

Robert Jenkins Condenser / Electret Microphone power PCB

Resistors can be MFR25, MRS25 or similar, with the leads bent firmly against the body, or a suitable high quality 0.25 or 0.4W type, preferably metal film for lowest noise. The resistor colour codes below are for four-band types. All values are suggestions and may be changes as appropriate to suit your preferences, or as used in other design variations.

1	PCB		Robert Jenkins	
1	R1	470R	YL-VI-BK-BK	
1	R2	1M	BR-BK-BK-YL	
1	R3	2K Preset	3362 style. Or 2K2.	RS 522-0934
1	R4	100K	BR-BK-BK-OR	
1	R5	470K	YL-VI-BK-OR	
1	C1	100nF film		RS 174-6324
1	C2	47uF 16V	Max. 6.5mm diameter.	RS 116-818
1	C3	10pF or 12pF Ceramic		
1	C4	1nF film, 50V or higher, 5.08mm or 5.0mm lead spacing		
2	C5, C7	100nF – 470nF Film, 50V or higher, 7.5 or 7.62mm lead spacing		
1	C6	18pF Ceramic		
1	L1 or L1A	100uH axial inductor – Test in both L1A & L1; see notes.		
1	L2	150uH axial inductor		
2	D1, D2	1N4148 or similar signal diodes		
1	Q1	NPN; BC549C BC550C etc.		

(ZTX851 transistors from the latest batches often do not seem to have enough gain for this use; they are still excellent for audio, but for the power PCB I'm now recommending BC547 – 550 series, “C” grade devices).

Notes:

L1 & L2 should be fitted with a good space between them and the PCB; eg. around 3-4mm gap.

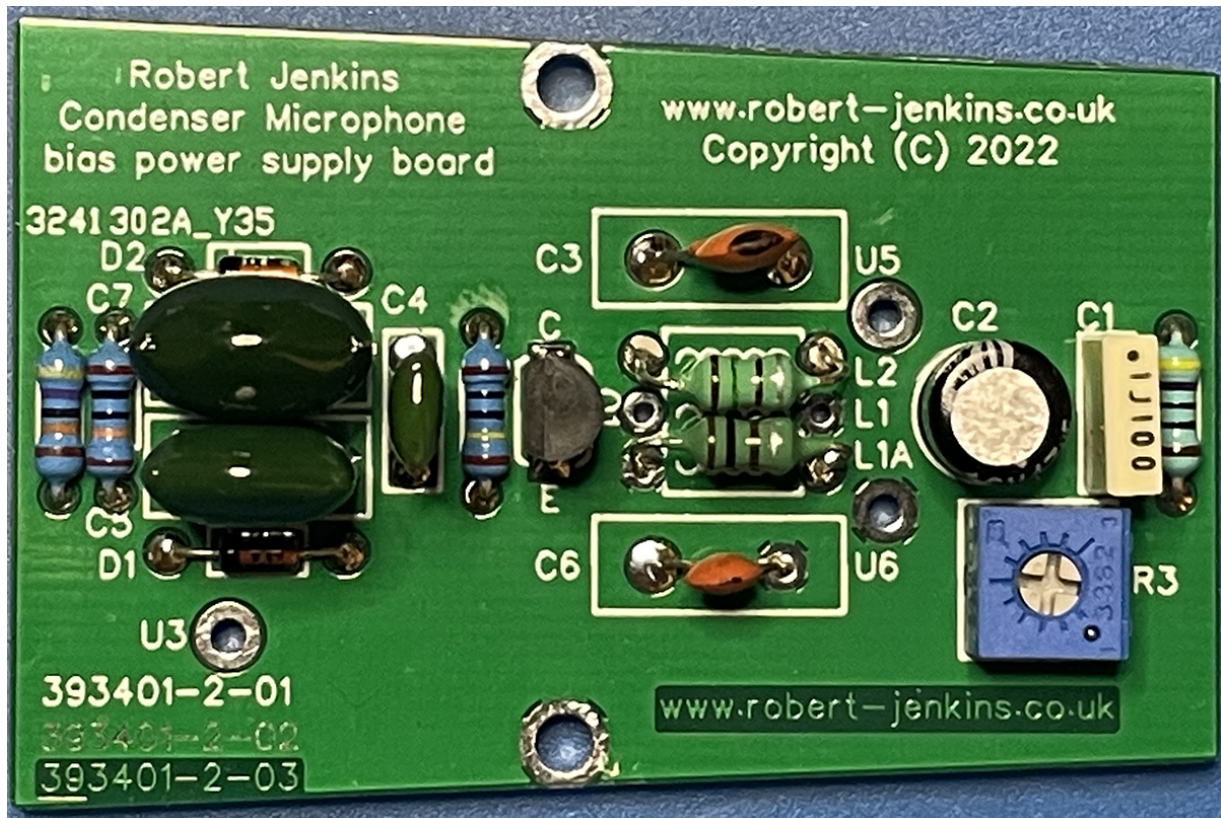
Clearance from the PCB and other components is required to minimise energy loss or damping in the inductors, which could prevent oscillation or reduce the output voltage. The two inductors should be very close together.

Install all parts except L1 (L1A), then fit L1A without soldering it and test the board on power (eg. a 9V battery or similar) with negative on U6 and positive on U5, then verify that the board is giving a voltage higher than the input voltage at U3 (relative to U6).

If the voltage is no higher than the supply, try the L1 position instead and check the output voltage again – one position should allow oscillation and a significant output voltage, in excess of 40V when R3 is adjusted.

Note: If a 50V capacitor is used in the (audio) C10 position, the bias supply voltage must be less than 50V.

Example construction



Resistor colour code abbreviations:

BK	Black
BR	Brown
RD	Red
OR	Orange
YL	Yellow
GN	Green
BL	Blue
VI	Violet
SL	Grey (Slate)
WH	White
SI	Silver
GD	Gold



User either L1 or L1A position, not both
Which is correct depend on the inductor winding directions.

Drawn By: Robert Jenkins