2.54mm PCB connectors

Order code	Manufacturer code	Description
22-0854	22057028	2 WAY 2.54MM KK MOLEX R/A HEADER (RC)

Sales: 01206 751166 **Technical: 01206 835555** **Fax: 01206 7551188**
Sales@rapidelec.co.uk **Tech@rapidelec.co.uk** **www.rapidelectronics.co.uk**

PRODUCT SPECIFICATION

1.0 SCOPE

This Product Specification covers the 2.54 mm (.100 inch) centerline (pitch) 0.64 mm (.025) square pin headers when mated with either printed circuit board (PCB) connectors or connectors terminated with 22 to 28 AWG wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBERS

Crimp Terminals: 2759, 41572, 6459
Crimp Housings: 2695
PCB Connectors: 4455, 42625
Headers: 4030, 4094, 6373, 7478, 42225, 42226, 42227, 42228, 42152, 42153, 42375, 42376, 42377, 42624.
Other products conforming to this specification are noted on the individual drawings.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Terminal Material: Brass or Phos. Bronze (for Max performance use phos bronze material.)
Housing: Nylon or Polyester
Pins: Brass or Phos. Bronze
For more information on dimensions, materials, and plating see the individual drawings.

2.3 SAFETY AGENCY APPROVALS

UL File Number …….. E29179
CSA ……...LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

None

4.0 RATINGS

4.1 VOLTAGE

250 Volts

4.2 CURRENT AND APPLICABLE WIRES

(Current is dependent on connector size, contact material, plating, ambient temperature, printed circuit board characteristics and related factors. Actual current rating is application dependent and should be evaluated for each application.)

AWG	Amps (Max)	Outside Insulation Diameter
22	4.00	See Drawings
24	3.75	See Drawings
26	3.50	See Drawings
28	3.00	See Drawings

4.3 TEMPERATURE (ambient + 30° temp rise)

Operating: 0°C to +75°C
Nonoperating: - 40°C to +105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA.	10 milliohms MAXIMUM [initial]
Contact Resistance of Wire Termination (Low Level)	Terminate the applicable wire to the terminal and measure wire using a voltage of 20 mV and a current of 100 mA.	2 milliohms MAXIMUM [initial]
Insulation Resistance	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
Dielectric Withstanding Voltage	Unmate connectors: apply a voltage of {two times the rated voltage plus 1000 volts} VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown
Capacitance	Measure between adjacent terminals at 1 MHz.	2 picofarads MAXIMUM
Temperature Rise (via Current Cycling)	Mate connectors: measure the temperature rise at the rated current after: 1) 96 hours (steady state) 2) 240 hours (45 minutes ON and 15 minutes OFF per hour) 3) 96 hours (steady state)	Temperature rise: +30°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Connector Mate and Unmate Forces	Per circuit when mated to an .025 Sq. pin. Mate and unmate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	1.95 N (0.438 lbf) MAXIMUM insertion force & 0.56 N (0.125 lbf) MINIMUM withdrawal force
Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. (Forces will change with platings and materials.)	17.8 N (4.0 lbf) MINIMUM withdrawal force
Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch). (Forces will change with platings and materials.)	6.67 N (1.5 lbf) MAXIMUM insertion force
Durability	Mate connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	10 milliohms MAXIMUM (change from initial)
Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
Shock (Mechanical)	Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes (18 shocks total).	10 milliohms MAXIMUM (change from initial]) & Discontinuity < 1 microsecond
Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch). (For maximum performance use Molex application tooling with stranded tinned copper wire)	22 awg = 44 N (10 lbf) 24 awg = 35 N (8 lbf) 26 awg = 26 N (6 lbf) 28 awg = 17 N (4 lbf) 30 awg = 13 N (3 lbf)
Normal Force	Apply a perpendicular force.	2.94 N (300 grams) average

