

Fig.2. Printed circuit board, component layout, full-size copper foil master and interwiring for the LM386N-1 Amp.

COMPONENTS

LM386N-1 AMPLIFIER

Resistors

R1 470Ω R2 10Ω
All 0.25W 5% carbon film

Potentiometers

VR1 10k min. rotary carbon, log.
VR2 10k enclosed carbon preset

Capacitors

C1 4μ7 radial elect. 25V
C2 1n disc ceramic
C3, C8 220μ radial elect. 25V (2 off)
C4 100n disc ceramic
C5, C6 10μ radial elect. 25V (2 off)
C7 47n polyester

Semiconductor

IC1 LM386N-1 audio power amp i.c.

Miscellaneous

LS1 4 to 32 ohm loudspeaker (see text)

Printed circuit board available from the *EPE PCB Service*, code 343 (LM386N-1); case (optional), size and type to choice; 8-pin d.i.l. socket; multistrand connecting wire; audio screened cable; solder pins; solder etc.

TDA7052 AMPLIFIER

Philips have adopted a bridge arrangement for the TDA7052's output stage. This enables the chip to maintain a good output at low supply voltages and eliminates the need for a speaker coupling capacitor.

Gain is fixed internally, no provision is made for ripple rejection, and there is no Zobel network. This reduces the external component count to the d.c. blocking capacitor C1, Volume control VR1 and the supply line bypass capacitors, C2 and C3. The full circuit diagram, together with a

specification guide, for the TDA7052 amplifier is shown in Fig.3.

Protection against output short circuits is built in and the device shuts down when the dissipation becomes excessive. This explains the small rise in sustainable output when the speaker impedance is increased to 16 ohms with a 9V supply.

Although usually costing a little more than the other low-power chips, this is the device of choice when the supply voltage

has to be low, a good output is required, and high gain is not important. Current consumption for a given output power is, however, almost twice that of the LM386N and the TBA820M.

CIRCUIT BOARD

The printed circuit board component layout, wiring details and full-size copper foil master pattern are shown in Fig.4. This board is available from the *EPE PCB Service*, code 344 (TDA7052).

TDA7052 POWER AMPLIFIER

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

| Speaker Impedance Ohms | Supply Voltage | | | | |
|--|----------------|-------|-------|-------|-----------------------|
| | 3V | 4.5V | 6V | 9V | 12V |
| 4 | 70mW | 500mW | 780mW | — | — |
| 8 | 60mW | 455mW | 640mW | 1W | — |
| 16 | 40mW | 235mW | 450mW | 1.12W | — |
| 32 | 24mW | 145mW | 250mW | 600mW | 1.26W |
| Quiescent current | | | | | 5mA |
| Input resistance | | | | | 100k ohms |
| Input sensitivity for 1W output (8 ohm load, 9V supply) | | | | | 40mV r.m.s. (gain 70) |
| Absolute maximum supply voltage beyond which damage will occur | | | | | 18V |
| Suggested maximum supply voltage: | | | | | |
| with a 4 ohm speaker | | | | | 6V |
| with 8 or 16 ohm speakers | | | | | 9V |
| Frequency response at the -3dB points | | | | | 25Hz - 20kHz |

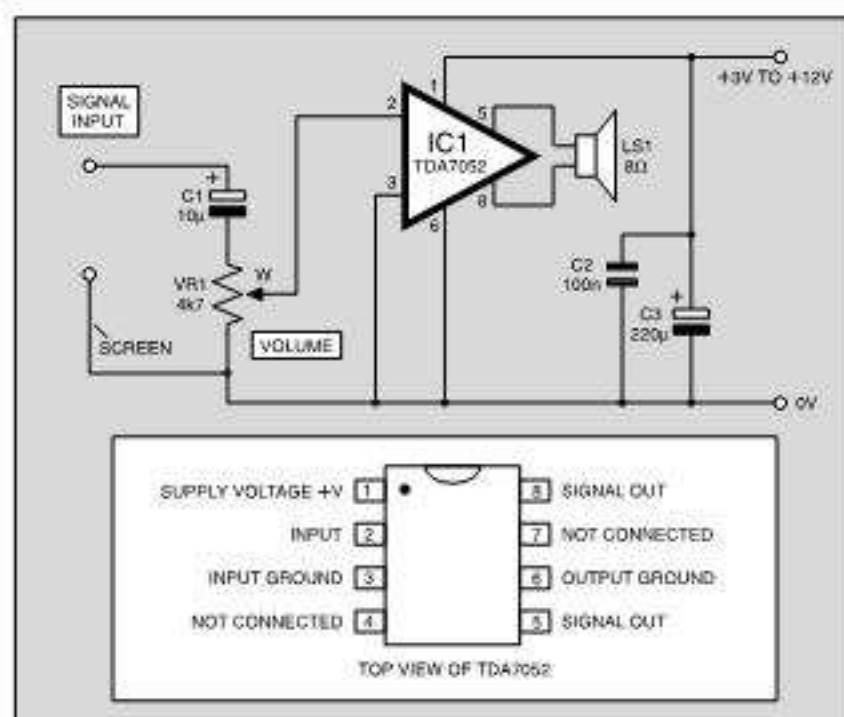


Fig.3. Circuit diagram and pinout details for the TDA7052 Amp. See left for performance guide.