

## COMPONENTS

### TDA2003 AUDIO AMPLIFIER

#### Resistors

R1	39Ω
R2	220Ω
R3	2Ω
R4	1Ω

All 0.25W 5% carbon film

#### Potentiometers

VR1	10k rotary carbon, log.
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#### Capacitors

C1, C2	4μ7 radial elect. 50V (2 off)
C3	220μ radial elect. 50V
C4	100n disc ceramic
C5	39n polyester
C6	470μ radial elect. 50V
C7	1000μ radial elect. 50V
C8	100n polyester

#### Semiconductor

IC1	TDA2003 audio power amp i.c.
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#### Miscellaneous

LS1	4 to 32 ohm loudspeaker (see text)
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Printed circuit board available from the EPE PCB Service, code 347 (TDA2003); case (optional), size and type to choice; heatsink (see text); audio screened cable; multistrand connecting wire; solder pins; solder etc.

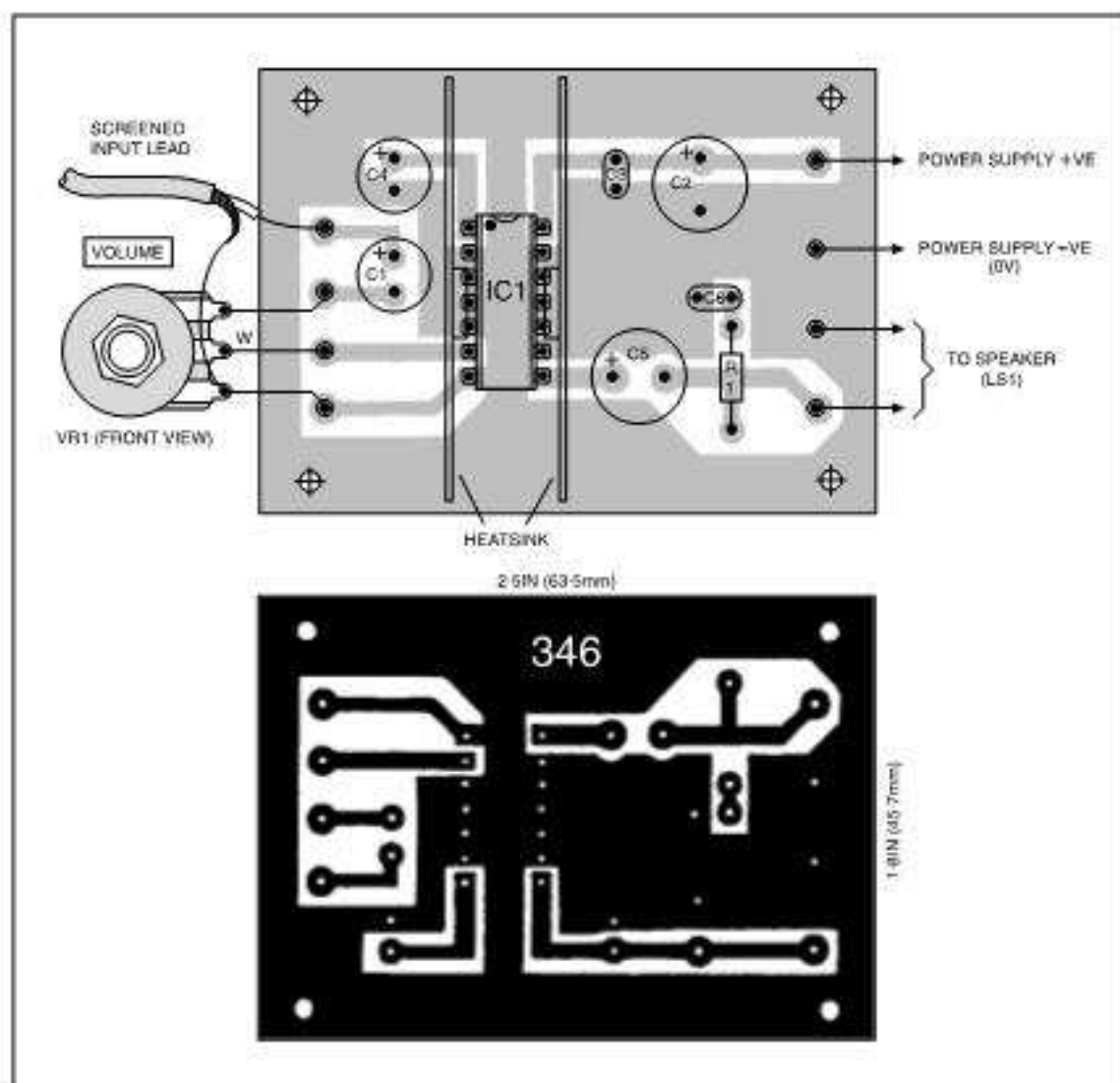


Fig. 8. The LM380N printed circuit board component layout, off-board interwiring and full-size copper foil master pattern. Note the heatsinks.

