

Fig.7. Circuit diagram for the LM380N Amplifier.

is applied to the inverting input (pin 6) and, to avoid instability, the non-inverting input (pin 2) is grounded (0V).

The manufacturers quote a minimum supply voltage of 10V. The sample tested worked with a 9V supply, but performance became erratic at lower voltages. Quiescent current, although modest, is

double that of the other low-power devices, and this, together with the higher operating voltage, makes the i.c. more suitable for mains-powered equipment.

### CIRCUIT BOARD

Details of the printed circuit board

## COMPONENTS

### LM380N AMPLIFIER

#### Resistors

R1 20Ω 0.25W 5% carbon film

#### Potentiometers

VR1 10k rotary carbon, log.

#### Capacitors

C1 4μF 7 radial elect. 50V  
C2, C5 220μF radial elect. 50V (2 off)  
C3, C6 100nF disc ceramic (2 off)  
C4 10μF radial elect. 50V

#### Semiconductor

IC1 LM380N audio power amp i.c.

#### Miscellaneous

LS1 4 to 32 ohm loudspeaker (see text)

Printed circuit board available from the *EPE PCB Service*, code 346 (LM380N); case (optional), size and type to choice; 14-pin d.i.l. socket; heatsink (see text); multistrand connecting wire; audio screened cable; solder pins; solder etc.

## TDA2003 AMPLIFIER

Produced by SGS-Thomson, the TDA2003 low-cost i.c. is mainly for use in car radios. Although chips designed specifically for "hi-fi" amplifiers are available, they usually require higher voltage and/or split rail power supplies. This makes them less easy and more expensive to use.

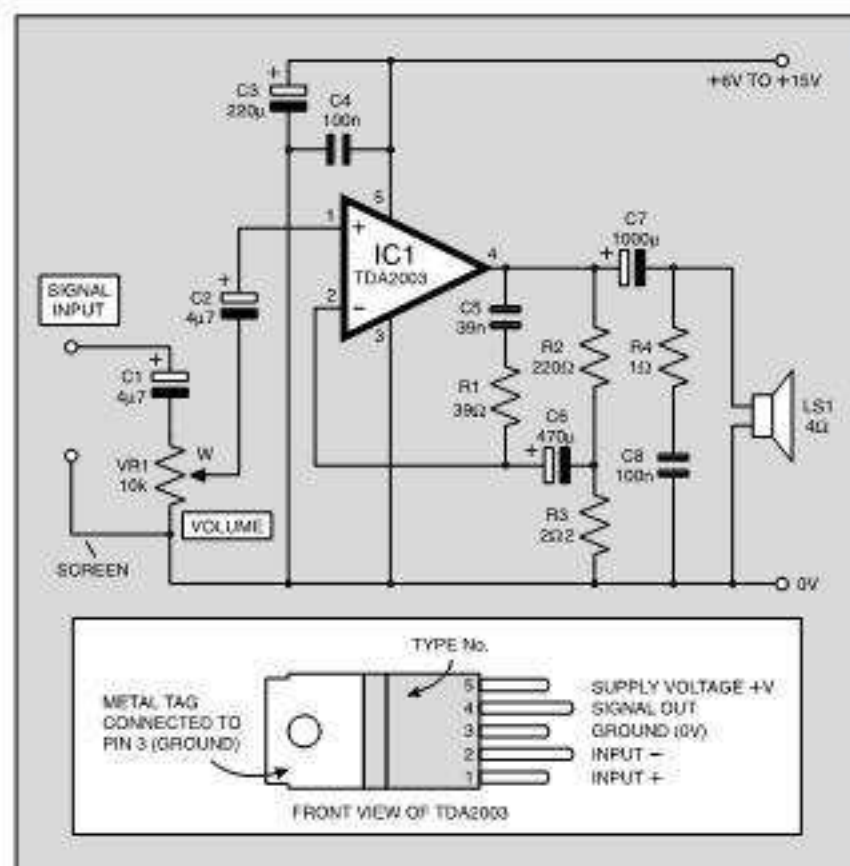
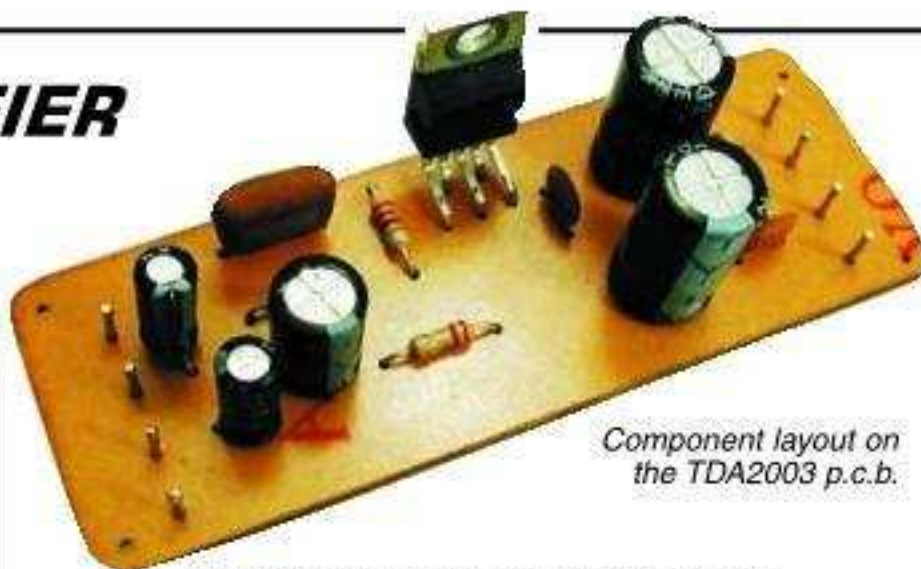


Fig.9. Circuit diagram for a single TDA2003 Amp.



Component layout on the TDA2003 p.c.b.

### TDA2003 POWER AMPLIFIER

R.M.S. power output just before the onset of waveform clipping

Speaker Impedance Ohms	Supply Voltage		
	9V	12V	15V
2	2.25W	4W	5.75W
4	1.28W	2.6W	3.9W
8	720mW	1.44W	2.1W

Quiescent current

45mA

Input sensitivity for 2.6W

output (4 ohm load, 12V supply)

42mV r.m.s. (gain 80)

Absolute maximum supply voltage

beyond which damage will occur

28V

Absolute maximum operating voltage

18V

Frequency response: 40Hz to 15kHz at the -3dB points.

The upper frequency limit can be extended by reducing the value of C5.