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Shock (Thermal)	Mate connectors; expose to 5 cycles of: Temperature °C — Duration (Minutes) -40 +0/-3 — 30 +25 ±10 — 5 MAXIMUM +105 +3/-0 — 30 +25 ±10 — 5 MAXIMUM	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Thermal Aging	Mate connectors; expose to: 96 hours at 105 ± 2°C	10 milliohms MAXIMUM (change from initial]) & Visual: No Damage
Humidity (Steady State)	Mate connectors: expose to a temperature of 40 ± 2°C with a relative humidity of 90-95% for 96 hours. Note: Remove surface moisture and air dry for 1 hour prior to measurements.	10 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM & Visual: No Damage
Humidity (Cyclic)	Mate connectors: cycle per EIA-364-31: 24 cycles at temperature 25 ± 3°C at 80 ± 5% relative humidity and 65 ± 3°C at 50 ± 5% relative humidity; dwell time of 1.0 hour; ramp time of 0.5 hours. {Note: Remove surface moisture and air dry for 1 hour prior to measurements.}	10 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM & Visual: No Damage
Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Solder Resistance	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 230 ± 5°C	Visual: No Damage to insulator material
Salt Spray	Mate connectors: Duration: 48 hours exposure; Atmosphere: salt spray from a 5% solution; Temperature: 35 +1/-2°C	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Cold Resistance	Mate connectors: Duration: 96 hours; Temperature: -40 ± 3°C	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Corrosive Atmosphere: Flowing Mixed Gas (FMG)	Mate connectors: Test per EIA-364-65, method 2A	10 milliohms MAXIMUM (change from initial) & Visual: No Damage

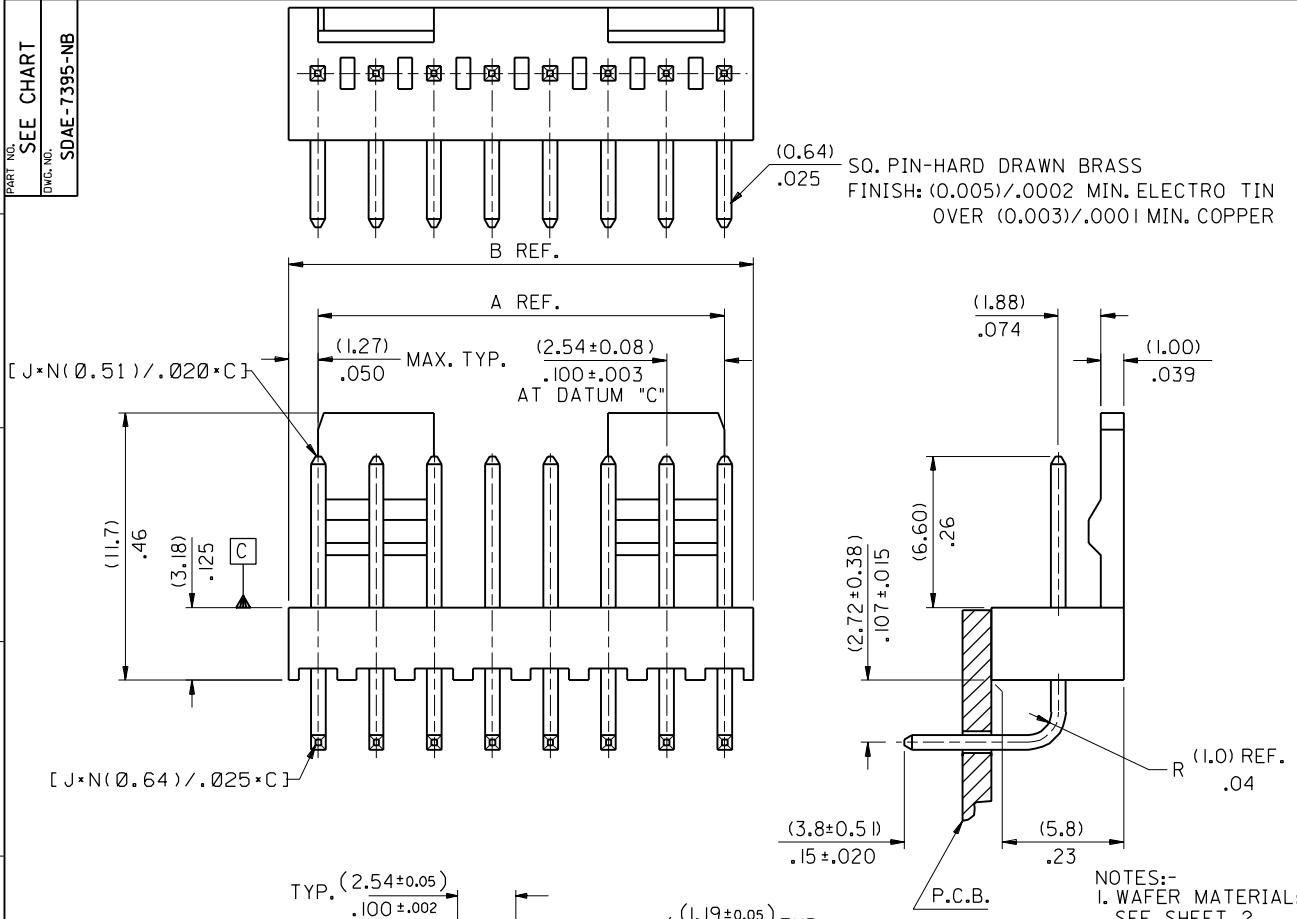
6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

