5000Hz			

Frequency	Order code	1+	25+	100+
1.1kHz	51-7662	1.24	1.13	0.997

526149

Primetone

Miniature Loudspeaker

An economical miniature speaker for use in small portable equipment.

- Fitted with paper cone and ferrite magnets
- Solder connection tags
- Both types 66mm diameter 21mm deep
- Handling capacity 300mW
- Primetone types 6608F (35-0130) and 6664F (35-0135)

Type	Order code	1+	25+	100+
8Ω Mini speaker	35-0130	1.02	0.94	0.779
64Ω Mini speaker	35-0135	1.02	0.94	0.779



RVFM

75mm 10W Full Range Speaker

A quality and good sounding full range loudspeaker.

- Suitable for all applications
- Foam edged paper cone with chrome HF dome

Technical specification	
Impedance	8Ω
Power rating	10W
Frequency response	120Hz - 16kHz
Resonant frequency	120Hz
Sensitivity 1W, 1m	88dB
Magnet weight	150g
Overall weight	415g
Dimensions	78 (dia.) x 45mm

Type	Order code	1+	6+	12+
75mm Full range speaker	35-1400	5.09	4.56	3.88



RVFM

50mm Ultra Slim Paper-coned Speakers

These miniature ultra slim loudspeakers are just 17mm thick.

- Paper cones
- Suitable for a wide range of applications
- 50mm diameter
- Wide frequency response enables the speakers to be used for speech, music or high frequency alarm output
- Solder tag termination
- Fitted with flange to assist mounting
- Available in 8Ω and 64Ω options

Type	Order code	1+	25+	100+	500+
8Ω speakers	35-0128	0.815	0.678	0.579	0.527
64Ω speakers	35-0129	1.04	0.868	0.741	0.675



VISATON

5cm Mini Speaker with Plastic Diaphragm

A high quality 5cm round speaker particularly well suited to outdoor applications and where ambient conditions are generally unfavourable.

- Magnetically shielded
- Plastic diaphragm and metal basket
- Full-range driver with good efficiency
- Broad frequency response and good voice reproduction
- Extremely small size due to a neodymium magnet system
- Typical applications include electronic devices and outdoor systems
- CE approved



Technical specification

Rated power	2W
Maximum power	3W
Nominal impedance	8Ω
Frequency response	-10dB 180-17000Hz
Mean sound pressure level	86dB
Resonance frequency fs	300Hz
Voice coil diameter	10mm
Cutout diameter	46mm
Net weight	48g
Protective system	IP65

Type	Order code	1+	10+	25+	50+
8Ω	35-2902	2.21	1.91	1.81	1.75

VISATON

2015 FR 7 Round Full Range Speaker 4Ω

A compact size round miniature speaker from Visaton. Includes a balanced frequency response from 130Hz, high efficiency and very good high range response, making it suitable for machines and other equipment where space is at a premium. Typical applications include control speakers for electronic devices, narrow network column speakers, model construction and electronic musical instruments.

- Moisturised cone
- Metal basket
- Cutout: ø 61mm
- Manufacturer's part 2015

Type	Order code	1+	10+	25+
Round Speaker	35-0567	4.73	4.30	4.06



Primetone

Ultraslim Subminiature Speakers

A subminiature speaker measuring 40mm in diameter.

- Overall depth of just 9.5mm
- Paper cone and alnico magnet
- Solder connection tags
- 0.1W and 0.25W versions available

Technical specification

Dimensions	40(W) x 9.5(D)mm
Impedance	8Ω
Frequency range	450Hz - 5kHz
Magnet weight	1.5g
Primetone series	LP400

Type	Order code	1+	25+	100+
0.1W 40mm Speaker	35-0120	1.46	1.18	
0.25W 40mm Speaker	35-0122	1.46	1.18	0.995



VISATON

10cm Full Range Speakers

A high quality 10cm full range speaker with good bass reproduction.

- Galvanised lacquered basket
- Balanced frequency response
- High efficiency
- Suitable as a built-in speaker for music reproduction
- Typical applications include 100V network column speakers, ceiling mounted speakers in transport, built-in car Hi-Fi and electronic music instruments
- Available in 4 and 8Ω versions
- CE approved



Technical specification

Rated power	20W
Maximum power	30W
Nominal impedance	4 and 8Ω
Frequency response	-10 dB 80-20000Hz
Mean sound pressure level	86dB
Resonance frequency fs	95Hz
Voice coil diameter	20mm
Cutout diameter	46mm
Net weight	410g
Protective system	IP65

Type	Order code	1+	10+
4Ω	35-2908	13.79	
8Ω	35-2909	12.28	11.86

VISATON

FRs 8 High Power Fullrange Speakers

These Visaton 8cm (3.3 inch) Hi-Fi fullrange speakers are suitable for surround, as effect channel speakers and mini subwoofer/satellite systems. Due to the small size they are very suitable for control speakers for electronic devices.

Ideal for use as ceiling-mounted speakers in railway carriages and busses, mini Hi-Fi systems and model construction.

- Small size
- Protective grille 1138 available (order code 35-2959)

Technical specification

Mfrs. Part No.	FRS 8: 8Ω	FRS 8: 4Ω
Order code	35-2936	35-2937
Rated/maximum power	50W	30W
Impedance	8Ω	4Ω
Frequency response (-0dB)	100 to 20000Hz	100 to 20000Hz
Mean sound pressure level	82dB (1W/1m)	82dB (1W/1m)
Excursion limit xmech	±2.5mm	±2.5mm
Resonance frequency	115Hz/120Hz	115Hz/120Hz
Height of front pole-plate	4mm	4mm
Voice coil diameter	20mm	20mm
Height of winding	4.5mm	4.5mm
Cutout diameter	73mm	73mm
Net weight	0.28kg	0.28kg

Type	Order code	1+	10+
FRS 8: 8 Ohm	35-2936	10.42	9.56
FRS 8: 4 Ohm	35-2937	8.92	8.29

RVFM

50mm Ultra Slim Mylar Cone Speakers

These miniature ultra slim loudspeakers are just 11mm in thickness.

- Mylar cones
- Suitable for a wide range of applications
- 50mm diameter
- Wide frequency response enables the speakers to be used for speech, music or high frequency alarm output
- Solder tag termination
- Fitted with flange to assist mounting
- Available in 8Ω and 64Ω options

Type	Order code	1+	25+	100+	500+
8Ω Speakers	35-0126	1.09	0.966	0.84	
64Ω Speakers	35-0127	1.09	0.966	0.84	0.79



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VISATON

1138 Speaker Grille

A protective grille that has been manufactured from metal and given a matt black finish. The grille has a decoration ring made of black plastic.

Suitable for Visaton speakers:
FR 8 4Ω; FR 8 8Ω; FRS 8 4Ω; FRS 8 8Ω; F 8 SC 4Ω;
F 8 SC 8Ω.

- Grille for FRS 8, FR 8 F 8 SC
- Colour: Matt black
- External diameter: 95mm
- External length/Height: 6mm
- External width: 82mm
- Material: Metal
- Surface finish: Matt

Type	Order code	1+	10+
Grille for FRS8, FR 8	35-2959	4.38	3.87



RVFM

Piezo Element 27mm 4.2kHz with Leads

A 27mm diameter piezo element that comes with 200mm flying leads.

- Low power consumption
- Reliable and lightweight
- Just 0.52mm thick

Technical specification	
Rated voltage (max.)	30V pk-pk
Capacitance	2000pF ±30%
Resonant frequency	4.2kHz ±500Hz
Operating temperature	-20°C to +60°C
Storage temperature	-20°C to +70°C
Overall diameter	27mm
Overall thickness	0.52mm
Wire type	AWG28 UL1095
Lead length	200mm



MQQ 5 - In Multiples of 5			
Type	Order code	5+	100+
Piezo element	35-0288	0.427	0.371

RVFM

Miniature Piezo Transducer with Flying Leads



This piezo transducer is able to generate a range of audible tones and frequencies when energised by a 12V peak square wave. Provided it is mounted rigidly in the prescribed manner, outputs of up to 80dB can be achieved.

- Flying leads
- Requires drive circuit
- PCB mounting
- Ideal for toys, clocks and watches, calculators and electronic games, using the transducer in place of a speaker
- Suitable for use in professional, commercial and industrial applications.
- Durable in domestic appliances
- Available in 12.5, 23 and 30mm diameter options

Note: Not suitable for speech and music.

Technical specification			
Order code	35-0045	35-0046	35-0047
Rated voltage	12V peak to peak	12V peak to peak	12V peak to peak
Allowable voltage max.	25V peak to peak	30V peak to peak	30V peak to peak
Current consumption	2mA at 4.0KHz	3mA at 4.0KHz	8mA at 4.0KHz
Sound output	75dB	80dB	80dB
Frequency	4.0 ± 0.5KHz	4.0 ± 0.5KHz	3.6 ± 0.5KHz
Housing material	ABS/black	ABS/black	ABS/black
Weight	1.3g	1g	3g
Operating temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Storage temperature	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C

MQQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
15mm transducer	35-0045	0.697	0.49	0.40
20mm transducer	35-0046	0.697	0.49	0.337
29.5mm transducer	35-0047	0.697	0.49	0.337

RVFM

Piezo Transducer

A piezo audio transducer that is epoxy sealed at base and suitable for PCB mounting.

- Wave solderable and washable.
- Available in two voltage ratings 6 and 12V.
- Low power consumption.
- Available in black
- Please note: This transducer requires a drive circuit.



RVFM

Piezo Transducer 1mA, 80dB

A piezo audio transducer that is epoxy sealed at base and suitable for PCB mounting.

- Wave solderable and washable
- Low power consumption
- Available in black

Technical specification	
Rated voltage	5V AC
Operating voltage	1 - 20V AC pk-pk
Rated current at rated voltage	1mA
Capacitance	13000 ±30%pF
Sound output at rated voltage	>80dB
Resonant frequency at rated voltage	4000 ±500Hz
Operating temperature	-20°C to +70°C
Storage temperature	-30°C to +80°C
Housing material	Noryl
Weight	1g

Type	Order code	1+	25+	100+
Piezo transducer	35-0282	0.903	0.807	0.711



Technical specification	
Rated voltage	9V DC
Operating voltage	1 - 30V DC
Rated current at rated voltage	3mA
Capacitance	17000 ±30%pF
Sound output at rated voltage	>85dB
Resonant frequency at rated voltage	4000 ±500Hz
Operating temperature	-20°C to +60°C
Storage temperature	-30°C to +70°C
Housing material	Noryl
Weight	3g

Type	Order code	1+	25+	100+
Piezo transducer	35-0286	1.43	1.28	1.11

Switches



R13-510A Low Profile Push Button Switches

A range of low profile push switches that snap-fit into a 12.7mm panel cut-out.

- Large 9mm actuator button available in red or black in momentary action push to make



Technical specification	
Contact rating	1.5A 250V AC
Contact resistance	3A 125V AC
Insulation resistance	50mΩ max

MQQ 5 - In Multiples of 5					
Type	Colour	Order code	5+	25+	100+
Push to make	Red	78-1520	0.44	0.40	0.37
Push to make	Black	78-1522	0.44	0.41	0.37



Low Profile Push-Button Switches with Chrome Bezels

A range of low profile push switches supplied with large 9mm actuator buttons.

- Available in momentary action push to make, push to break or changeover options
- Smart chrome bezel
- Supplied with button in red or black
- **SCI R13-502 series**



Technical specification	
Contact rating	3A 125V AC
Contact resistance	1.5A 250V AC
Insulation resistance	50mΩ max.
Body dimensions	10 x 10mm
Panel cut-out	20mm x 14.0mm dia.
	22.3mm x 14.0mm dia.
	21mm x 14.0mm dia.
	12.7mm

Type	Colour	Order code	1+	25+	100+
Push to make	Red	78-1550	0.90	0.79	0.74
Push to break	Black	78-1570	0.926	0.783	0.703
SP Changeover	Red	78-1590	0.977	0.868	0.80
SP Changeover	Black	78-1591	0.99	0.89	0.79

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RVFM

Miniature Push-button Switches



A range of low-cost, miniature push to make and push to break switches that are available in various button colours.

- Ideal for school projects and prototyping
- Non-locking
- Rated 125V AC 250mA
- Panel cut-out 7mm
- Dimensions 28mm long, ø10.5mm

Note: These switches are not recommended for industrial applications.

MQ 10 - In Multiples of 10				
Colour	Order code	10+	100+	500+
Push to make				
Black	78-0118	0.185	0.163	0.15
Red	78-0100	0.185	0.163	0.15
Blue	78-0119	0.185	0.163	0.15
Green	78-0120	0.185	0.163	0.15
White	78-0121	0.185	0.163	0.15
Yellow	78-0122	0.185	0.163	0.15
Push to break				
Black	78-0105	0.185	0.163	0.15
Red	78-0123	0.185	0.163	0.15

Miniature Latching Push Switch
Small Button

Low-cost, panel mounting, latching 2P SPST push switches that have small buttons.

- Available with red or black button
- Fits into 7mm panel cut-out, max. thickness 4mm
- Silver plated brass solder terminals
- Nylon frame to **UL 94V-2**



Technical specification

Rating	250V AC 1.5A/125V AC 3A
Contact resistance	50mΩ max.
Insulation resistance	100MΩ min.
Dielectric strength	1500V AC 1 minute

Type	Colour	Order code	1+	25+	100+	500+
Latching switch Red		78-0233	0.772	0.707	0.605	
Latching switch Black		78-0234	0.772	0.646	0.605	0.553

Miniature Latching Push Switch
Large Button

Low-cost, panel mounting, latching 2P SPST push switch that has a large button.

- Available with red button
- Fits into 7mm panel cut-out, max. thickness 4mm
- Silver plated brass solder terminals
- Nylon frame to **UL 94V-2**



Technical specification

Rating	250V AC 1.5A/125V AC 3A
Contact resistance	50mΩ max.
Insulation resistance	100MΩ min.
Dielectric strength	1500V AC 1 minute

Type	Colour	Order code	1+	25+	100+	500+
Latching switch Red		78-0235	0.742	0.656	0.605	0.553



Miniature SPST Momentary Push-Button Switches

These low cost push to make switches come with an all-plastic body and chrome locking nut.

