

EK009 – Bipolar voltage regulator

Kit description:

EK009 is a bipolar (dual) adjustable voltage regulator with full wave rectification. The input voltage can be either a dual unregulated DC voltage or an AC voltage from a transformer with a center tap. It is possible to use a transformer with a single winding (no center tap), but the output voltage and current will be very limited when using the same input voltage and filter capacitors. If a transformer with a single winding (no center tap) is used, do not mount diodes D2 and D4. If an unregulated DC voltage is supplied to the kit, do not mount diodes D1, D2, D3 and D4, and jumpers should be mounted in place of D1 and D3. The voltage regulation is handled by



the well-known linear regulators LM317 and LM337 for positive and negative voltages respectively. To provide a clean, low-ripple output, the input voltage needs to be at least 3V higher than the desired output voltage. The input to output voltage difference should, however, not be too large as the regulator will shunt all the excessive voltage as heat. The output voltage is set using the onboard trimmers. The voltages for the positive and negative rail can be set independently and has a range from 1.3 to 30V.

- * Output voltage: $\pm 1.3 - \pm 30\text{VDC}$
- * Output current: 1.5A
- * Dimensions: 63.5 x 50.8mm
- * Mounting holes: c-c 58.42 x 45.72mm, $\varnothing 2.54\text{mm}$

Assembly guide:

Before you begin mounting components, make sure the board is free from damage and scratches. Make sure all the components are included and are of correct value. Compare with the component list!

Begin mounting the lowest components and work your way up to the largest. IC sockets, resistors, ceramic capacitors and diodes go first. Electrolytic capacitors, connectors and potentiometers go last. Some components are polarized and must be mounted in the right way. Please observe the markings on the board!

Component list:

RefDes	Value	Qty.	Part.no.																
CON1, CON2	5mm 1x3p	2	41010754																
C1, C2, C9, C10	100nF	4	41003038																
C3, C4, C5, C6	10uF	4	40520021																
C7, C8	4700uF	2	41016024																
D1 - D8	1N4001	8	40310001																
R3, R4	200 ohm	2	40811220																
R5, R6	2 kohm	2	40811320																
R7, R8	3266Y 5 kohm	2	40900450																
U1	LM317T	1	40350028																
U2	LM337T	1	40350337		LED+	3mm green	1	41004450		LED-	3mm red	1	41004448		M1, M2	Heatsink	2	41016259	
LED+	3mm green	1	41004450																
LED-	3mm red	1	41004448																
M1, M2	Heatsink	2	41016259																

Schematic:

