



RoboMicro: Kit Assembly Instructions

Description

The Assembly of the RoboMicro Kit should not be too hard for most people with some experience with building electronics kits. It is always advisable to read through the assembly manual once, and then re-read the assembly manual while locating the various components of the RoboMicro kit. Once you familiar with the sequence of kit assembly, locate all the components and place them into piles that reflect the assembly sequence detailed in this manual. Some of the components used in the kit are “static-sensitive” and should be left in the protective wrapping until ready to be fitted into the PCB. Sockets are used to allow IC’s to be fitted into the PCB.

As with most electronics kits, some basic rules need to be observed. These are detailed in the document “RoboMicro:Kit Assembly Guide Lines”. Please read this document. It is always best to spend an extra 5 minutes reading instead of 3 hours finding a fault on an incorrectly assembled kit.

The RoboMicro Kit should be assembled as detailed in this document. Failure to follow this guide may result in incorrectly placed or missing components. The kit can be assembled in about 2 hours. Once completed, the kit does not need any calibration or setting up, and so can be used immediately.

Assembly Guide

The assembly of RoboMicro is split into a number of steps. Each step details the fitting of similar size/type components into the PCB.

Assembly Sequence

- PCB Orientation
- Resistor Assembly
- IC Socket Assembly
- Capacitor Assembly
- Pin Header Assembly
- Voltage Regulator & Crystal Assembly
- Connector Assembly
- Jumper Position Assembly
- Voltage Test

RoboMicro Parts List

It is advisable to check for missing components before starting to assemble the kit.

Resistors:

R1	4K7
R2	4K7
R3	4K7
R4	4K7
R5	100R
R7	100R
R7	100R
R8	100R
R9	47K
R10	47K
R11	47K
R12	47K
R13	10K
R14	4K7
R15	1K0

CAPACITORS:

C1	10/63
C2	100N (5MM PITCH)
C3	100N (5MM PITCH)
C4	100N (2.5MM PITCH)
C6	100N (5MM PITCH)
C7	100N (2.5MM PITCH)
C8	100N (2.5MM PITCH)
C9	100N (2.5MM PITCH)
C10	100N (2.5MM PITCH)
C11	100N (2.5MM PITCH)
C13	100/35

IC's:

IC1	LM7805
IC2	ROBOMICRO PROCESSOR
IC3	ST232CN
IC4	ULN2803
IC5	ULN2803
X1	10MHZ CRYSTAL
D1	1N5402
LED1	3mm Green LED

SOCKETS & CONNECTORS:

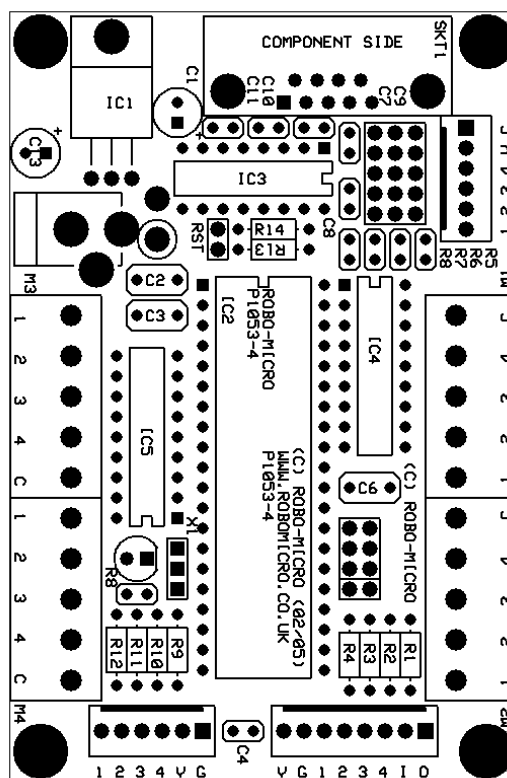
RS232 9WAY D-TYPE
DC PSU CONNECTOR
2 X 10WAY STEPPER MOTOR TERMINAL BLOCKS
1 X 40PIN IC SOCKET
2 X 18PIN IC SOCKET
1 X 16PIN IC SOCKET

PIN HEADERS:

2 X 6WAY PIN HEADERS
1 X 8WAY PIN HEADER
25 x PIN HEADER
4 X JUMPER LINKS

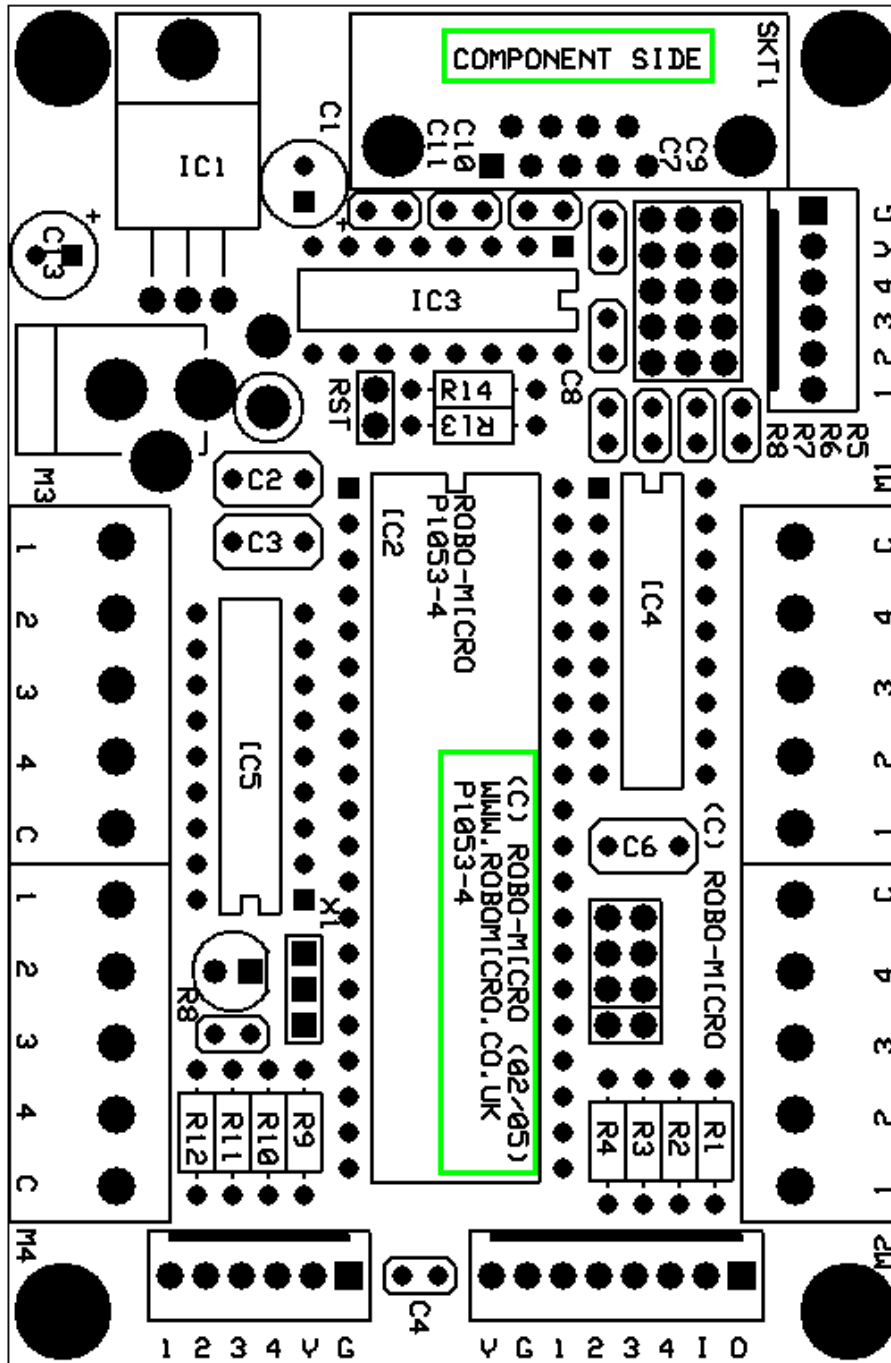
MLSC:

1 X 3M NUT & BOLT
1 X ROBOMICRO PCB



Step 1: PCB Orientation:

It is important to correctly orientate the RoboMicro PCB – this will ensure that all components are correctly assembled in the correct location. To orientate the RoboMicro PCB – the picture below shows the component side of the PCB. Take note of the identifier “[COMPONENT SIDE]” – locate the PCB as shown below;

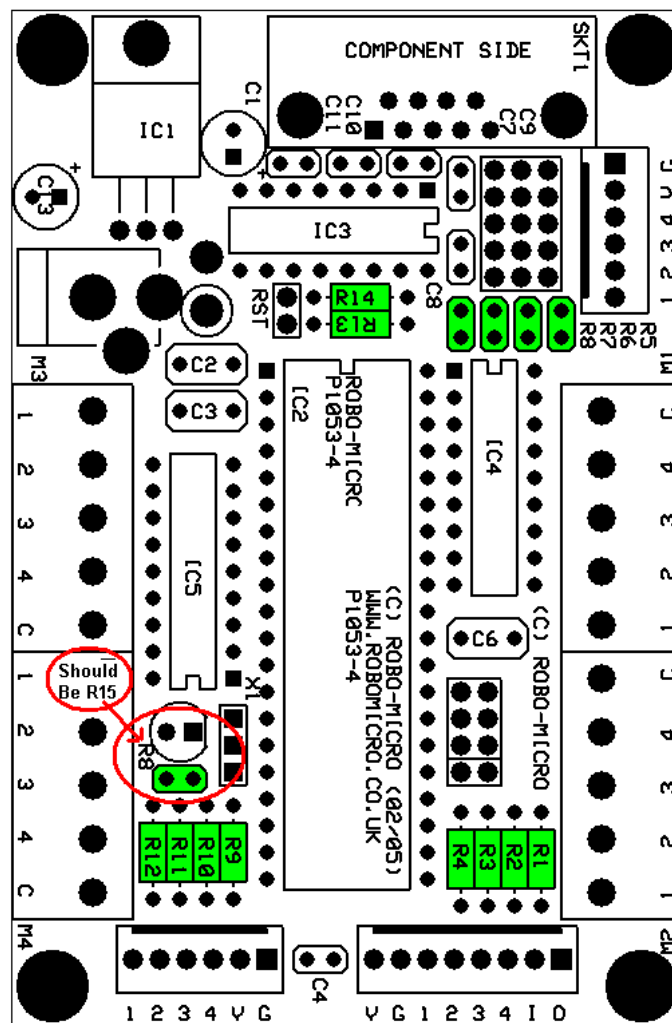


Step 2: Resistor Assembly:

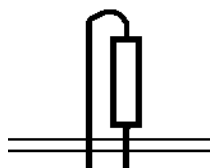
This section details the fitting of all the resistors to RoboMicro;

Fit:
R1, R2, R3, R4. R14 = 4K7
R5, R6, R7, R8 = 100R
R9, R10, R11, R12 = 47K
R13 = 10K
R15 = 1K0

(The locations of the above components are marked in green below)



R5,R6 ,R7,R8 & R15 should be fitted to the PCB as shown below



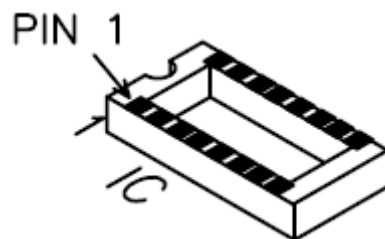
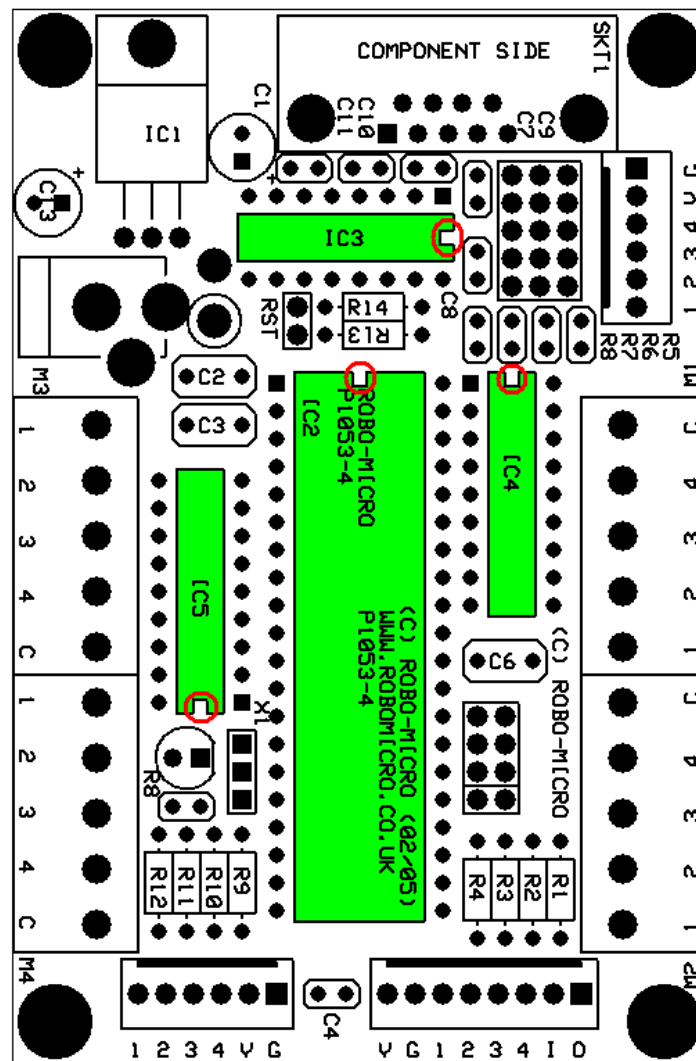
Step 3: IC Socket Assembly

This section details the fitting of all the IC sockets to the PCB;

- Fit:
 40pin Socket for IC2
 18pin Socket for IC4 & IC5
 16pin Socket for IC3

(The locations of the above components are marked in green below)

NB! Check that each socket is correctly orientated. The red circle indicates the correct orientation



Step 4: Capacitor Assembly

This section details the fitting of all the capacitors to the PCB.

Fit:

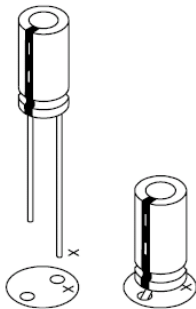
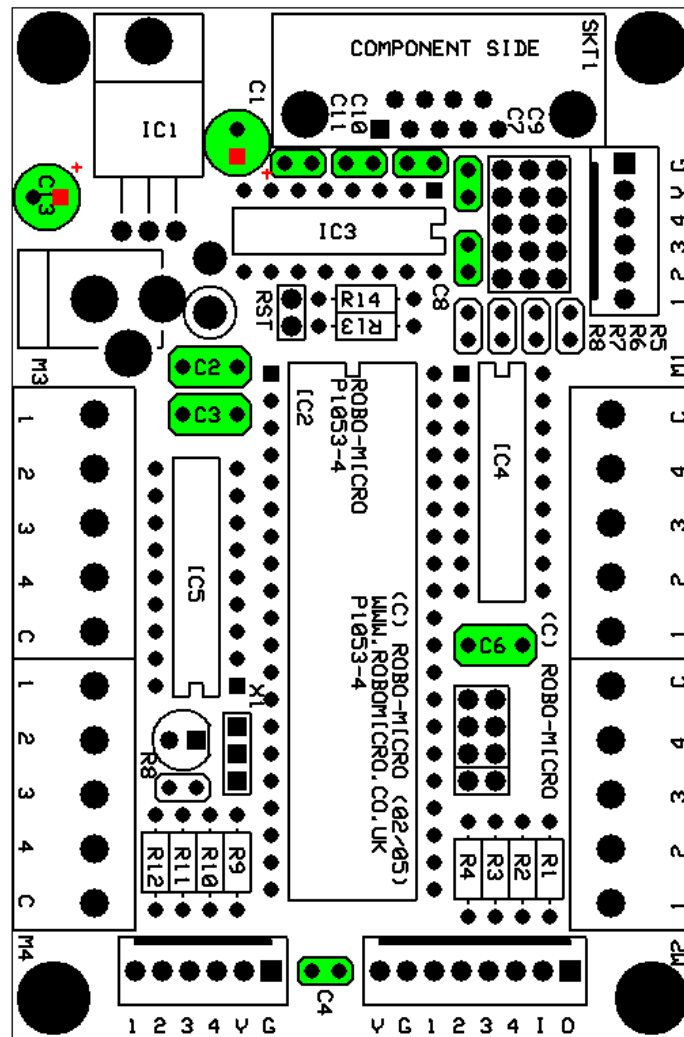
C1 = 10/63v (Check Polarity before soldering)

C13 = 100/35v (Check Polarity before soldering)

C2, C3 & C6 = 100N (5mm lead pitch)

C4, C7, C8, C9, C10, C11= 100N (2.4mm lead pitch)

(The locations of the above components are marked in green below)

