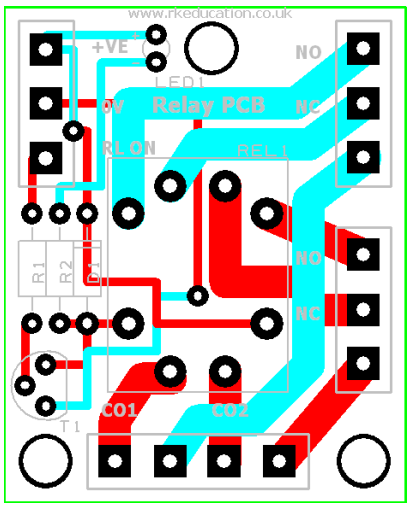
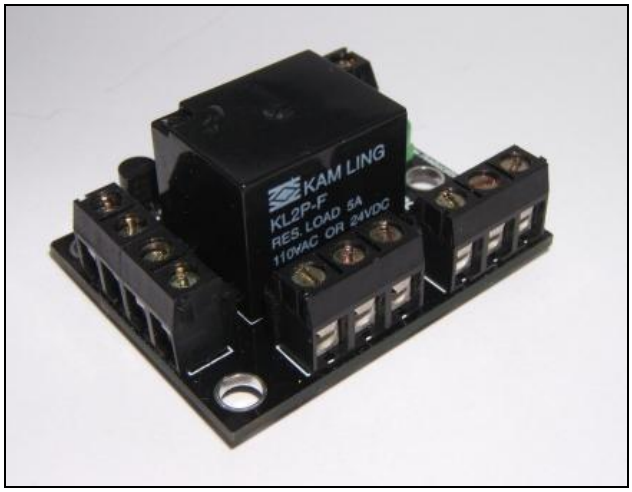
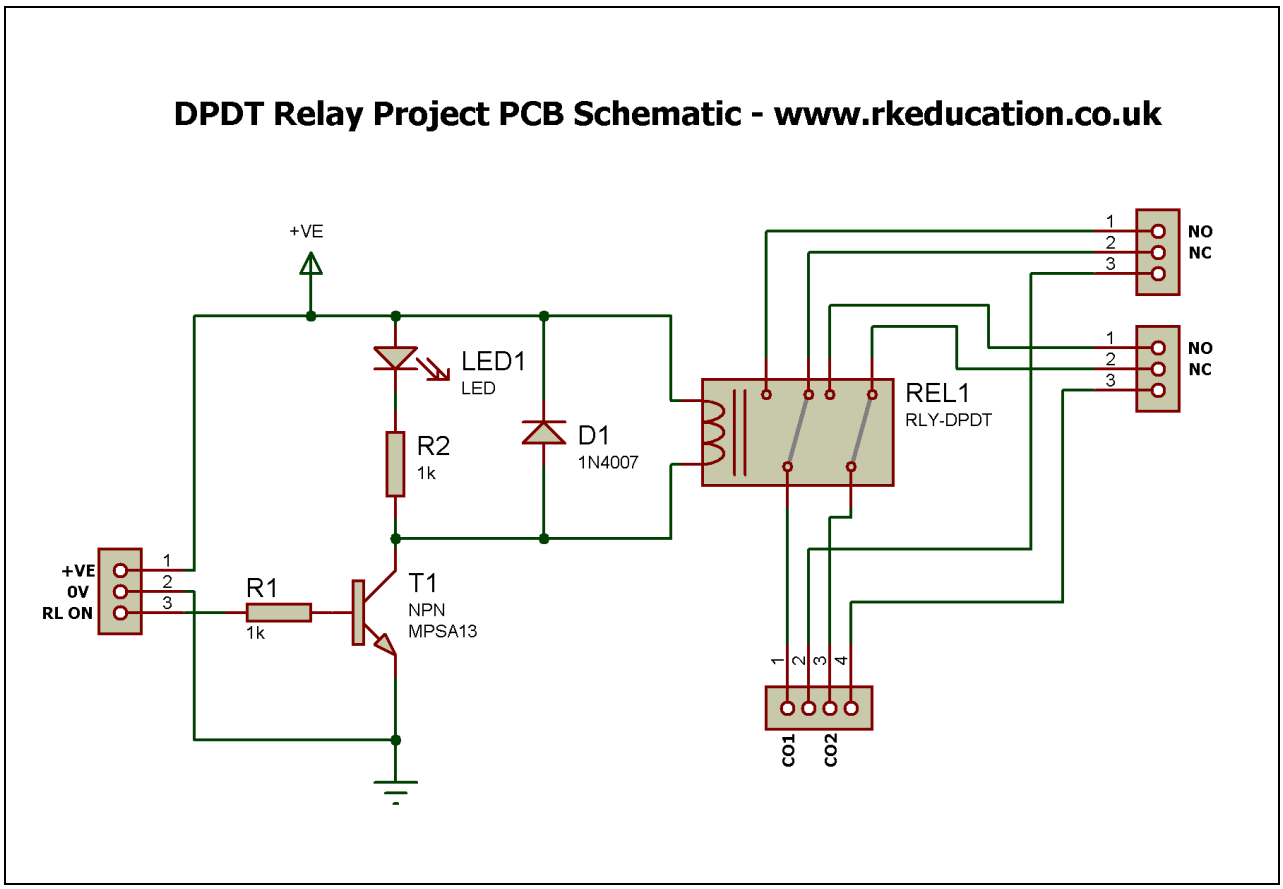
DPDT Relay PCB Component List and Instructions



