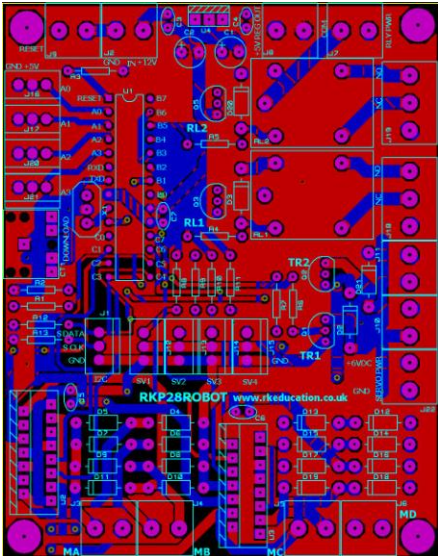
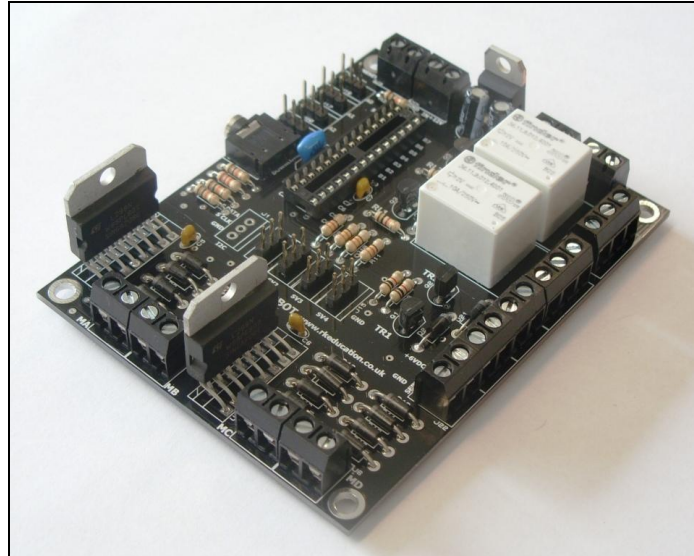


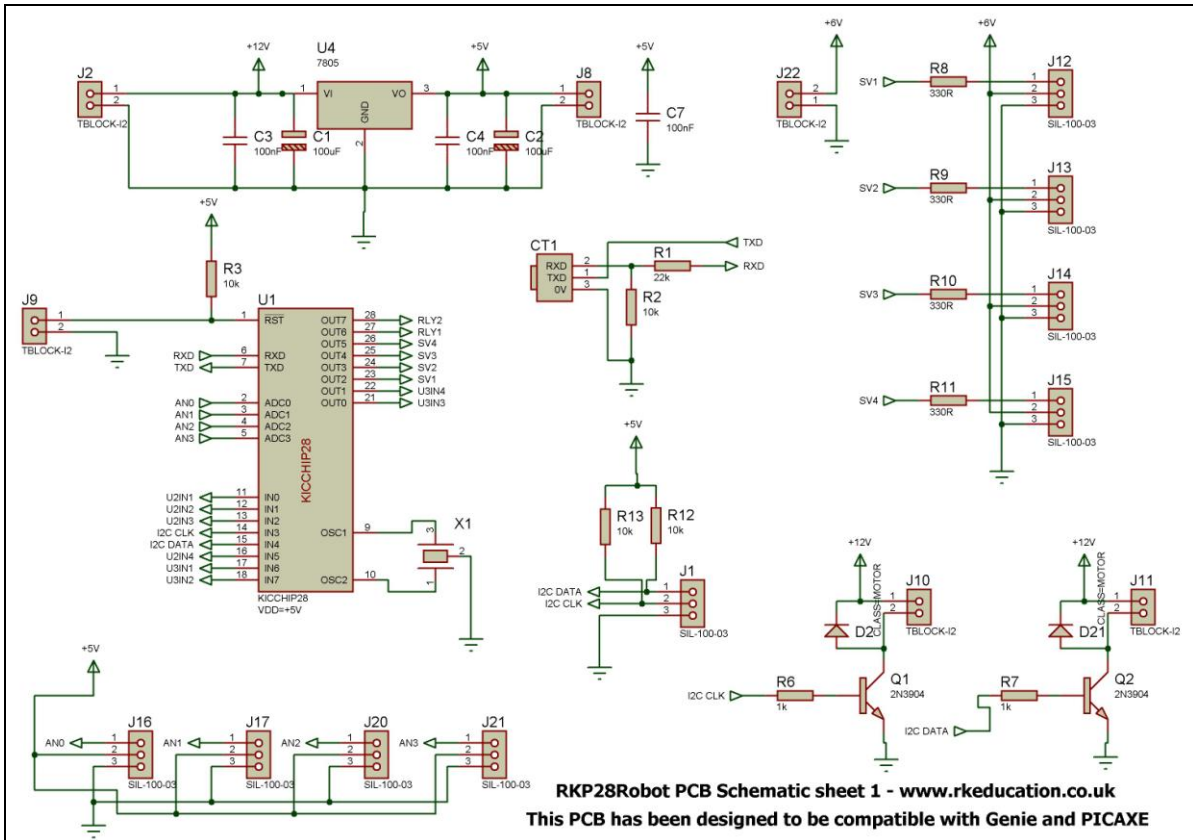
RKP28Robot PCB Component List and Instructions