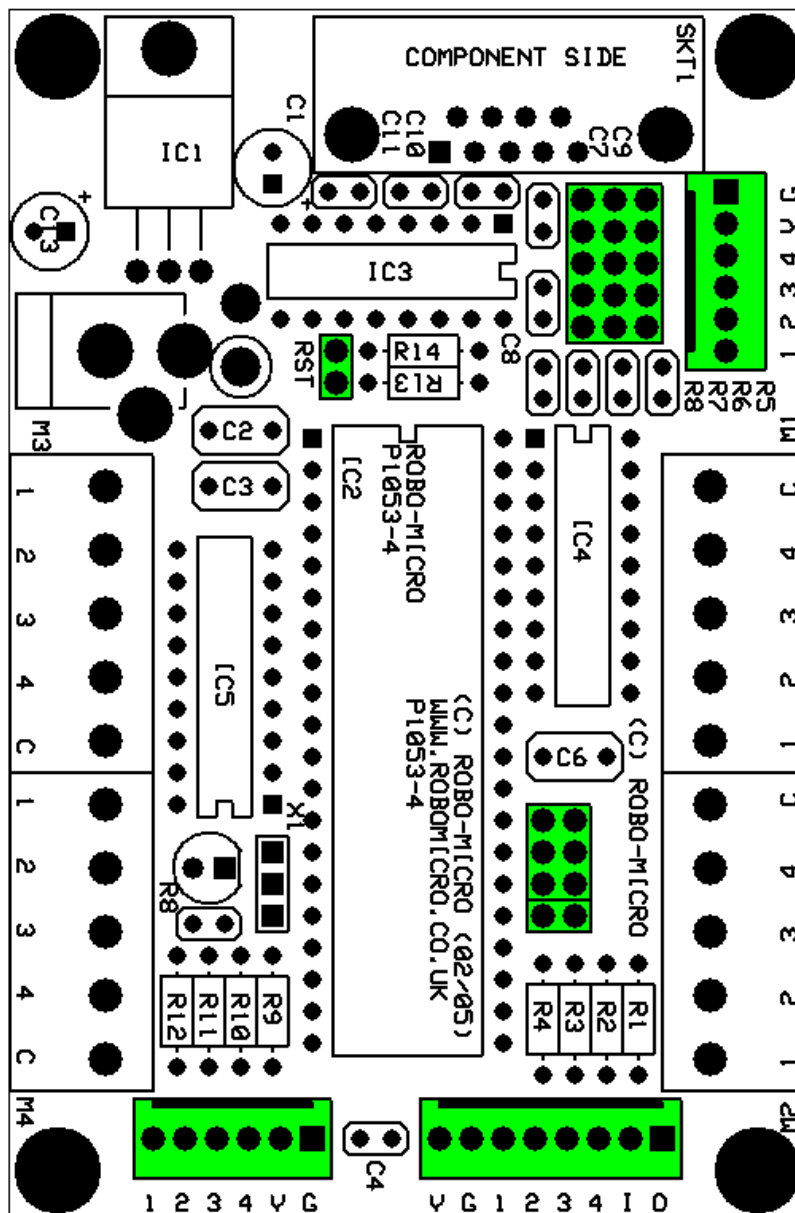


Step 5: Pin Header Assembly

This section details the fitting of all the pin headers to the PCB.

- Fit:**
- 2 x 6 Way Single Row Headers
 - 1 x 2 Way Single Row Header
 - 2 x 4 Way Single Row Headers
 - 1 x 8 Way Single Row Header
 - 5 x 3 Way Single Row Header

(The locations of the above components are marked in green below)

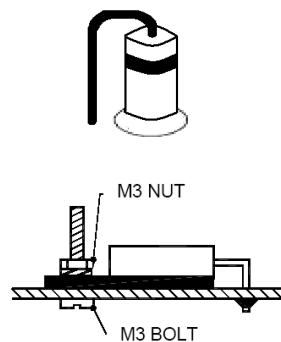
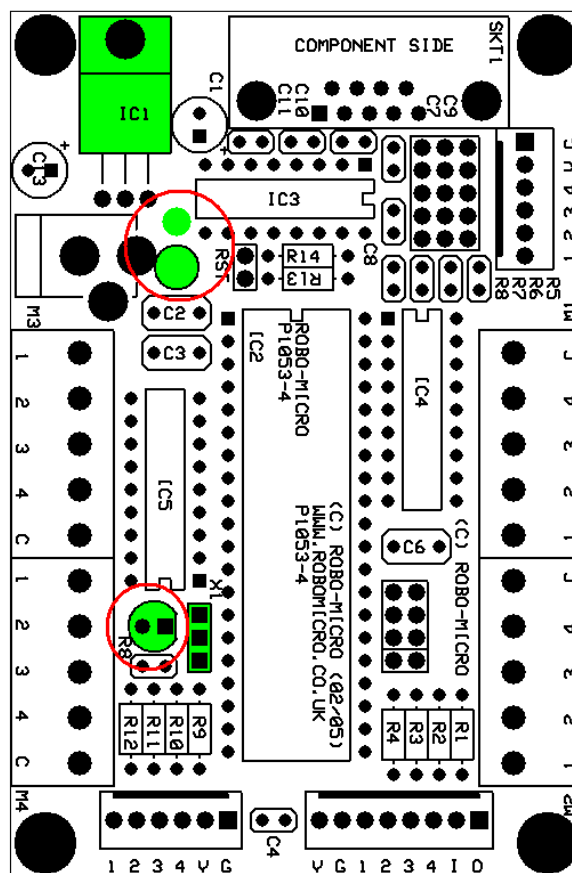


Step 6: Voltage Regulator & Crystal Assembly

This section details the fitting of all the voltage regulator and 10Mhz crystal.

