

FT326

70 W CLASS H BOOSTER

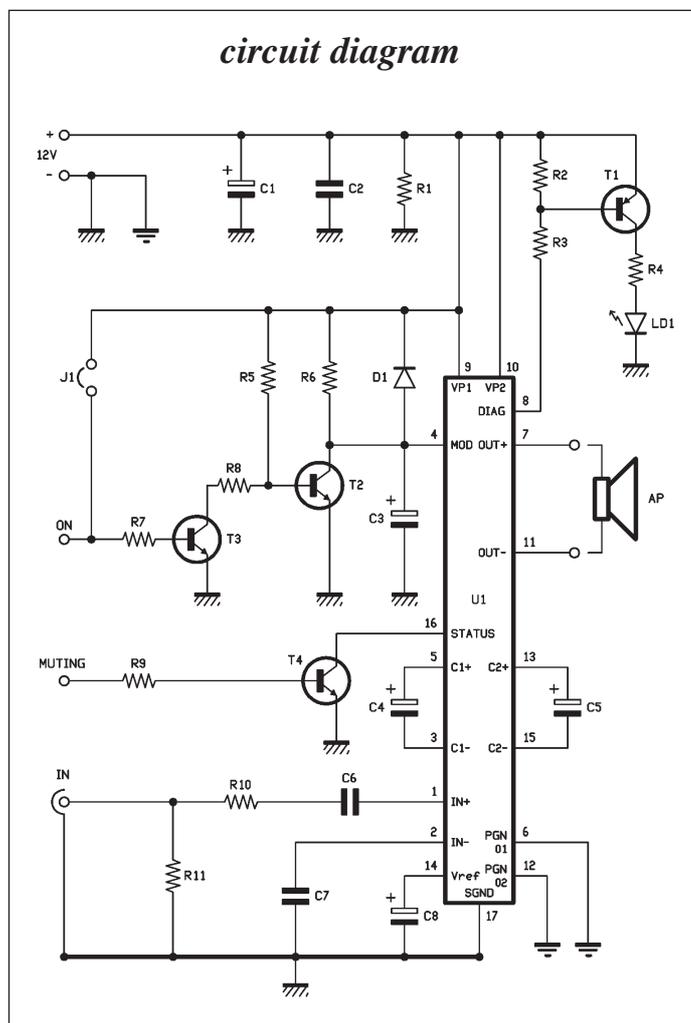


This class H amplifier is capable of regulating voltage and output current according to the intensity of the LF signal that reaches the amplifier input; this allows you to meet the power demands of the moment. It is a 'dynamic' circuitation, allowing the amplifier to be adjusted for a relatively low power, also enabling the amplifier to be given all the power it requires to obtain a perfectly rich and full reproduction without any distortion, during momentary jumps in the sound level. What is being proposed therefore is a hi-fi amplifier with a dynamic circuitation achieved by a single integrated circuit: the recently produced TDA1562Q from Philips. This is a booster powered by a direct 12 volt current, which normally increases to no more than 20 watts with loudspeakers at 4 ohms of impedance. This uses an internal power transformer based on a switching system, using two external balancing electrolytic capacitors. Therefore at low levels of the LF signal the power does not rise above 20 watts, if the audio increases in intensity this activates the voltage translators, increasing the dissipation of power and consequently the temperature of the chip; for this reason the manufacturer has provided thermal protection, which intervenes if ever the semi-conductor should heat

to 125°C. In case of peaks, which could be the passage from quiet music to more loud, sudden drum strokes or orchestral bursts, this translator is able to supply around 70 watt/RMS to the loud speakers even if for brief moments. The transistors T2 and T3 allow external control, i.e. to turn on or off the amplifier without shutting off the 12 volts. For example allowing the booster to be controlled by the Remote output of the car radio avoids having to make changes to the power supply. The jumper J1 can be used instead of the remote control input, this has to be closed in order to keep the logic 1. The LED when glowing indicates the condition of the sound distortion: in fact pin 8 pulses during periods of overload or when the power amplifier begins to cut out peaks. For the wiring of the power supply and the loudspeakers we have used in our prototype a number of thin faston layers to be soldered onto the PCB, these are more than adequate for installation into a vehicle. Once assembly is complete, the circuit is ready for use in as much as it does not need any preliminary regulation or calibration; the only indispensable item is a heatsink with a thermal resistance of at least 2°C/W fixed with two screws to the TDA1562 using the eyelets on the side. When

assembling the heatsink insert the aluminium spacer supplied in the kit. To improve the transfer of heat, it is advisable to cover the surface (or surfaces, based on the type of assembly chosen) with a silicon paste. Wishing to isolate the heatsink you can insert a layer of Teflon between it and the metal surface of the TDA1562Q, without worrying about any screws, which may be made of iron given that the component's eyelets are cased in plastic. Having reached this stage you can connect a 4 ohm loudspeaker to the output and connect the output of a LF source to the IN connector with a specially shielded cable terminating with a RCA plug. Feed all of this with a direct current of 12, 14 volts, using a battery or a power supply capable of supplying at least 5 amps.

circuit diagram



technical specifications

| | |
|---|-----------|
| Power supply | 12Vcc |
| Max. absorption | 150 mA |
| Constant output power | 20 W |
| Maximum peak power | 70 W |
| Thermal protection | available |
| Electrostatic discharge protection | automatic |
| Indication of signal distortion | via LED |
| Muting | ON / OFF |
| Remote activation | by switch |

COMPONENTS

- | | | |
|---------------------|--|------------------------|
| R1: 100 KOhm | R10: 470 Ohm | T2: BC547B |
| R2: 22 KOhm | R11: 470 KOhm | T3: BC547B |
| R3: 15 KOhm | C1: 4700 µF 25V electrolytic | T4: BC547B |
| R4: 1 KOhm | C2: 100 nF multilayer | LD1: red LED |
| R5: 22 KOhm | C3: 10 µF 63V electrolytic | U1: TDA1562 |
| R6: 100 KOhm | C4-C5: 4700 µF 25V electrolytic | Various: |
| R7: 10 KOhm | C6: 470 nF 63VL polyester | - RCA-type PBC socket; |
| R8: 470 Ohm | C7: 470 nF 63VL polyester | - 2-way terminal block |
| R9: 10 KOhm | C8: 10 µF 63VL electrolytic | (2 pc.); |
| | D1: 1N4148 diode | - faston 90° (4 pc.); |
| | T1: BC557B | - PCB code S326. |