PCB layout



Constructed PCB



Schematic Diagram - Sheet 1 of 2 (page 1 and 2 can be found below)



Description

The RKP28Robot project PCB has been specifically designed to control motors using a PIC MCU or equivalent such as a Genie or PICAXE. There are 2x SPCO relays and 2x L298 H-Bridge chips and it is a great circuit for robot projects

- A low cost method of producing DC motor projects
- Designed for use with PIC microcontrollers
- Great for DC motor control projects including vehicles and robots
- Can drive 2x DC motors at up to 2A or 1 at up to 4A via the L298s
- Motors are reversible
- There are 2x SPCO relays
- Manufactured using a double sided professional PCB
- Compact design
- Great for robot projects and other electronic projects
- Ideal for use with PICAXE, Genie and Arduino

Component List

C1, C2 – 100nF multilayer ceramic capacitor
C3 – 100uF 25VDC electrolytic capacitor
D1 ~ D8 – UF4007 ultrafast diodes
J1 ~ J4 - 2 way 5mm pitch terminal blocks
R1, R2 – 10kΩ ¼ watt resistor (brown, black, orange)
U1 – L298
U2 – 7805 voltage regulator

When constructing PCBs always start with the components with the lowest profile on the PCB, for example the resistors and diodes. Extra care should be taken when soldering the L298 to avoid leg damage.

Instructions

For detailed information on the L298 dual h-bridge driver please see the appropriate datasheet, this can be found at www.rapidonline.co.uk

Connecting Power

The power is connected to the terminal block marked POWER IN, the 0V input, usually black, is the lower terminal and the +VE, usually red, is the upper terminal, a DC power supply should be used. The circuit incorporates a 7805 voltage regulator and 5VDC is available at the terminal block +5V REG OUT, a heat sink may need to be added to the 7805 if a high current is required.

Using the L298

The L298 is an h-bridge drive chip, for more information on this chip please refer to a datasheet for this device, see www.rapidonline.co.uk

The L298 powers two motors at up to 2A each or 1 motor up to 4A continuous, if 1 motor at 4Amps is used then both MA and MB outputs should be used. The motors are reversible, the outputs to the motors are clearly marked **MA** and **MB**. The motors are controlled by sending appropriate output signals from the microcontroller to the L298, the L298 must be enabled and 2 inputs marked **EN1** and **EN2** are used, the enable pins on the PCB and set to enable using 2 10k pull up resistors. To control motors use the following as a guide,

Microcontroller		L298	
Pin x	to	pin 7	MA
Pin x	to	pin 2	MA
Pin x	to	pin 15	MB
Pin x	to	pin 10	MB

Both inputs low	- motor stop
IP1/3 high, IP2/4 low	- motor forward
IP1/3 low, IP2/4 high	- motor reverse
Both inputs high	- motor fast stop

To attach a motor simply screw the flying leads from the motor into the appropriate terminal block. A suppression capacitor will need to be used on the motor.

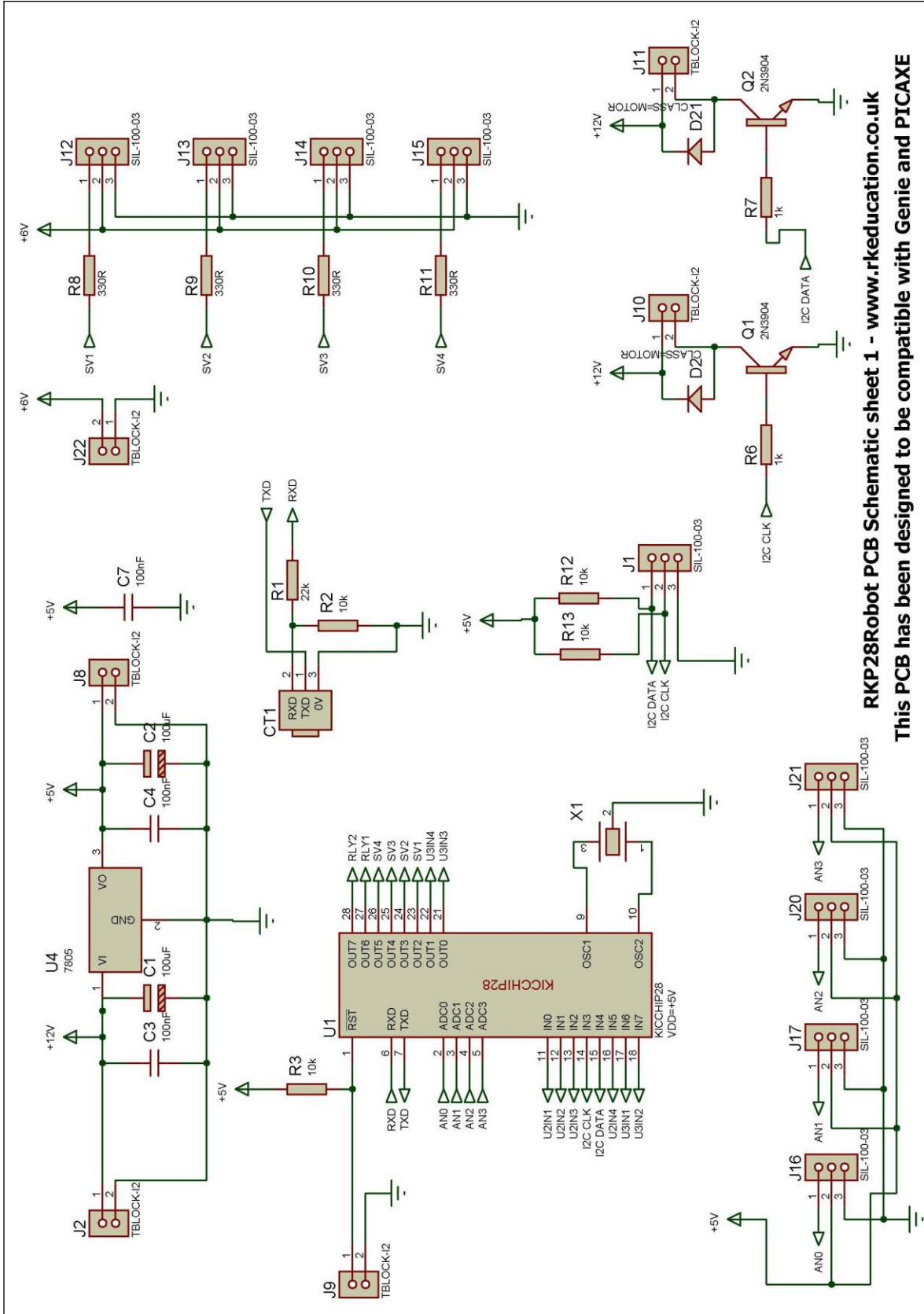
Please note that if you use the L298 near to its maximum limits then a heat sink will need to be used.

