



10 + 10W STEREO AMPLIFIER WITH MUTE & ST-BY

- WIDE SUPPLY VOLTAGE RANGE UP TO $\pm 20V$
- SPLIT SUPPLY
- HIGH OUTPUT POWER
10 + 10W @ THD = 10%, $R_L = 8\Omega$, $V_S = \pm 14V$
- NO POP AT TURN-ON/OFF
- MUTE (POP FREE)
- STAND-BY FEATURE (LOW I_q)
- THERMAL OVERLOAD PROTECTION
- SHORT CIRCUIT PROTECTION TO GND

DESCRIPTION

The TDA7269 is class AB dual Audio power amplifier assembled in the Multiwatt package, specially designed for high quality sound application as Hi-Fi music centers and stereo TV sets.

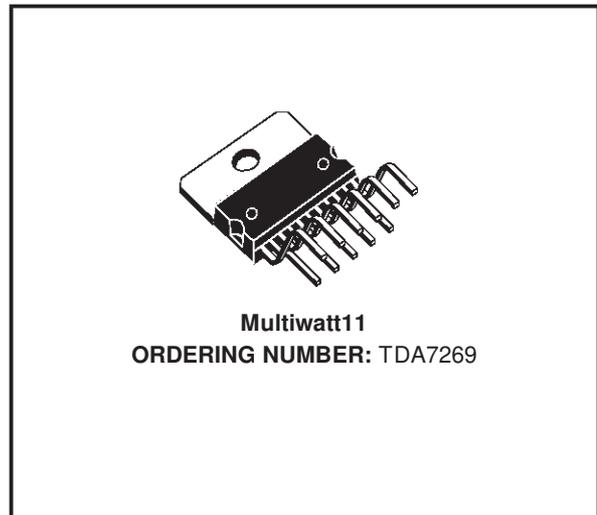
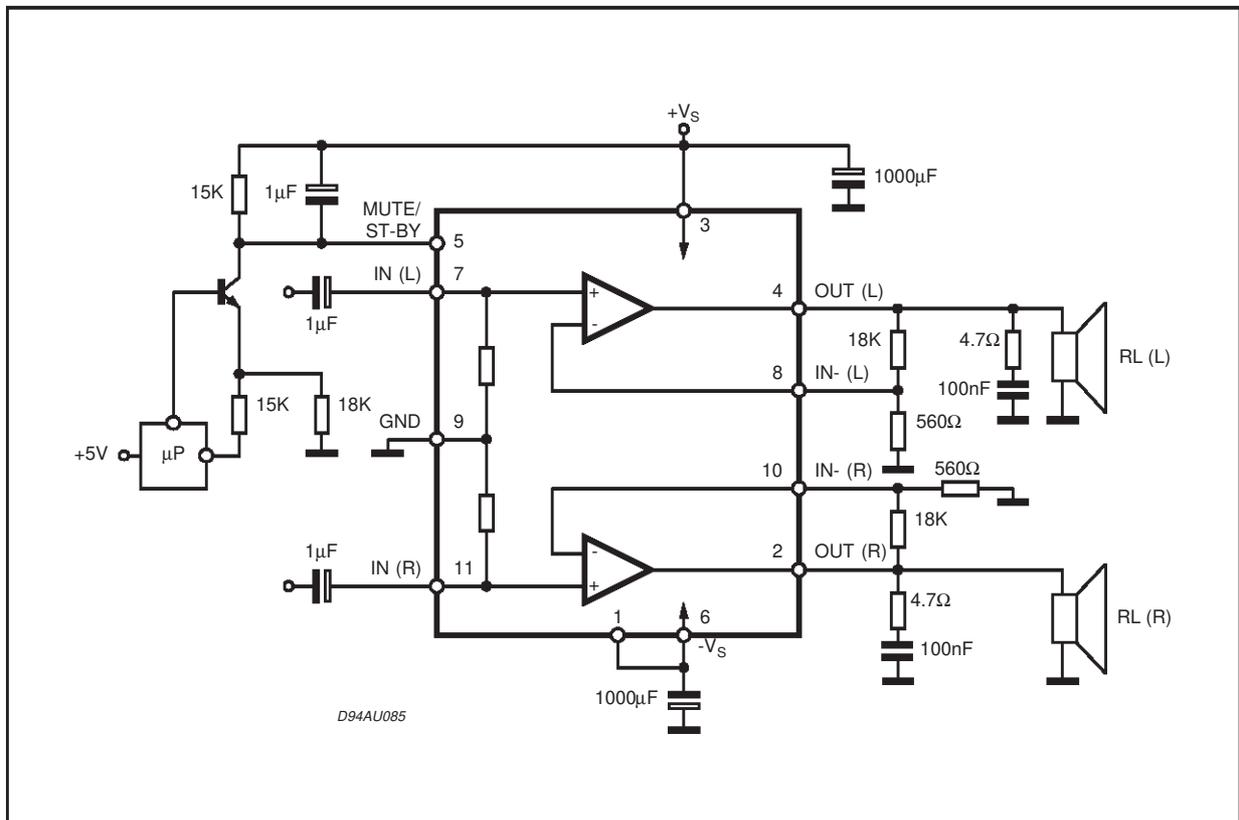


