

voltage mirror

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(H. Springer)

Previous issues of Elektor have already discussed a number of different ways of using a transformer with only one secondary winding to obtain both a positive and a negative supply voltage. This design is a further contribution to the discussion.

The circuit uses a second bridge rectifier (D1 . . . D4) which, via C1 and C2, is capacitively-coupled to the transformer. Since the resultant voltage is DC-isolated from the transformer, to which the other rectifier (D5 . . . D8) is connected, the positive terminal of C3 can be linked directly to the 0V rail to give a symmetrical \pm supply. Since (because of C1 and C2) C3 is charged from a higher impedance

than C4, this capacitor should have a higher value than C4, otherwise the internal impedance and ripple voltage of the negative supply will differ significantly from its positive counterpart.

The working voltages of the capacitors should at least equal the peak value of the transformer voltage. With the values given in the diagram the circuit will supply approx. 0.1 A for a transformer voltage of 15 V and a ripple voltage of 1 V.

Naturally enough all the capacitance values can be increased by the same factor in order to reduce the ripple voltage.

As far as the bridge rectifiers are concerned, these should be adequately rated to withstand the

peak transformer voltage and the maximum load current.