- Non-locking momentary action
- Available with red or black button
- 5.2mm (M5) dia. panel cut-out
- Dimensions 19(L) x 8mm diameter
- Silver plated brass terminals
- **UL 94V-2** approved



Technical specification

Voltage rating	0.5A 125V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1000V AC, 1 minute
Circuit	SPST momentary push to make
Mount hole	5.2mm
Panel thickness	4mm max.

MQ 5 - In Multiples of 5						
Type	Order code	5+	25+	100+	500+	
Red push switch	78-0186	0.348	0.302	0.28		
Black push switch	78-0187	0.439	0.367	0.335	0.28	



Latching Push Button Switches

Low-cost, panel mounting, latching 2P SPST push switches which have domed buttons.

- Available with red or black button
- Fits into 12.2mm panel cut-out, max. thickness 4mm
- ABS actuators with phenolic base
- **UL 94HB** approval



Technical specification

Rating	250V AC 1.5A/125V AC 3A
Contact resistance	50mΩ max.
Insulation resistance	100MΩ min.
Dielectric strength	1000V AC 1 minute

MQ 5 - In Multiples of 5						
Type	Colour	Order code	5+	25+	100+	500+
Latching switch Red		78-0237	0.635	0.519	0.434	
Latching switch Black		78-0238	0.59	0.533	0.471	0.42



SPST Momentary Push Switches

Low-cost push to make switches.

- Non-locking momentary action
- Available with red or black button
- Snap-fit into a 14.8mm dia. panel cut-out
- Dimensions 19.5(L) x 18mm diameter
- Easy to install into panel
- Silver plated brass terminals
- **UL flame 94V-2** approved



Technical specification

Voltage rating	3A 125V AC/1.5A 250V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1500V AC, 1 minute
Mount hole	15mm
Panel thickness	0.5 to 2mm

Type	Colour	Order code	1+	25+	100+
Momentary Red		78-0184	0.943	0.829	0.746
Momentary Black		78-0185	0.943	0.829	0.746



SPST Locking Panel Mounting Push Switch

A low cost push to make switch with all-plastic body and locking nut.

- Panel mounting
- Latching action
- Available with black actuating button
- 15mm dia. panel cut-out
- Easy to install into panel
- Silver plated brass terminals
- Dimensions 23.5(L) x 18(W)mm
- **UL flame 94HB** approved



Technical specification

Voltage rating	3A 125V AC/1.5A 250V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1500V AC, 1 minute
Circuit	2P SPST latching push to make
Mount hole	15mm
Panel thickness	7mm max.

Type	Order code	1+	25+	100+
Black push switch	78-0189	1.58	1.33	1.12

RVFM

Miniature Push Switches

Miniature low cost push-to-make switches with an all-plastic body and chrome locking nut, offered in a variety of button colours.

- Non-locking action
- Rated 250mA 60V AC
- Panel cut-out 7mm
- Overall dimensions 28mm long, 10.5mm diameter



These switches are not recommended for industrial applications.

MQ 5 - In Multiples of 5				
Type	Order code	5+	100+	500+
Red push switch	78-0030	0.37	0.32	0.27
Black push switch	78-0035	0.37	0.32	0.27
White push switch	78-0055	0.428	0.30	

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Square Push Switches 1A

A range of attractive large push switches with actuator button in red or black.

- Available in non-locking push to make or SPST latching models
- Body dimensions 34 x 15 x 15mm
- Panel cut-out 12mm
- Contacts rated 1A 250V AC



MOQ 5					
Type	Order code	5+	25+	100+	500+
SPST Red non-locking	78-0110	0.50	0.44	0.40	
SPST Black non-locking	78-0112	0.477	0.425	0.373	
SPST Red latching	78-0115	0.53	0.49	0.44	0.39
SPST Black latching	78-0117	0.54	0.50	0.43	

030275

RVFM

Miniature Vertical Slide Switch

A low-cost SPDT miniature slide switch for PCB mounting.

- Rating 0.5A 50V DC
- Silver plated solder terminals
- Pitch 4mm
- 19mm Long, 5.6mm Wide, 5mm High
- Long lifespan



MOQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
Slide switch	76-0310	0.095	0.078	0.069	0.062

075724

RVFM

Miniature PCB Slide Switches

Miniature SPDT PCB mounting slide switches available in vertical or right angle options.

- Suited to many signal switching applications
- Both switches incorporate PCB supports to improve rigidity
- Non shorting contacts rated at 0.3A 125V AC
- Pitch 3mm



MOQ 5 - In Multiples of 5				
Type	Order code	5+	100+	250+
Vertical SPDT slide	76-0265	0.354	0.261	0.199
R/A SPDT slide switch	76-0271	0.236	0.217	0.201

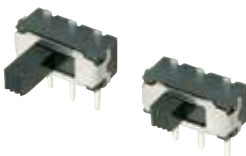
030266

RVFM

Miniature Slide Switches 6V

Miniature slide switches available with different size actuators.

- Choice of actuator size 2mm or 4.4mm
- Rating 0.3A 6V DC
- SPDT circuit
- Pitch 2.5mm



MOQ 10				
Type	Order code	10+	25+	100+
Slide switch 6V	78-3760	0.269	0.251	0.217

MOQ 5				
Type	Order code	5+	25+	100+
Slide switch 6V 4.4mm act.	78-3762	0.269	0.251	0.217

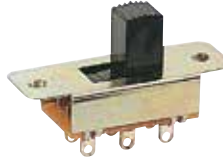
123404

RVFM

Standard Slide Switches

Standard slide switches with solder tag connections and break before make DPDT contacts.

- Also available in centre off
- Suited to a wide range of miniature electronic equipment
- Contacts rated at 0.3A, 125V AC
- Fixing centres 28mm



MOQ 5 - In Multiples of 5					
Type	Order code	5+	100+	500+	1000+
DPDT Std. slide	76-0105	0.268	0.224	0.186	
DPDT Centre off slide	76-0110	0.25	0.196	0.162	0.153

030267



1260 Ultraminiature Slide Switch

A miniature slide switch with SPDT contacts.

- Body measures just 9.0 x 3.5 x 3.5mm
- Ideally suited to a wide range of low voltage applications
- Right angle actuator button making it ideal for edge of board applications
- Pins are on a 2.50mm pitch making the switch suitable as an alternative to jumpers etc.
- Contacts rated 0.3A at 6V



MOQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
Ultramin slide switch	76-0303	0.28	0.24	0.21

060329

RVFM

Ultraminiature PCB Mounting Slide Switches 2A

A range of vertical and right angle mounting slide switches with PCB pins on a 2.54mm pitch.

- Silver plated contacts close with a positive action
- Sealed terminals are flux immune



Technical specification				
Dimensions	SPDT	14 x 7.8 x 7.7mm		
	DPDT	14 x 12.8 x 7.7mm		
Contact rating		2A 250V AC		
Minimum load		100mA 10V		
Initial contact resistance		10mΩ max.		
Electrical life		2 x 10 ⁴ [4+] operations		
Temperature range		-40°C to +85°C		

Type	Order code	1+	25+	100+	500+
SPDT Vertical	76-0200	0.731	0.641	0.568	0.49
DPDT Vertical	76-0220	0.976	0.854	0.759	0.682
SPDT Right angle	76-0205	1.18	0.979	0.839	
DPDT Right angle	76-0215	1.19	1.02	0.89	0.783

030268



Miniature Toggle Switches

A range of low cost panel mounting miniature toggle switches.

- Provides exceptional value
- Available in single pole and double pole options including momentary biased options
- All switches are fully approved to UL and CSA
- SCI TA102/TA202 series



For biased switches (On) indicates momentary action.

Technical specification

Contact rating	6A, 125V, 3A 250V AC
Initial contact resistance	<20mΩ
Insulation resistance	>100MΩ at 500V DC
Contact material	Copper alloy with silver inlay silver plated
Body material	Flame retardant alkyd
Electrical life	>1 x 10 ⁴ cycles at full load (min.)
Operating temperature	-20°C to +65°C

MOQ 5 - In Multiples of 5				
Type	Order code	5+	25+	100+
SPST	75-0125	0.739	0.676	0.623
SPDT On-Off	75-0130	0.739	0.676	0.612
SPDT Centre-Off	75-0135	0.765	0.659	0.591
SPDT On-Off-(On)	75-0152	0.864	0.80	0.715

Price each				
Type	Order code	1+	25+	100+
SPDT (On)-Off-(On)	75-0157	0.986	0.881	0.785
DPDT On-On	75-0140	0.881	0.785	0.732
DPDT Centre-Off	75-0145	0.998	0.849	0.777

030254



Miniature Toggle Switches

A range of panel mounting latching and momentary toggle switches.

- Choose from a variety of contact configurations
- Solder lug terminations
- Silver plated copper alloy contacts
- Stainless steel housing
- Salecom T80-T series



For biased switches (On) indicates momentary action.

Technical specification				
Contact rating	5A 125V AC/28V DC			
Electrical life	50,000 make-and-break cycles at full load			
Contact resistance	10mΩ max.			
Insulation resistance	1000MΩ min.			
Dielectric strength	1500V rms			
Operating temperature	-30° to +85°C			

MOQ 5 - In Multiples of 5				
Contacts	Function	Order code	5+	25+
SPST	On-Off	75-0082	0.68	0.64
SPDT	On-None-On	75-0083	0.76	0.68
SPDT	On-Off-On	75-0084	0.751	0.693

Price each				
Contacts	Function	Order code	1+	25+
SPDT	On-Off-(On)	75-0085	1.09	0.95
SPDT	(On)-Off-(On)	75-0086	1.12	0.90

MOQ 5 - In Multiples of 5				
Contacts	Function	Order code	5+	25+
DPDT	On-None-On	75-0087	0.79	0.73

Price each				
Contacts	Function	Order code	1+	25+
DPDT	On-Off-On	75-0088	1.05	0.922
DPDT	On-Off-(On)	75-0089	1.09	0.99
DPDT	(On)-Off-(On)	75-0090	1.08	0.99

075284



Black Equipment Wire 7/0.2 (100m Reel)

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We bring STEM to life



Miniature Toggle Switches

These miniature **toggle switches** from **Taiway** are available in single pole.

- Contact rating - 5A 125VAC, 2A 250VAC
- 50,000 make and break cycles at full load
- Solder lug terminations
- Epoxy terminal seal
- Silver plated contacts



Technical specification

Contact resistance	10mΩ max @ 2-4VDC
Insulation resistance	1,000 MΩ min
Dielectric strength	1,500V RMS @ sea level
Operating temperature	-30°C to +85°C

Materials

Case	Diallylphthalate UL94V-0
Toggle handle	Brass, chrome plated
Bushing	Brass, nickel plated
Housing	Stainless steel

Contacts	Function	Order code	1+	25+	100+
SPDT		75-0211	1.56	1.29	1.11
SPDT	Centre-Off	75-0212	1.60	1.49	1.30

072615



Standard Toggle Switches

Low-cost standard size toggle switches.

- Complete with On/Off plate
- Rated at 250V 1.5A
- Panel cut-out 12mm
- These switches are not recommended for industrial applications



MOQ 5 - In Multiples of 5

Type	Body dim.	Order code	5+	10+	100+	500+
SPST	25 x 14 x 14	75-0180	0.726	0.674	0.621	0.558

Price each

Type	Body dim	Order code	1+	10+	100+
DPDT	28 x 18 x 14	75-0185	0.863	0.799	0.756

030255



Toggle Switches, On-On 250V AC 3A

The chrome-plated toggle has a red removable insulating sleeve. Toggle length 13mm.

- Nickel-plated lever
- 3A; 250V AC



Technical specification

	50-0957 (L x W x H) 12.5 x 7 x 9.5mm	50-0958 (L x W x H) 12 x 11 x 9.5mm
Dimensions		
Functions	Maintained-Maintained	Maintained-Maintained
Number of pins	1	2
Toggle length	13mm	13mm
Specification	1-pole On/On	2-pole On/On
Switch position	SPDT, On-On	DPDT, On-On
Switching current	3A	3A
Switching power	3A/250V	3A/250V
Switching voltage	250V AC	250V AC
Type	KNX 1	KNX 2

MOQ 5 - In Multiples of 5

Switch type	Order code	5+	10+	15+	50+
SPDT, 1 pole	50-0957	0.514	0.501	0.474	0.421
DPST, 2 pole	50-0958	0.601	0.585	0.545	0.501

519922



Sub-miniature Toggle Switches

A range of low-cost panel mounting sub-miniature toggle switches.

- Excellent value
- Ideal for use where space is at a premium
- **SCI MTE** series



Technical specification

Contact rating	3A, 125V, 1.5A 250V AC
Contact resistance max.	20mΩ
Insulation resistance min.	100MΩ @ 500V DC
Dielectric strength	1000V AC 1 min
Operating temperature	-20°C to +85°C

Type	Order code	1+	25+	100+	500+
2P SPST On-Off	75-0095	0.797	0.632	0.535	0.482
3P SPDT On-On	75-0096	0.766	0.607	0.515	
6P DPDT On-On	75-0097	0.807	0.632	0.567	

079431



Microminiature Microswitches

A range of micro-miniature microswitches, measuring only 12.7mm in length.

- 1A, 250V AC switching ability in a truly miniature package
- PCB solder terminals
- Single pole changeover contacts
- Available in button and lever operation styles



Technical specification

Dimensions	12.7 x 5.8 x 6.5mm
Pitch	6.5mm
Contact material	Silver alloy
Contact rating	2A 30V DC, 1A 250V AC
Mechanical life	>30 x 10 ⁴
Electrical life	>30 x 10 ⁴

	Button	Lever
Operating force	150g	80g
Release force min.	20g	5g
Pretravel max.	0.5mm	-
Overtravel min.	0.25mm	0.55mm
Movement diff. max.	0.12mm	0.5mm
Actuator length	-	13mm

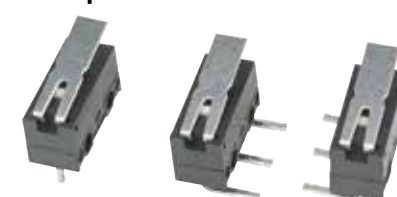
MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
Microminiature button	78-0730	0.577	0.509	0.48	
Microminiature lever	78-0735	0.491	0.443	0.43	0.403

030286



Lever Operated Microswitches



A range of value for money superminiature microswitches that are suitable for a wide variety of applications.

- Straight, right angle left or right angle right mounting
- Choice of 0.1A 30V DC or 3A 125V AC rating
- Solder terminals
- Minimum 1,000,000 operations for extended life

Technical specification

Contact resistance (max)	100mΩ
Insulation resistance (min)	100MΩ

MOQ 5 - In Multiples of 5

Rating	Actuator	Order code	5+	25+	100+	500+
0.1A 30V DC	Lever	78-0870	0.333	0.287	0.243	0.226

MOQ 10 - In Multiples of 10

Rating	Actuator	Order code	10+
3A 125V AC	Lever RA left	78-0877	0.22

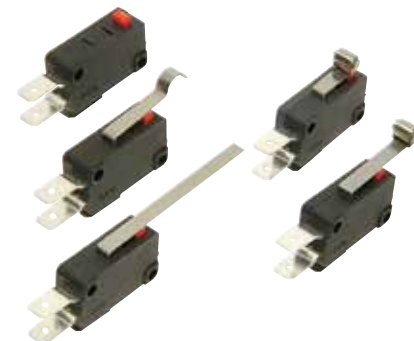
MOQ 5 - In Multiples of 5

Rating	Actuator	Order code	5+	25+	100+
3A 125V AC	Lever RA right	78-0878	0.44	0.39	0.349

074549



V3 Microswitches



A range of high quality standard size microswitches.

- Switching capacity 15A at 250V AC
- Connection may be made by a 6.35mm (¼in.) connector or by soldering
- Can be connected as normally open or normally closed
- Compact and precise operation
- Variety of actuator types
- Phenolic resin push buttons
- Stainless steel levers

Technical specification

Contacts rating	250V 15A AC resistive load
Service life	Mechanical >1,000,000 operations Electrical >100,000 operations @ rated load
Dimensions (H x W x D)	15.9 x 27.8 x 10.34mm ±0.4mm
Weight approx.	7g

Actuator	Button	Long lever	Short roller	Medium roller	Simulated roller
Pretravel (mm)	1.2	7.6	1.5	3.3	2.5
Differential (mm)	0.15-0.4	2.2	0.5	1.2	1.2
Operating force (g)	300	100	300	150	150
Release force (g)	80	14	85	28	28
Order code	78-0700	78-0702	78-0715	78-0710	78-0703

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+
Button	78-0700	0.678	0.612	0.556

Type	Order code	1+	25+	100+	500+
Long lever	78-0702	1.01	0.956	0.806	0.754
Short roller	78-0715	1.16	0.93	0.839	0.769
Medium roller	78-0710	0.893	0.803	0.73	
Simulated roller	78-0703	0.761	0.684	0.667	

073516



Paddle Lever Microswitch

A high quality V3 type

microswitch from

CamdenBoss with a

wide, long paddle lever.

- Ideal for quick alignment in security and safety applications such as tamper switches in alarm panels and bell boxes
- Dimensions of lever: 9 x 54mm (62mm from tip of lever to adjacent fixing hole)
- Camden part no. **CSM30531D**
- **CUL** approved



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* See Terms & Conditions for full details - www.rapidonline.com/terms

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Technical specification
Contacts
Rating
Mechanical life
Temperature range

Silver plated
3A 250V AC
>10⁶ operations
-20°C to +70°C

Type	Order code	1+	25+	100+	500+
Paddle level microswitch	78-0720	0.913	0.778	0.722	0.654

028681

RVFM

Subminiature V4 Microswitches



A range of subminiature microswitches.

- Switching capacity of 3A at 250V AC
- Available with solder terminal or PCB terminal connections
- Can be connected as normally open or normally closed
- All switch types are free from overtravel restrictions and permit easy setting
- Wide variety of actuator types
- Phenolic resin push buttons
- Stainless steel levers
- UL approved

Technical specification

Contact rating 250V 3A AC resistive load
Service life Mechanical >10,000,000 operations
Electrical >100,000 operations rated load
Dimensions 10.2(H) x 19.8(W) x 6.4(D)mm ±0.4mm
Weight approx. 2.2g

Actuator	Pretravel (mm)	Differential (mm)	Operating force (g)	Release force (g)
Button	0.5	0.1	150	25
14.5mm Lever	-	0.8	50	6
30.5mm Lever	-	1	30	5
37.5mm Lever	-	1	30	5
Simulated roller	-	0.8	50	6
Edge lever	-	0.8	50	6
Formed lever	-	0.8	50	6
Roller	-	0.8	50	6

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+
14.5mm Lever	78-2467	0.523	0.47	0.428

Price each

Type	Order code	1+	25+	100+
22.6mm Lever	78-2468	0.772	0.662	0.578
30.5mm Lever	78-2469	0.754	0.646	0.566

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+
37.5mm Lever	78-2470	0.578	0.515	0.464
Simulated roller	78-2471	0.566	0.502	0.452

Price each

Type	Order code	1+	25+	100+	500+
Roller	78-2474	0.783	0.684	0.609	0.548

PCB terminal

14.5mm Lever	78-2476	0.772	0.662	0.578	0.515
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MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+
Roller	78-2483	0.541	0.491	0.445

073543



Subminiature V4 Microswitches

Type V4 miniature microswitches with SPDT switching and a long life coil spring mechanism.

- Available in five standard actuator forms
- PCB pins or solder terminals
- **Camden CSM series**
- CUL approved

Rapid is an official distributor of CamdenBoss products. The products listed here are those that Rapid hold in stock – but we have access to many more, including the company's complete range of terminal blocks. Click here to make an enquiry about ordering CamdenBoss terminal blocks, connectors and enclosures.

Technical specification

Contact rating	5A 250V AC
Mechanical life	3 x 10 ⁶ operations
Temperature range	-20°C to +70°C
Operating force	150 42 27 42 15
Release force	75 12 5 10 10
Pre-travel max.(mm)	0.6 2.6 5.4 2.6 7.5
Movement differential (mm)	0.1 0.6 0.9 0.6 1.7
Over-travel min.(mm)	0.5 1 1.6 1 5

MOQ 2

Type	Order code	2+	25+	100+	250+
Solder terminal					
00A Button	78-2400	0.585	0.458	0.409	0.373
01A 14.5mm Lever	78-2402	0.66	0.595	0.497	0.433
02A 22.6mm Lever	78-2404	0.536	0.415	0.377	
05A 14.5mm	78-2407	0.648	0.534	0.467	
08A 43mm Lever	78-2408	0.609	0.559	0.521	0.472

MOQ 100 - In Multiples of 5

Type	Order code	100+	250+
PCB termination			
00C Button	78-2410	0.397	0.39

MOQ 2

Type	Order code	2+	25+	100+	250+
01C 14.5mm lever	78-2412	0.633	0.484	0.435	0.409
02C 22.6mm Lever	78-2414	0.662	0.518	0.464	
05C 14.5mm Roller lever	78-2416	0.551	0.507	0.475	
08C 43mm Lever	78-2418	0.585	0.551	0.507	

030301



SPST Miniature "Visible On" Rocker Switches

A range of single pole rocker switches with red, green or blue marking on the rocker which is clearly visible when the switch is in the 'on' position.

