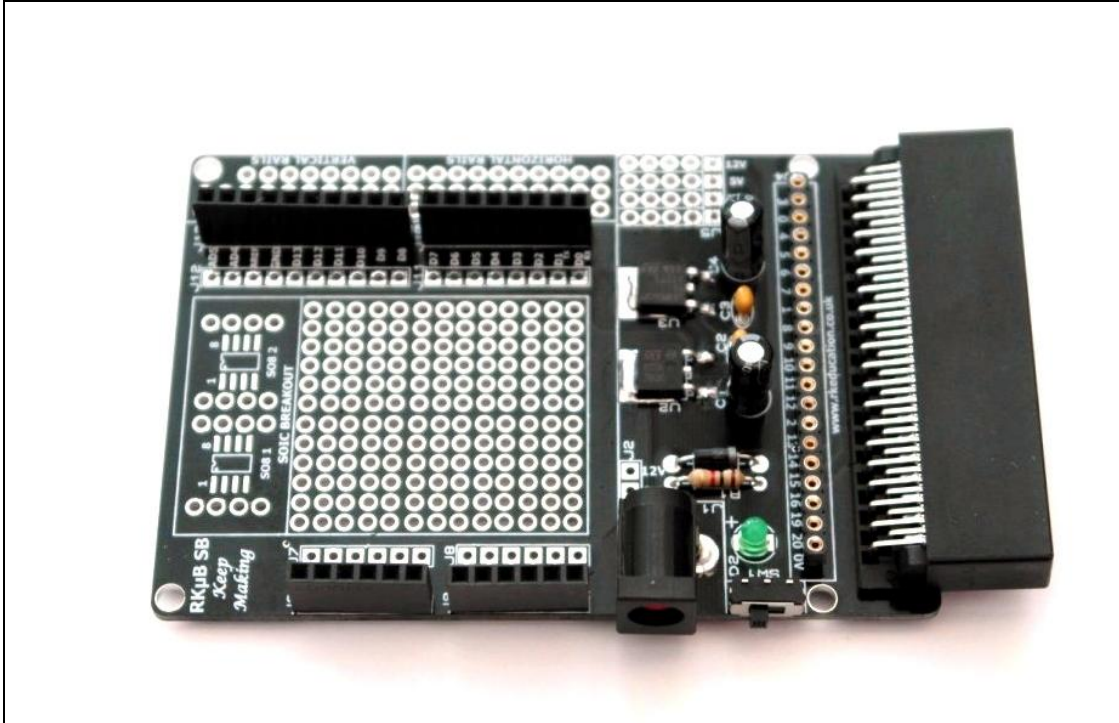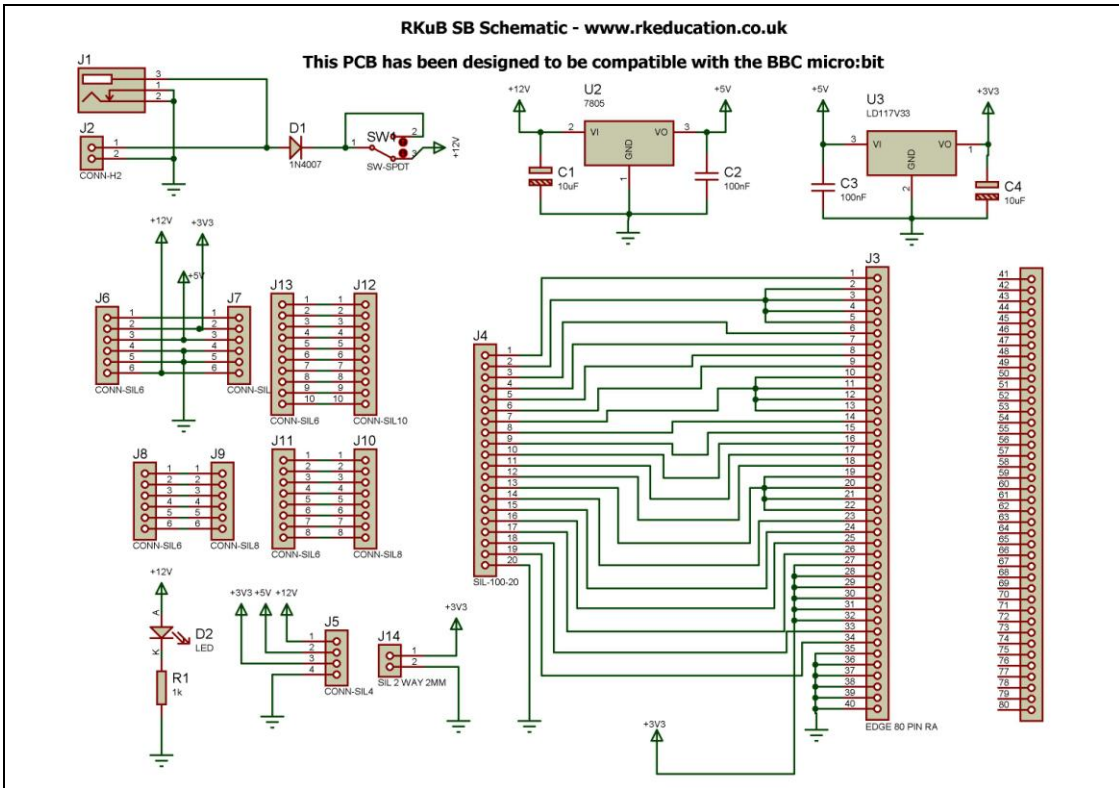# RKuB SB Component List and Instructions