Fit:
LM7805 flat on the PCB. Secured with the M3 Nut & Bolt
10Mhz Crystal as indicated.
3mm Green LED – Ensure correct polarity
D1 (1N5402) as indicated

(The locations of the above components are marked in green below)

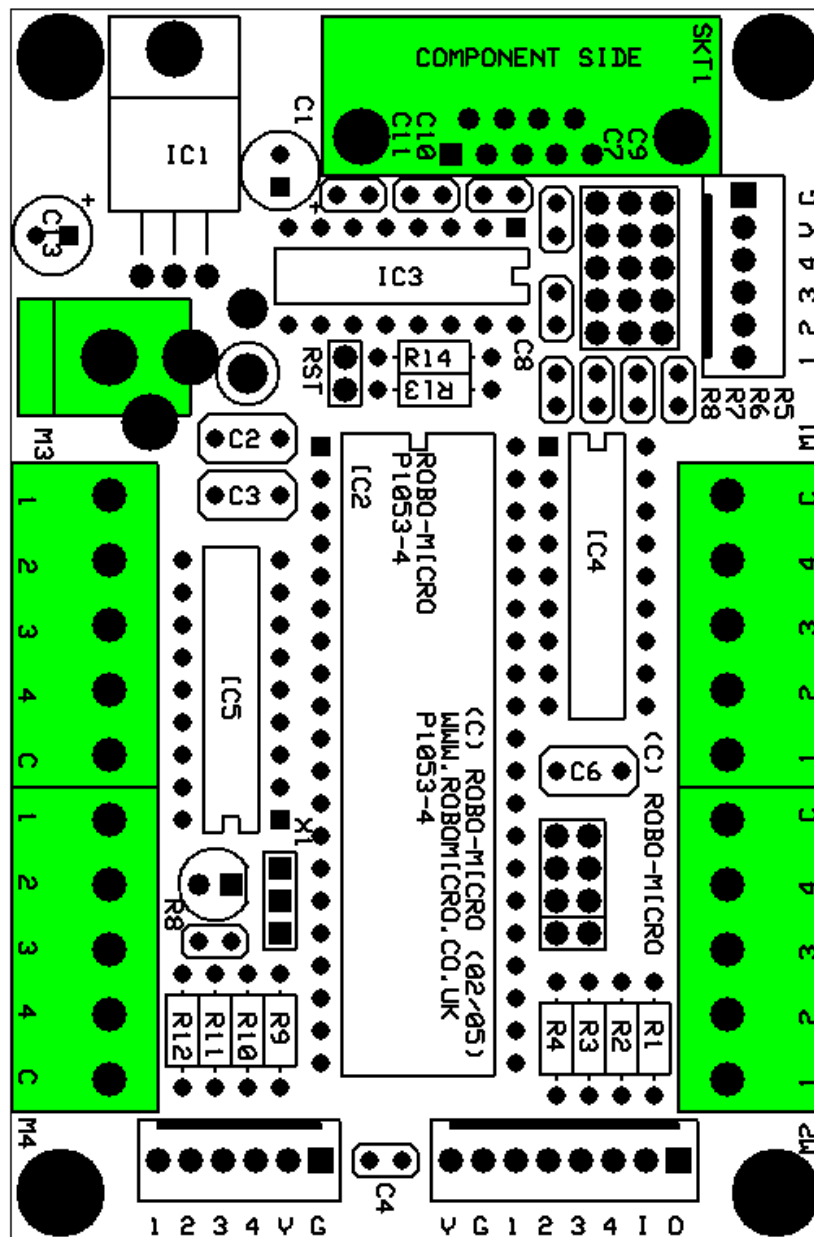


Step 7: Connector Assembly

This section details the fitting of the remaining connectors to RoboMicro

- Fit:**
 2 x 10Way Single Stepper Motor Terminal Blocks. (Fit so that fixing holes are facing out from the PCB)
 1 x PSU Socket
 1 x RS232 (way D-Type) Socket

(The locations of the above components are marked in green below)