- 4.8 x 0.8mm connections
- Panel cut-out 19.2 x 13mm
- A waterproof cover for the switch is also available see this section
- Fully approved to **UL, CSA, VDE, NDE, SEMKO, DEMKO, NEMKO and FIMKO**



Technical specification

Contact rating	6A 250V 10A 125V
Initial contact resistance	<50mΩ
Insulation resistance	>100MΩ @ 500V DC
Termination	4.8 x 0.8mm fast-on
Operating temperature	-20°C to +65°C

Type	Order code	5+	25+	100+	500+
SPST Red rocker	75-0730	0.54	0.50	0.44	0.40
SPST Green rocker	75-0732	0.611	0.524	0.437	
SPST Blue rocker	75-0734	0.611	0.524	0.437	0.388

031424

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DPST Miniature Rocker Switch with Legend

A miniature double pole rocker switch offering a high switch capacity within a small case.

- On position is clearly marked by legend printed on rocker face
- Black bezel with matt black concave rocker
- 4.8 x 0.8mm crimp connections
- **ENEC and FIMKO approved**



Technical specification

Dimensions	21.2 x 15 x 14.5mm
Panel cut-out	19.2 x 13.2mm
Contact rating	4A 250V AC 8A 125V AC
Initial contact resistance	<50mΩ
Insulation resistance	>100M @ 500V DC
Mechanical life	>10 ⁶ cycles
Electrical life	>10 ⁶ cycles
Operating temperature	-20°C to +65°C

Type	Order code	1+	25+	100+	500+
DPST Miniature rocker	75-0270	1.07	0.887	0.791	0.655

030299



Rocker Switches, SPST 250V AC

These compact 'snap-in' panel mount rocker switches comply with EN61058.1 (VDE 630 part 1).

- Nickel-plated lever
- 3A; 250V AC



Technical specification

Order code	Switch position	Legend	Housing colour	Rocker colour
50-1028	SPST on-off	None	Black	Black
50-1031	SPDT on-on	None	Black	Black
50-1032	SPDT on-off-on	None	Black	Black
50-1033	SPST on-off	O/I	Black	Black

MOQ 5 - In Multiples of 5

Switch type	Rocker colour	Order code	5+	10+	50+	100+
SPST On-Off	Black	50-1028	0.631	0.609	0.573	0.551

Price each

Switch type	Rocker colour	Order code	1+	10+	50+
SPST On-On	Black	50-1031	0.814	0.781	0.734
SPDT On-Off-On	Black	50-1032	1.11	1.07	1.01

MOQ 5 - In Multiples of 5

Switch type	Rocker colour	Order code	5+	10+	50+	100+
SPST On-Off	Black	50-1033	0.686	0.649	0.614	0.602

519933



DPDT Rocker Switch

A low cost nylon rocker switch.

- Non-latching concave sprung rocker
- Snap-in mounting
- 28mm x 25mm panel cut-out
- Silver plated brass terminals
- Dimensions 31.5(L) x 29(W) x 35(H)mm
- **UL flame 94V-2 approved**



Technical specification

Voltage rating	16A 125V AC/10A 250V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1500V AC, 1 minute
Circuit	6PDT On/Off / On
Operating temperature	-20°C to +85°C
Mount hole	28mm x 25mm
Panel thickness	5mm

Type	Order code	1+	25+	100+
Rocker switch	75-0061	1.54	1.29	1.09

071452



SPST Panel Mounting Rocker Switch R13-136A

A single pole rocker switch with locking nut.

- On position is clearly marked by a legend printed onto the concave rocker face
- Silver plated brass terminals
- Phenolic base
- Panel mounting
- Dimension 23(L) x 23(W) x 24(D)mm
- Available in black
- **UL flame 94V-2** approved



Technical specification

Voltage rating	10A 125V AC/ 6A 250V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1500V AC, 1 minute
Circuit	SPST
Mount hole	18.2mm
Panel thickness	6mm

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+
Rocker switch	75-0060	0.701	0.608	0.515

071456



SPST Snap-in Rocker Switch

A low cost nylon rocker switch.

- 15.2mm dia. panel cut-out
- Silver plated brass terminals
- Snap-in mounting
- Available in black
- Dimensions 25mm(L) x 19mm diameter
- **UL flame 94V-2** approved



Technical specification

Voltage rating	10A 125V AC / 6A 250V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1500V AC, 1 minute
Circuit	SPST
Mount hole	15.2mm
Panel thickness	3mm

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
Black rocker switch	75-0057	0.49	0.44	0.39	0.34

071446



SPST Miniature Rocker Switch

A miniature single pole rocker switch with black concave rocker.

- Has a red marking which is clearly visible when switch is in the 'on' position
- Switch snap fits into a 20mm panel cut-out
- 4.8 x 0.8mm fast-on connections
- **UL, CSA and VDE** approved
- **SCI type R13-112A2**



Technical specification

Contact rating	6A 250V AC 10A 125V AC
Initial contact resistance	<50mΩ
Insulation resistance	100MΩ at 500V DC
Termination	4.8 x 0.8mm fast-on
Operating temperature	-20°C to +65°C

Type	Order code	1+	25+	100+	500+
SPST Miniature rocker	75-0480	0.79	0.64	0.54	0.50

031451

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01206 751166



SPST On Off Switch Circular Rocker

A miniature single pole rocker switch in a white gloss finish.

- Snap-in mounting, easy to install switch into panel
- Panel cut-out - 20.2mm
- Maximum panel thickness 3mm
- 4.8 x 4.8mm terminals
- A waterproof cover for the switch is also available - see this section
- Nylon frame to **UL 94V-2**



Technical specification

Contact rating	16A 125V AC 10A 250V AC
Initial contact resistance	50mΩ max.
Insulation resistance	100MΩ min. 500V DC
Dielectric strength	1500V AC 1 minute

MOQ 5 - In Multiples of 5

Type	Order code	5+	25+	100+	500+
White rocker switch	75-0063	0.53	0.49	0.44	0.40

071919



SPST In-line Switch

A single pole in-line switch with rocker actuator.

- On position is clearly marked by a legend printed onto the concave rocker face
- Suitable for table lamps etc.
- Dimensions 64(L) x 31(W) x 20(D)mm
- Available in black



Technical specification

Voltage rating	10A 125V AC / 6A 250V AC
Contact resistance	50mΩ max.
Insulation resistance	500V DC, 100MΩ min.
Dielectric strength	1500V AC, 1 minute
Circuit	SPST
Material	Nylon 6.6

Type	Order code	1+	25+	100+
In-line switch	75-0062	2.09	1.77	1.50

071442



Round Rocker Switches

Versatile round rocker switches with snap-in mounting.

- Connections: male spade connectors 4.8 x 0.8mm
- Installation diameter: 20mm
- Material: Polyamide 66
- Flammability: UL 94 V2
- **SCI R13 112 series**



Technical specification

Order code	Switch position	Colour	Switching current	Motif
50-1000	SPST on-on	White	6A	-
50-1006	SPST on-off	Green	6A	-
50-1009	SPST on-off	Green	6A	-

Switch type	Rocker/LED colour	Order code	1+	10+	50+
SPST On-On	White	50-1000	0.973	0.939	0.882
SPST On-Off	Green	50-1006	1.41	1.34	1.28
SPST On-Off	Green	50-1009	1.43	1.38	1.31

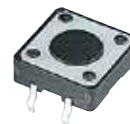
519929



Miniature 12 x 12 Tactile Switches

12 x 12mm PCB mounted tactile switches.