Please visit our website

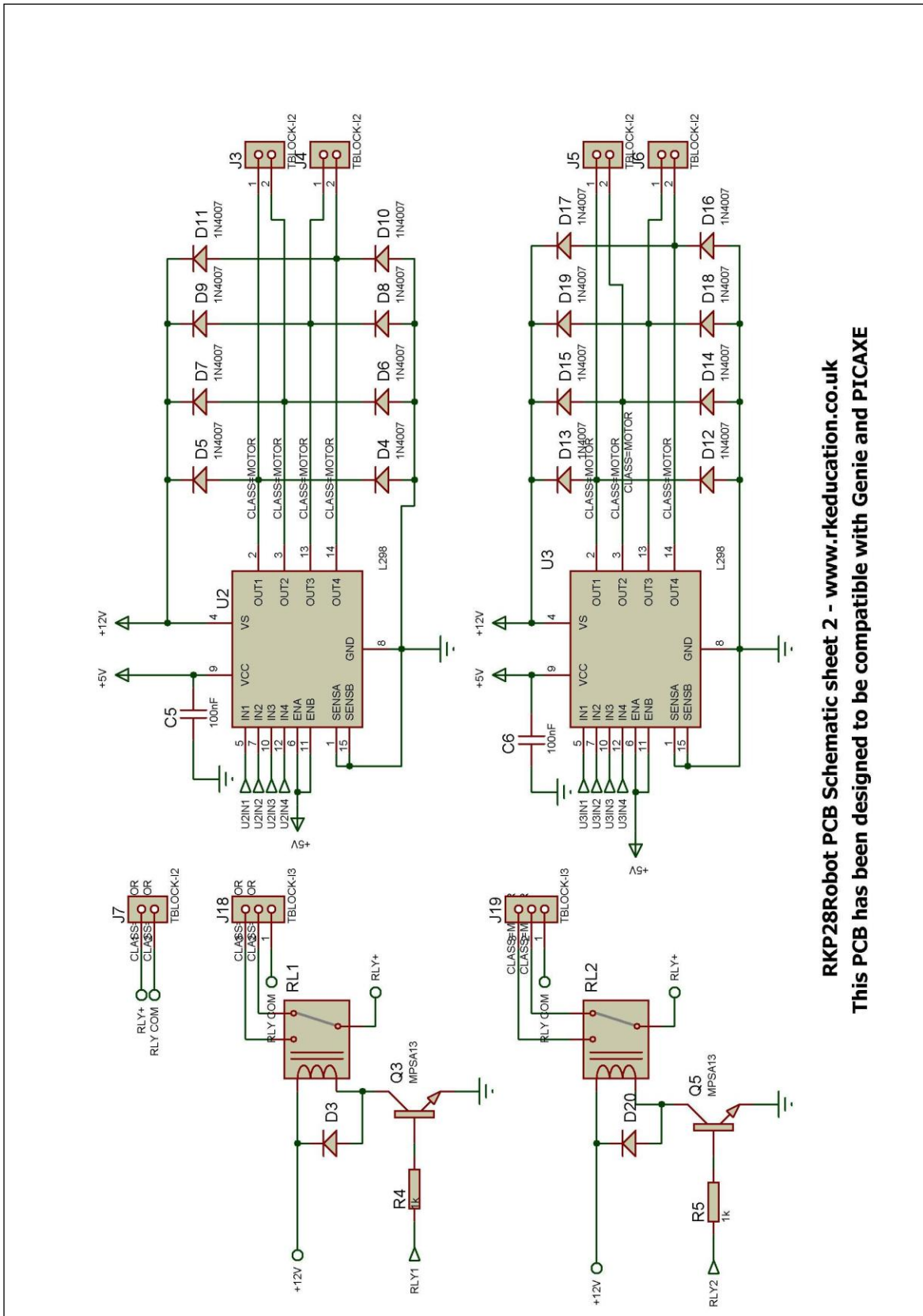
www.rkeducation.co.uk

If you have any comments or queries please email us at

technical@rkeducation.co.uk



RKP28Robot PCB Schematic sheet 1 - www.rkeducation.co.uk
This PCB has been designed to be compatible with Genie and PICAXE



RKP28Robot PCB Schematic sheet 2 - www.rkeducation.co.uk
 This PCB has been designed to be compatible with Genie and PICAXE