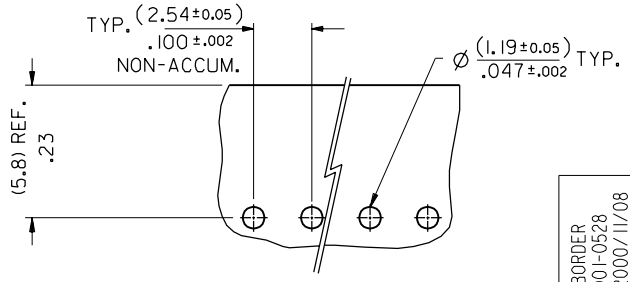
7.0 GAGES AND FIXTURES

8.0 OTHER

PART NO. SEE CHART
DWG. NO. SDAE-7395-NB



NO. OF CCTS	DIM. "A"	DIM. "B"
2	2.54/.100	5.08/.200
3	5.08/.200	7.62/.300
4	7.62/.300	10.16/.400
5	10.16/.400	12.70/.500
6	12.70/.500	15.24/.600
7	15.24/.600	17.78/.700
8	17.78/.700	20.32/.800
9	20.32/.800	22.86/.900
10	22.86/.900	25.40/1.000
11	25.40/1.000	27.94/1.100
12	27.94/1.100	30.48/1.200
13	30.48/1.200	33.02/1.300
14	33.02/1.300	35.56/1.400
15	35.56/1.400	38.10/1.500
16	38.10/1.500	40.64/1.600
17	40.64/1.600	43.18/1.700
18	43.18/1.700	45.72/1.800
19	45.72/1.800	48.26/1.900
20	48.26/1.900	50.80/2.000
21	50.80/2.000	53.34/2.100
22	53.34/2.100	55.88/2.200
23	55.88/2.200	58.42/2.300
24	58.42/2.300	60.86/2.400
25	60.86/2.400	63.50/2.500
26	63.50/2.500	66.04/2.600
27	66.04/2.600	68.58/2.700
28	68.58/2.700	71.12/2.800



RECOMMENDED P.C.B. HOLE DIMENSIONS

NOTES:-
1. WAFER MATERIAL: NYLON 6/6, 94V-0 OR POLYESTER, 94V-0, SEE SHEET 2.
2. PIN SOLDERABILITY PER MOLEX SPEC. NO. 152
3. PIN PUSH OUT FORCE (0.907 KG)/2LBS MIN.
4. PARTS TO BE FLAT WITHIN (0.005 mm/mm)/.005 IN/IN.
5. WAFERS STACKABLE END TO END.