- Positive switch action
- Round button
- Single pole normally open contacts
- **Diptronic DTS** series



Technical specification

Dimensions	12 x 12 x 4mm
Pitch	12.5 x 5mm
Contact rating	50mA 12V DC
Initial contact resistance	<250mΩ max.
Insulation resistance	>100MΩ min. at 100V DC
Dielectric strength	250V AC for 1 minute
Travel	0.3mm
Operating life	>100,000 ops
Operating temperature range	-20°C to +70°C
PCB footprint	12.5 x 5.0mm

MOQ 10

Type	L	Order code	10+	100+	500+	1000+
Round	4.3	78-0630	0.252	0.192	0.16	0.12

030286



Miniature 6 x 6 Tactile Switches

A range of high quality SPST miniature 6 x 6mm tactile switches.

- PCB horizontal mount
- Flat, extended and projected plunger lengths
- Positive click action
- **Diptronics DTS-6** series



Technical specification

Order code	Diptronics part No.	Length x width x height
78-0620	61N	6 x 6 x 4.3mm
78-0621	62N	6 x 6 x 5mm
78-0622	63	6 x 6 x 7mm
78-0623	644N	6 x 6 x 7.3mm sq 2.4
78-0625	65N	6 x 6 x 9.5mm
78-0626	66N	6 x 6 x 13mm
Pitch	6.5 x 4.5mm	
Contact rating	50mA 12V DC	
Initial contact resistance	100mΩ	

MOQ 10

Type	Order code	10+	100+	500+	1000+
61N 4.3 high	78-0620	0.129	0.111	0.091	0.069
62N 5mm high	78-0621	0.129	0.111	0.091	0.069
63 7mm high	78-0622	0.129	0.111	0.091	0.069
644N 7.3mm high sq 2.4	78-0623	0.129	0.108	0.084	0.072
65N 9.5mm high	78-0625	0.202	0.128	0.104	0.08
66N 13mm high	78-0626	0.16	0.11	0.078	0.069

071703



Tactile Switches 6 x 6mm

A range of miniature through hole tactile switches.

- 6 x 6mm
- Positive switch action
- Normally open single pole contacts
- Available in various heights
- Four terminal mounting for additional stability



Technical specification

Dimensions	6 x 6 x 3.5mm
Pitch	6.5 x 4.5mm
Contact rating	500mA 12V DC
Contact resistance	≤30mΩ max
Travel	0.25mm
Insulation resistance	≥100MΩ min at 500V dc
Dielectric strength	250V AC for 1 minute
Operating temperature	-30°C to +70°C



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STEM to life

MQQ 10 - In Multiples of 5					
Type	Height	Order code	10+	100+	500+ 1000+
Switch 6x6mm 4.3mm		78-3800	0.102	0.078	0.05 0.04
Switch 6x6mm 3.5mm		78-3802	0.102	0.078	0.05 0.04
Switch 6x6mm 7.0mm		78-3804	0.102	0.078	0.05 0.04
Switch 6x6mm 9.5mm		78-3808	0.102	0.078	0.05 0.04
Switch 6x6mm 13.0mm		78-3810	0.129	0.078	0.05

200042

RVFM Key Operated Switches



Random operated SPST 2-position key switch.

- Key removal in two positions
- Random keys
- Spare keys available for common key switches (see below)
- Zinc alloy die cast housing and cylinder
- Bright chrome plated
- 4-pin tumbler mechanism
- Chrome plated zinc alloy tubular keys
- Silver plated contacts and terminals
- Hex nut mounted
- M12 panel cut-out

Technical specification

Order code	Mfrs Part No.	Key removal	Key type			
79-0310	S106-2 RANDOM	2 Position	Random			
Key removal	Key type	Order code	1+	25+	100+	
SPST						
2 Position	Random	79-0310	4.55	3.75	2.25	075716

RVFM Miniature Key Operated Switches

A single pole make/break brass bodied key operated switch with chrome plated bezel.



- Common key operated switch
- Single pole contact
- Off-on operation
- 1A contact current
- 250V AC contact voltage
- 2 position
- PCB pin terminals
- 15mm wide, 26.5mm high
- Initial contact resistance <100mΩ
- Electrical life >15,000 operations
- Round profile for additional security
- Key may be removed in either the on or off position
- Supplied with two keys

Technical specification

Dimensions	15 x 26.5mm
Contact rating	1A 250V AC
Initial contact resistance	<100mΩ
Insulation resistance	>500MΩ
Electrical life	>15 x 10 ⁴ (+13%) operations
Operating temperature	-20°C to +65°C

Type	Order code	1+	25+	100+	500+
SPST Common key switch	79-0295	3.15	2.71	2.34	2.11

030306

Rapid
...where price meets quality

RVFM Common Key Operated Switch

A mini electric lock switch with two tubular keys and fixing nut.



- SPST operation
- Panel mounting
- Key may be removed in the off position only
- Zinc body and core
- Chrome plated
- Supplied with two common keys

Technical specification

Contact rating	1A 250V AC; 2A 125V AC
Contact resistance	10mΩ max.
Insulation resistance	500MΩ min.
Dielectric strength	1000V AC

Type	Order code	1+	25+	100+
Electric switch lock	79-0306	3.21	2.92	2.68
Spare key set	79-0307	0.991	0.809	0.702

071485

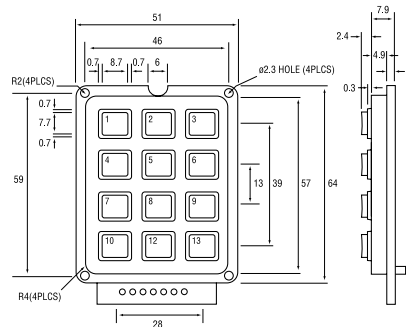
RVFM Matrixed 3 x 4 Data Entry Keypad

A low-profile numeric data entry keypad, with black bezel and white keys. The keypad has conductive rubber contacts and positive action keys requiring only a low operating force.



It is connected via solder pads on the lower edge of the keypad PCB and can be secured via four mounting holes. Suitable for use on a wide range of hand-held and other small equipment.

- Data entry keypad
- 24V DC contact voltage
- 20mA contact current
- 200Ω contact resistance
- 3 x 4 layout
- -20 to +60°C operating temperature
- 1,000,000 ops operating life
- 100gf operating force
- 51mm long, 64mm wide, 7.8mm high



AK-304

Technical specification

Contact rating	20mA @ 24V DC
Contact resistance	200Ω max.
Mechanical life	1,000,000 cycles per key
Actuating force	100gf ±30gf
Key stroke	3 x 4 1.4 mm ±0.4mm
	4 x 4 1.5mm ±0.5mm
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +65°C
Order code	Key layout Bezel colour Key colour Legend colour
78-0305	3 x 4 Black White Black

Type	Order code	1+	25+	100+
3 x 4 Black/white keys	78-0305	3.40	2.59	2.09

071486

TruGens Proximity Switch

A compact proximity switch comprising a permanent magnet moulded into a flush housing and a single pole N/O reed switch moulded into a similar flush housing.



- With 280mm flying leads
- Magnet housing 26.5mm long, 8.5mm diameter
- Supplied as a set

Type	Order code	1+	25+	100+
Proximity switch	78-0797	2.10	1.95	1.70

065354

COMUS M1219 Neodymium Disc Magnets

A range of disc magnets manufactured from Neodymium Iron Boron which is up to 5 times more powerful than Alnico.