Figure 1: Typical Application Circuit

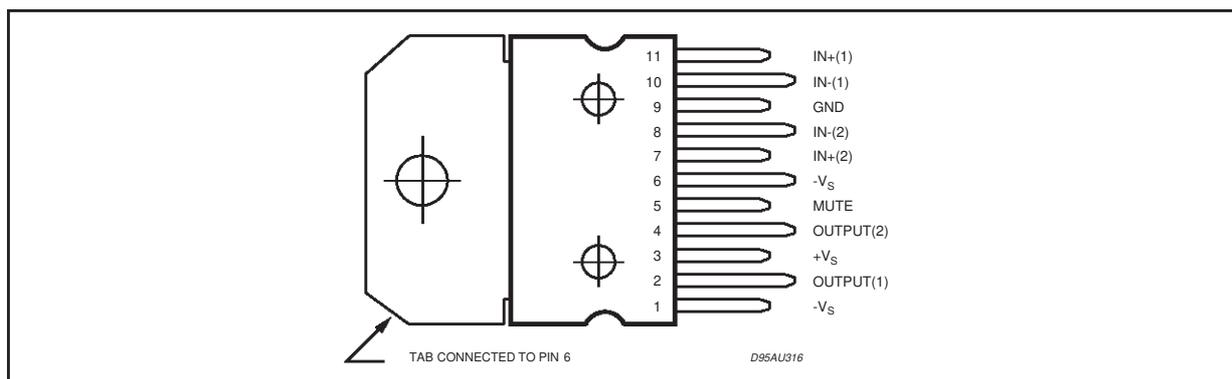


TDA7269

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|----------------|---|-------------|------------------|
| V_S | DC Supply Voltage | ± 22 | V |
| I_O | Output Peak Current (internally limited) | 3 | A |
| P_{tot} | Power Dissipation $T_{case} = 70^\circ\text{C}$ | 40 | W |
| T_{op} | Operating Temperature | 0 to 70 | $^\circ\text{C}$ |
| T_{stg}, T_j | Storage and Junction Temperature | -40 to +150 | $^\circ\text{C}$ |

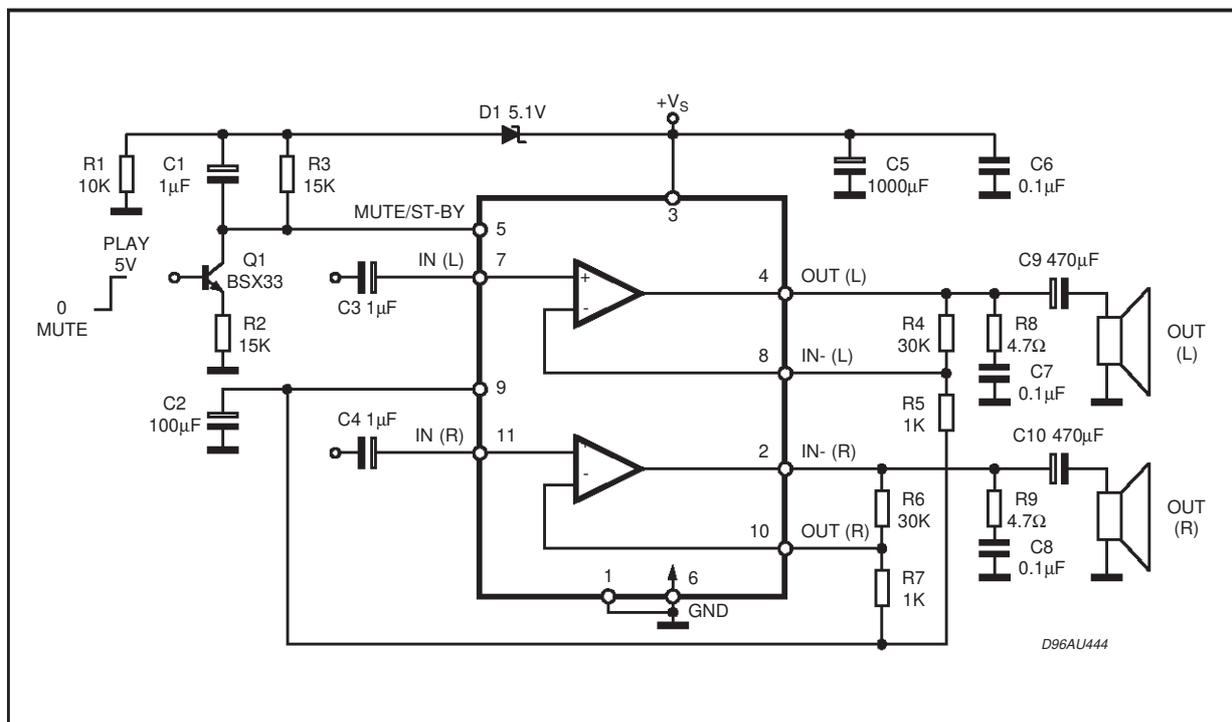
PIN CONNECTION (Top view)



THERMAL DATA

| Symbol | Description | Value | Unit |
|------------------|----------------------------------|---------|---------------------------|
| $R_{th\ j-case}$ | Thermal Resistance Junction-case | Max 2.8 | $^\circ\text{C}/\text{W}$ |

SINGLE SUPPLY APPLICATION



ELECTRICAL CHARACTERISTICS (Refer to the test circuit, $V_S = \pm 14V$; $R_L = 8\Omega$; $R_S = 50\Omega$; $G_V = 30dB$; $f = 1KHz$; $T_{amb} = 25^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|---|--|--|----------|------------|----------|--------------------|
| V_S | Supply Range | | ± 5 | | ± 20 | V |
| I_q | Total Quiescent Current | | | 60 | 100 | mA |
| V_{OS} | Input Offset Voltage | | -25 | | +25 | mV |
| I_b | Non Inverting Input Bias Current | | | 500 | | nA |
| P_O | Output Power | THD = 10% $R_L = 8\Omega$; $V_S \pm 12.5V$; $R_L = 4\Omega$ | 8 7.5 | 10 10 | | W W |
| | | THD = 1% $R_L = 8\Omega$; $V_S \pm 12.5V$; $R_L = 4\Omega$ | | 7.5 7.5 | | W W |
| THD | Total Harmonic Distortion | $R_L = 8\Omega$; $P_O = 1W$; $f = 1KHz$ | | 0.03 | | % |
| | | $R_L = 8\Omega$; $P_O = 0.1$ to $5W$; $f = 100Hz$ to $15KHz$ | | | 0.7 | % |
| | | $R_L = 4\Omega$; $P_O = 1W$; $f = 1KHz$ | | 0.02 | | % |
| | | $R_L = 4\Omega$; $V_S \pm 10V$; $P_O = 0.1$ to $5W$; $f = 100Hz$ to $15KHz$ | | | 1 | % |
| C_T | Cross Talk | $f = 1KHz$ | | 70 | | dB |
| | | $f = 10KHz$ | 50 | 60 | | dB |
| SR | Slew Rate | | 6.5 | 10 | | V/ μs |
| G_{OL} | Open Loop Voltage Gain | | | 80 | | dB |
| e_N | Total Input Noise | A Curve $f = 20Hz$ to $22KHz$ | | 3 4 | 8 | μV μV |
| | | | | 15 | 20 | |
| SVR | Supply Voltage Rejection (each channel) | $f_r = 100Hz$ $V_r = 0.5V$ | | 60 | | dB |
| T_j | Thermal Shut-down Junction Temperature | | | 145 | | $^\circ C$ |
| MUTE FUNCTION [ref: +Vs] (*) | | | | | | |
| V_{T_MUTE} | Mute / Play Threshold | | -7 | -6 | -5 | V |
| A_M | Mute Attenuation | | 60 | 70 | | dB |
| STAND-BY FUNCTION [ref: +Vs] (Only for Split Supply) | | | | | | |
| V_{T_ST-BY} | Stand-by / Mute Threshold | | -3.5 | -2.5 | -1.5 | V |
| A_{ST-BY} | Stand-by Attenuation | | | 110 | | dB |
| I_{q_ST-BY} | Quiescent Current @ Stand-by | | | 3 | 6 | mA |

(*) In mute condition the current drawn from Pin 5 must be $\leq 650\mu A$.