PCB layout



Constructed PCB



Schematic Diagram

Description

The Relay project PCB has been designed specifically to use Kam Ling DPDT relays and is excellent for interfacing with PIC microcontrollers e.g. Genie and PICAXE

- Designed for use with Kam Ling relays
- Uses a DPDT relay with up to a 5 Amp load
- Available in a range of coil voltages
- Relay energised using an on board transistor
- LED used to indicate when the relay is energised
- Terminal blocks are fully utilised
- High quality double sided PCB with thick tracks used
- Great for robot and other electronic projects
- Perfect for

Component List

2 and 3 way 5mm pitch terminal blocks for power supply and relay on
D1 – 1N4007
REL1 – Kam Ling DPDT 5A relay
R1, R2 – 1k (brown black red)
T1 – MPSA13 transistor
LED1 – 3mm green LED

Instructions

For more details regarding Kam Ling relays please see www.rapidonline.co.uk

When constructing it is advisable to start with the components with the lowest profile, for example the resistors.

Connecting Power

The power is connected to the 3 way terminal block in the top left corner of the PCB, positive supply is marked **+VE,** 0V is marked **0V** and the input for energising the relay is underneath **0V.** The voltage used for the power supply will depend on the coil voltage, i.e. if a 5VDC coil is used then use a 5VDC supply. The voltage used for energising the relay should be the same as the supply.

Energising the Relay

The relay is energised by turning on the transistor, this is done by applying a voltage of at least 0.6V to the base of the transistor, the transistor's base is protected by a 1k resistor. A voltage of 5VDC inputted to the terminal marked **RL ON** is sufficient to turn on the transistor and energise the relay. The LED will indicate when the relay is energised and the movement can be heard as clicks.

Utilising the Contacts

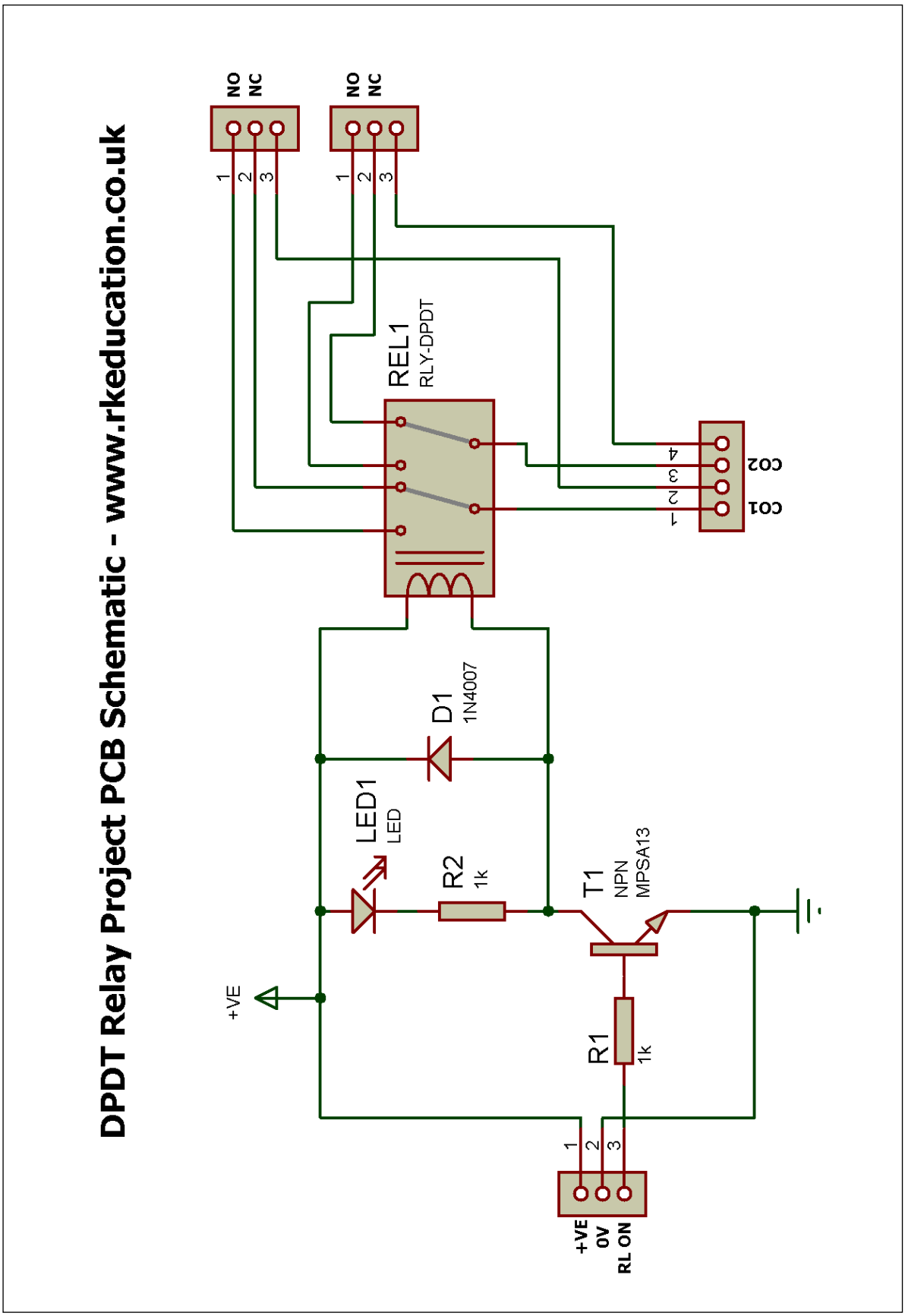
When the relay is energised the contacts will changeover like a switch. Each set of contacts has 3 connections that are located on 1 of 2 3 way terminal block, they are called COM1, COM2 – common, NC – normally connected and NO – normally open. When the relay is not energised there is a circuit between COMx and NC and when the relay is energised there is a circuit between COMx and NO. To power a DC motor connect one lead to COM and one to NC, the motor will be powered until the relay is energised and the circuit changes to between COM and NO, if the motor leads were between COM and NO then this would be reversed, see the above PCB layout.

Please visit our website

www.rkeducation.co.uk

If you have any comments or queries please email us at

technical@rkeducation.co.uk


DPDT Relay Project PCB Schematic - www.rkeducation.co.uk
NO
NC
NO
NC
1
2
3
1
2
3
REL1
RLY-DPDT
CO2
CO1
4
3
2
1
D1
1N4007
LED1
LED
R2
1k
T1
NPN
MPSA13
+VE
R1
1k
1
2
3
+VE
0V
RL ON