Constructed PCB

Schematic Diagram

Description

The RKuB SB breakout PCB is a simple PCB and it has been designed to allow users to breakout the pins of their BBC micro:bit and it has the added benefit of being able to be interfaced to Arduino shields. The RKuB SB has a power switch and small prototyping area for extra flexibility. The RKuB SB has the added advantage over the RKuB1 as it has onboard power, it can be powered from a standard 12VDC power supply and the onboard regulators give 3V3 and 5V. The unit can still be powered from the micro:bit battery pack as the PCB includes the header. The PCB also has a very useful prototyping area making the PCB a self contained prototyping system.

Component List

C1, C4 - 10uF electrolytic capacitor
C2, C3 - 100nF multi layer ceramic capacitor
D1 - 1N400x diode
D2 - standard 3mm LED
J1 - 2.1mm DC socket
J2 - leave empty, can be used to supply 12VDC
J3 - RA 80 way connector
J4 - 20 way PCB header (either a plug or socket can be used)
J5 - leave empty, power rail
J14 - 2 way right angle 2mm JST connector
J6 - J13 - PCB headers for connecting to an Arduino Shield
R1 - standard 1k resistor
SW1 - Ultra miniature slide switch
U2 - 7805 TO252 5VDC voltage regulator
U2 - LD1117V33 TO252 3V3 voltage regulator

Soldering

When soldering always start with the components with the lowest profile and end with the components with the highest profile. On the PCB start with the voltage regs and end with the 80 way connector. The surface mount regs are very simple to solder but if you need guidance please look on YouTube, there are 100s of video clips about soldering. With the 80 way connector it is best to solder the connector in place by soldering 2 pins from opposite corners, this secures the header in place.

Connecting Power

Power can be either 12VDC or from a 3V battery pack and there is a power switch available. If a battery pack is used then is connected via the 2 way JST connector but the power section of the circuit will not work, the intention is that a 12VDC supply with a 2.1mm plug is used. There are power rails on the PCB labelled 12V, 5V, 3V3 and 0V, (the 12VDC value will depend on the actual power supply output and the effect of the input diode, use a DVM to confirm). The power rails are useful when for example you are interfacing to peripheral devices on the prototyping area, power can be taken from the RKuB SB and connected to power external peripherals. The voltage regulators will give sufficient current to power a wide range of peripherals.

Using the RKuB SB

The RKuB SB is a sophisticated breakout board and how you use it will depend on what you are doing with it. Breakout the pins of your micro:bit using jumper wires and connect to the prototyping area to control peripherals, for example motors, control ICs, optoelectronics etc. The PCB has an interface section that allows Arduino Shields to be connected making an extremely useful PCB. The best place to go for hints and ideas is a forum where users share information and ideas.

We have other PCBs and kits available for the BBC micro:bit and also for Arduino, Atmel, PIC, PICAXE, Raspberry PI and we stock a wide range of electronic project PCBs and kits.

Please visit our website

www.rkeducation.co.uk

If you have any comments or queries please email us at

technical@rkeducation.co.uk

RKuB SB Schematic – www.rkeducation.co.uk

This PCB has been designed to be compatible with the BBC micro:bit