### HEATSINKS

For those readers who wish to get the most out of the chip, a suitable heatsink for the LM380 (Fig. 7 and Fig. 8) can be formed from two, 40mm (1.57in.) lengths

of 25mm x 0.4mm (1in. x 1/64in.) brass strip. Make two shallow cuts, 5mm (3/16in.) apart, close to the centre, and bend out a tag which can be soldered to the relevant pins of the i.c. Thin brass strip can be purchased from almost all model shops.

The TDA2003 incorporates short circuit and overload protection, and is extremely rugged. It will deliver a worthwhile output at modest supply voltages, and the suitability of car batteries as a power source may make it of particular interest to some readers. The

circuit diagram of a single chip TDA2003 audio amplifier is given in Fig. 9.

Grounding the input (pin 1) of this device would upset the internal biasing arrangements, so a second blocking capacitor C2 must be provided. The high

frequency response is set by capacitor C5 in conjunction with resistor R1. The response can be extended by reducing the value of C5. Supply line ripple rejection is afforded by capacitor C6.

The outputs which can be delivered at various supply voltages are tabulated in the accompanying table. The current drawn from a 15V supply when 4W are dissipated into a 4 ohm load is around 500mA. The 2 ohm load is obtained by connecting two 4 ohm speakers in parallel.

At these power levels, the device must, of course, be connected to an adequate heatsink, and this is discussed later.

The printed circuit board component layout, wiring and full-size copper foil master pattern for the single chip TDA2003 amplifier are shown in Fig. 10. This board is available from the EPE PCB Service, code 347 (TDA2003).

### TWIN TDA2003 AMPLIFIER

A circuit diagram using two TDA2003 chips in a bridge configuration is shown in Fig. 11, together with a general performance guide.

Drawing around 1.7A from a 15V supply, this combination will deliver a clean 12.5W into a 4 ohm load. The case for this being adequate for domestic listening has already been argued, but individual constructors will, of course, decide whether or not it will meet their needs.

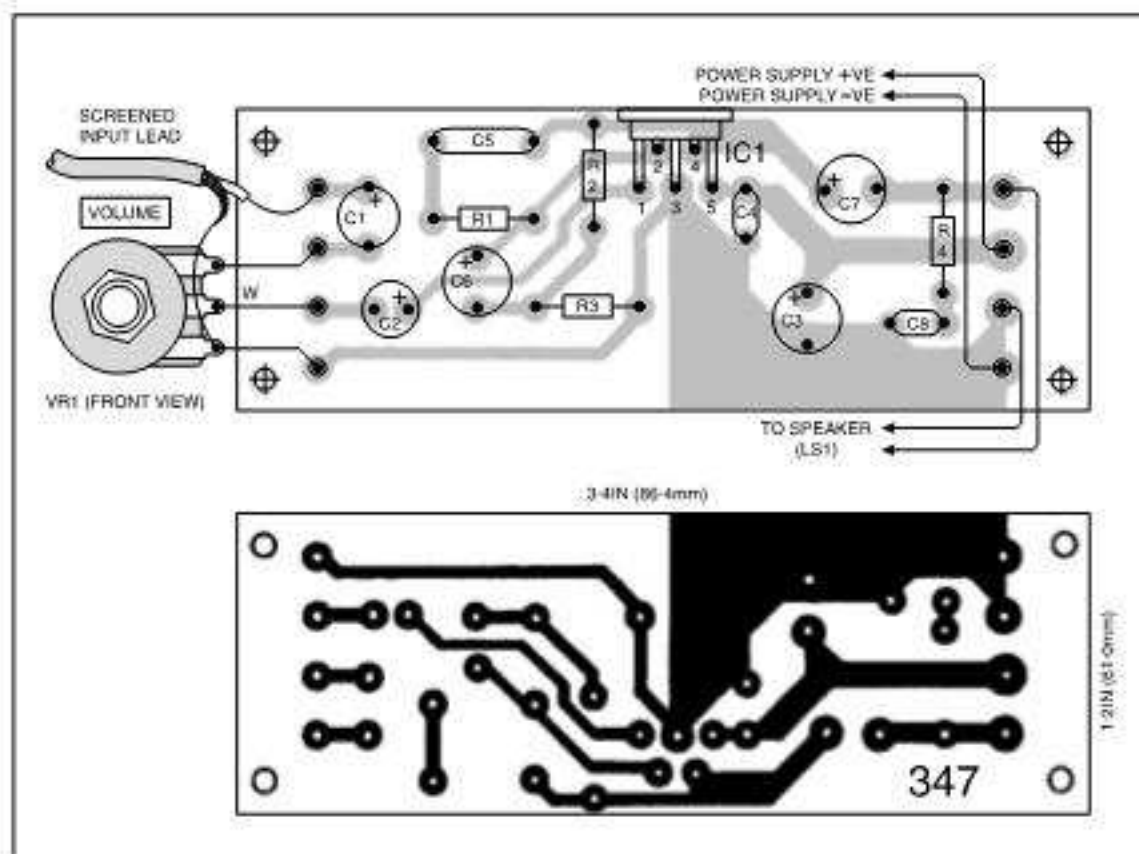


Fig. 10. Printed circuit board component layout, full-size foil master and off-board wiring for the single TDA2003 Amplifier.