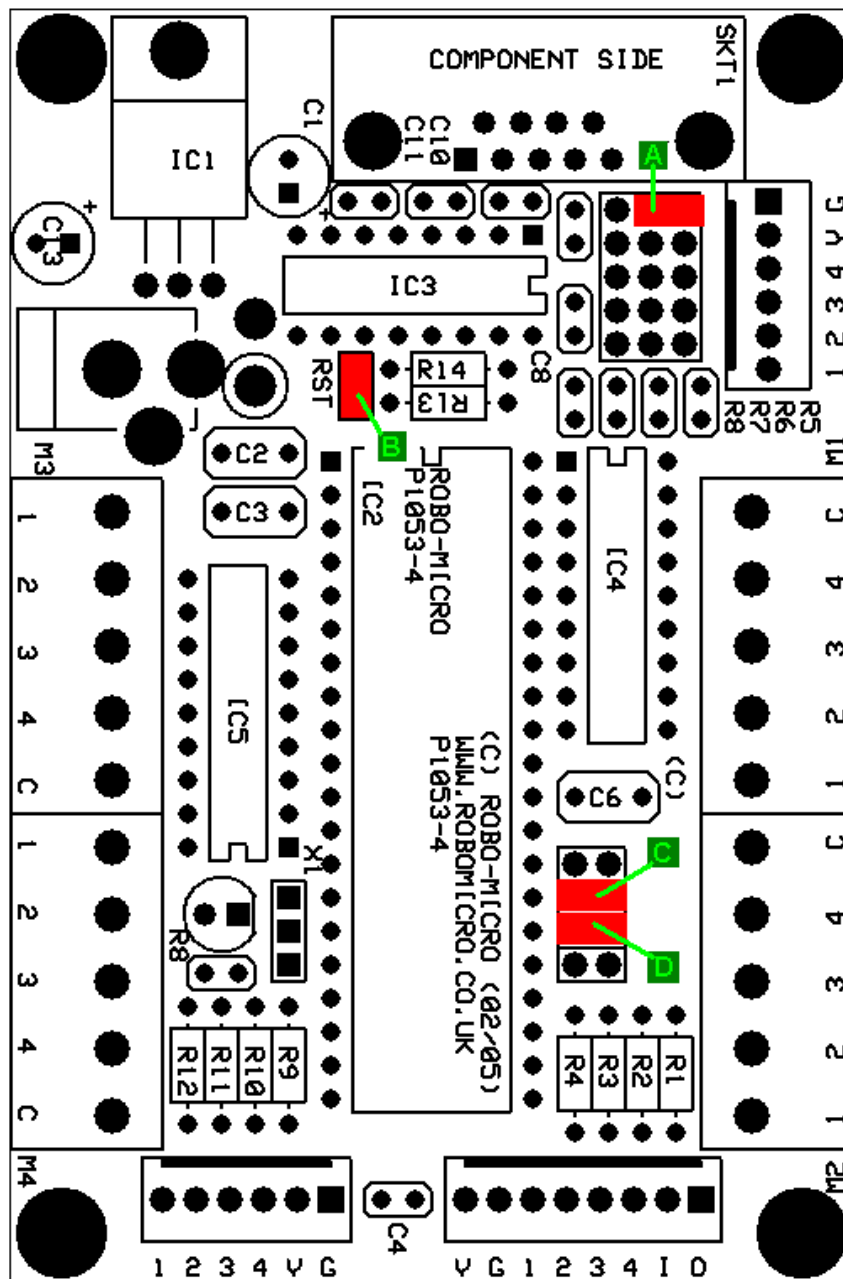
Step 8: Jumper Position Assembly

This section details the fitting of the Jumper Links to RoboMicro PCB

Fit:

- 1 x Jumper to Servo PSU Connector (A)
- 1 x Jumper to Reset Connector (B)
- 2 x Jumper to comport Connector (C & D)

(The locations of the above components are marked in green below)



Step 10: IC Assembly

This section details the fitting of the four IC's into the IC sockets;

Fit;
IC2 = RoboMicro Processor
IC4 & IC5 = ULN2803
IC3 = ST232CN

(The locations of the above components are marked in green below)

NB! Check that IC's are correctly located and in the correct orientation before applying power.