AE-7395-N B *
NO. OF CCTS.
WAFER ASSY. OPTION
COLOUR CODE

1	F
2	F
SHT	REV

REVISE ON CAD ONLY

NEW BORDER
EC NO. E2001-0528
DRWN: SF 2000/11/08
CH'K:
APPR:
DESCRIPTION
REV
F

QUALITY SYMBOLS
MAJOR =
CRITICAL C =

GENERAL TOLERANCES: (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	±0.	±.
3 PLACES	±0.	±.010
2 PLACES	±0.25	±.015
1 PLACE	±0.38	±.
ANGULAR: ±	2°	

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

SCALE 5:1
DESIGN UNITS ☒mm ☐INCH
THIRD ANGLE PROJECTION
DIMENSIONS: ☒ mm/INCH ☐ INCH/mm ☐ mm ONLY

DRAWN BY & DATE SFARKAS 2000/11/08
CHECKED BY & DATE EFOLAN 2000/11/09
APPROVED BY & DATE MWILHITE 2000/11/09
CAD FILENAME

TITLE: 2.54MM KK HDR RA FRICLK 5SN

MOLEX INCORPORATED

MATERIAL NO.	DRAWING NO.	SHEET NO.
SEE CHART	SDAE-7395-NB	1OF2

SIZE B

7132-1283

PART NO. SEE CHART
DWG. NO. SDAE-7395-NB

WAFER COLOUR		NATURAL		YELLOW	
WAFER MATERIAL		NYLON 6/6, 94V-0		POLYESTER, 94V-0	
		ENG NO.S	EDP NO.S	ENG NO.S	EDP NO.S
NO. OF CIRCUITS	2	AE-7395-2B	22-05-7028	AE-7395-2BE	38-00-7658
	3	AE-7395-3B	7038		
	4	AE-7395-4B	7048	AE-7395-4BE	38-00-7659
	5	AE-7395-5B	7058		
	6	AE-7395-6B	7068		
	7	AE-7395-7B	7078		
	8	AE-7395-8B	7088		
	9	AE-7395-9B	7098		
	10	AE-7395-10B	7108		
	11	AE-7395-11B	7118		
	12	AE-7395-12B	7128		
	13	AE-7395-13B	7138		
	14	AE-7395-14B	7148		
	15	AE-7395-15B	7158		
	16	AE-7395-16B	7168		
	17	AE-7395-17B	7178		
	18	AE-7395-18B	7188		
	19	AE-7395-19B	7198		
	20	AE-7395-20B	7208		
	21	AE-7395-21B	7218		
	22	AE-7395-22B	7228		
	23	AE-7395-23B	7238		
	24	AE-7395-24B	7248		
	25	AE-7395-25B	7258		
	26	AE-7395-26B	7268		
	27	AE-7395-27B	7278		
	28	AE-7395-28B	22-05-7288		

SEE SHEET 1.
EC NO.
DRWN:
CH'K:
APPR:
DESCRIPTION
REV
F

QUALITY SYMBOLS
MAJOR ▼ =
CRITICAL (C) =

GENERAL TOLERANCES: (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	±0.	±.
3 PLACES	±0.	±.
2 PLACES	±0.	±.
1 PLACE	±0.	±.
ANGULAR: ±	°	

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

SCALE
DESIGN UNITS ☐mm ☐INCH
THIRD ANGLE PROJECTION
DIMENSIONS: ☐ mm/INCH ☐ INCH/mm ☐ mm ONLY
SHT | REV
REVISE ON CAD ONLY

DRAWN BY & DATE: SFARKAS 2000/11/08
CHECKED BY & DATE: EFOLAN 2000/11/09
APPROVED BY & DATE: MWILHITE 2000/11/09
CAD FILENAME

TITLE: 2.54mm KK Hdr RA FricLK 5Sn

MOLEX INCORPORATED

MATERIAL NO.: SEE CHART
DRAWING NO.: SDAE-7395-NB
SHEET NO.: 20F

SIZE B

7132-1283