- All magnets are nickel plated to reduce the onset of corrosion when used under normal circumstances
- Ideally suited to proximity switch triggering or biasing where space is at a premium

Technical specification

Part no.	Distance at which magnets measure 1000 Gauss	Dimensions	Surface flux (Gauss)
M1219-1	0.5mm	3 x 1mm	1500
M1219-2	0.95mm	3 x 2mm	2500
M1219-3	1.6mm	4 x 3mm	3200
M1219-4	2.0mm	6 x 2mm	2500
M1219-5	3.8mm	10 x 5mm	3500
M1219-6	3.0mm	6 x 5mm	3500
M1219-8	3.0mm	6 x 4mm	3900
M1219-10		22 x 2mm	800

Operating temperature 120°C max.

NB: M1219-4 has north seeking identified with a dimple

Type	Order code	1+	25+	100+	250+
M1219-1	78-1064	0.644	0.571	0.523	0.473
M1219-2	78-1066	0.848	0.575	0.511	
M1219-3	78-1068	1.14	0.96	0.743	
M1219-4	78-1070	0.903	0.684	0.596	0.511
M1219-5	78-1072	1.37	1.14	0.933	0.843
M1219-6	78-3783	0.851	0.666	0.596	
M1219-8	78-3784	1.01	0.724	0.632	
M1219-10	78-3786	1.12	0.897	0.815	

033887

TruGens Non-Mercury Tilt Switches



A range of economical, non-mercury tilt switches, which operate when tilted approximately 10° from the horizontal.

- Contact is made by gold-plated ball-bearings which roll onto the contact
- Two styles are available:
- **78-0752** has a single gold-plated pin, with a lead attached to the case
- **78-0754** has two nickel-plated leads

Technical specification

Switch rating	24V DC 6mA
Life	100,000 cycles min.
Contact resistance	0.5Ω max @ 45° tilt
Differential angle	10° max.
Operating temperature	-25°C to +85°C

Type	Order code	1+	25+	100+	500+
2 Nickel leads	78-0752	0.75	0.607	0.547	0.458
Gold pin + lead	78-0754	0.75	0.607	0.547	0.458

034909



Non-mercury Tilt Switch

A gas filled hermetically sealed tilt switch employing non toxic materials in a miniature completely mercury free sealed metal package.

- Normally open contacts which will close when tilted more than 10° from the horizontal
- Suited to a wide range of applications including toys, games, automotive and water treatment equipment
- Formerly Assemtech type CW1300-1

Technical specification

Contact arrangement	Single pole normally open
Contact rating	3VA max.
Switching current	0.25A max.
Switching voltage	60V AC or DC max.
Contact resistance	30Ω max. at 15° tilt
Temperature range	-40°C to +150°C

Type	Order code	1+	25+	100+
Non-mercury tilt switch	78-0760	1.30	1.27	1.25



Low Cost Non-mercury Tilt Switches

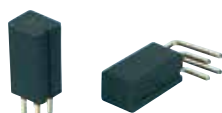
Low cost PCB mounting non-mercury tilt switches fitted with gold contacts.

- Available with straight or right angle pins for direct mounting to a PCB
- Ideal low cost solution in alarm systems and general angle sensing
- Supplied in Polyamide 6,6 case with **UL 94V-0** rating
- Formerly Assemtech types M1230-1 (vertical) and M1230-2 (horizontal)

Technical specification

Contact rating	25mA at 24V DC
Contact resistance	10 Ω
Differential angle	10°
Operating temperature	-25°C to +70°C

Type	Order code	1+	25+	100+	500+
Vertical tilt switch	78-1058	0.712	0.59	0.528	
Horizontal tilt switch	78-1056	0.856	0.721	0.648	0.579



Miniature Rectangular Magnets

From only

£0.545

Order code 60-0560

For full details visit www.rapidonline.com



Reed Switches

A comprehensive range of rhodium contact miniature reed switches.

- Available in a variety of styles and contact ratings
- See **60-0560** for suitable magnets

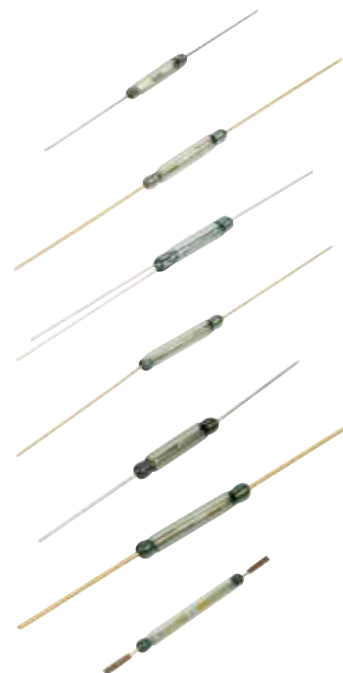
Technical specification

Case code	A	B	C	D
1	36	10	2	0.4
1A	46	15	2.54	0.6
2	55	14	2.3	0.5
3	52	14	2.6	0.5
4	54	14.2	2.3	0.6
6	55	18.5	2.6	0.7
8	79	52	5.4	2.5
9	29	52	5.4	2.5

A = Overall length B = Glass length C = Diameter D = Lead diameter

Type	Contacts	Case code	Contact rating (VA) max.	Switching current (A) max.	Switching voltage (V) AC max.	Pull in range (AT)	Order code
Micro.	SPST	1	1	0.1	24	15-20	60-0520
Submin.	SPST	2	10	0.5	100	20-25	60-0522
Submin.	SPDT	3	3	0.2	30	20-25	60-0524
Submin.	SPST	4	10	1	250	10-30	60-0534
Miniature	SPST	1A	10	0.5	140	14-23	60-0515
Miniature	SPST	6	40	2	440	20-25	60-0528
Compact	SPST	9	120	3	1500	75-95	60-0532

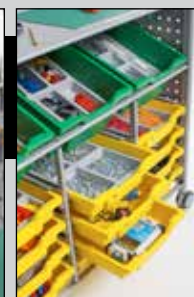
Type	Order code	1+	25+	100+	500+
Micro SPST	60-0520	1.00	0.833	0.758	0.69
Submin. SPST	60-0522	0.974	0.81	0.722	0.639
Submin. SPDT	60-0524	3.81	3.51	3.06	
Submin. SPST	60-0534	0.735	0.682	0.621	
Miniature SPST	60-0515	0.623	0.568	0.52	
Miniature SPST	60-0528	1.19	1.07	0.897	
Compact SPST	60-0532	2.61	2.22	1.91	



PLEASE NOTE THE TROLLEY IS SUPPLIED EMPTY
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Gratnells

MakerSpace Trolley



The Gratnells MakerSpace trolley is perfect for classroom storage of tools and components used in many STEM and STEAM projects. The trolley holds standard Gratnells trays on StopSafe runners allowing easy and safe access to components and the tool hangers can be moved and changed to suit many objects.

- Robust steel frame and heavy duty lockable castors
- Side and back panels with industry standard holes and slots for wide range of accessories
- 3 deep (F2) trays
- 12 shallow (F1) trays
- 12 green mini bins
- 1 roll holder
- 5 single hooks and 5 double hooks
- Suitable for loads up to 85Kg

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Order code 14-0481