MUTE STAND-BY FUNCTION

The pin 5 (MUTE/STAND-BY) controls the amplifier status by two different thresholds, referred to $+V_S$.

- When V_{pin5} higher than $+V_S - 2.5V$ the amplifier is in Stand-by mode and the final stage generators are off

- when V_{pin5} is between $+V_S - 2.5V$ and $+V_S - 6V$ the final stage current generators are switched on and the amplifier is in mute mode
- when V_{pin5} is lower than $+V_S - 6V$ the amplifier is play mode.

Figure 2

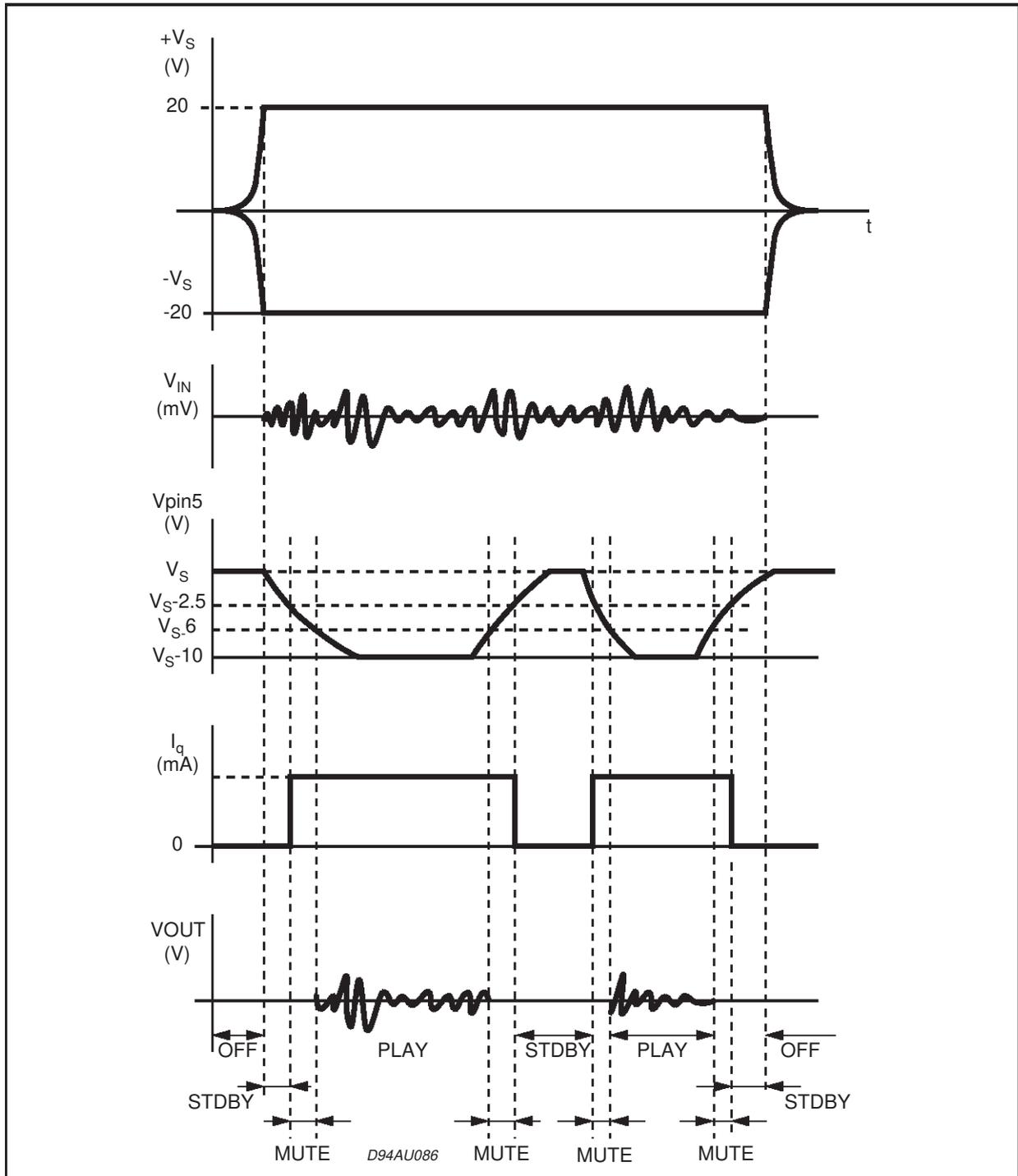
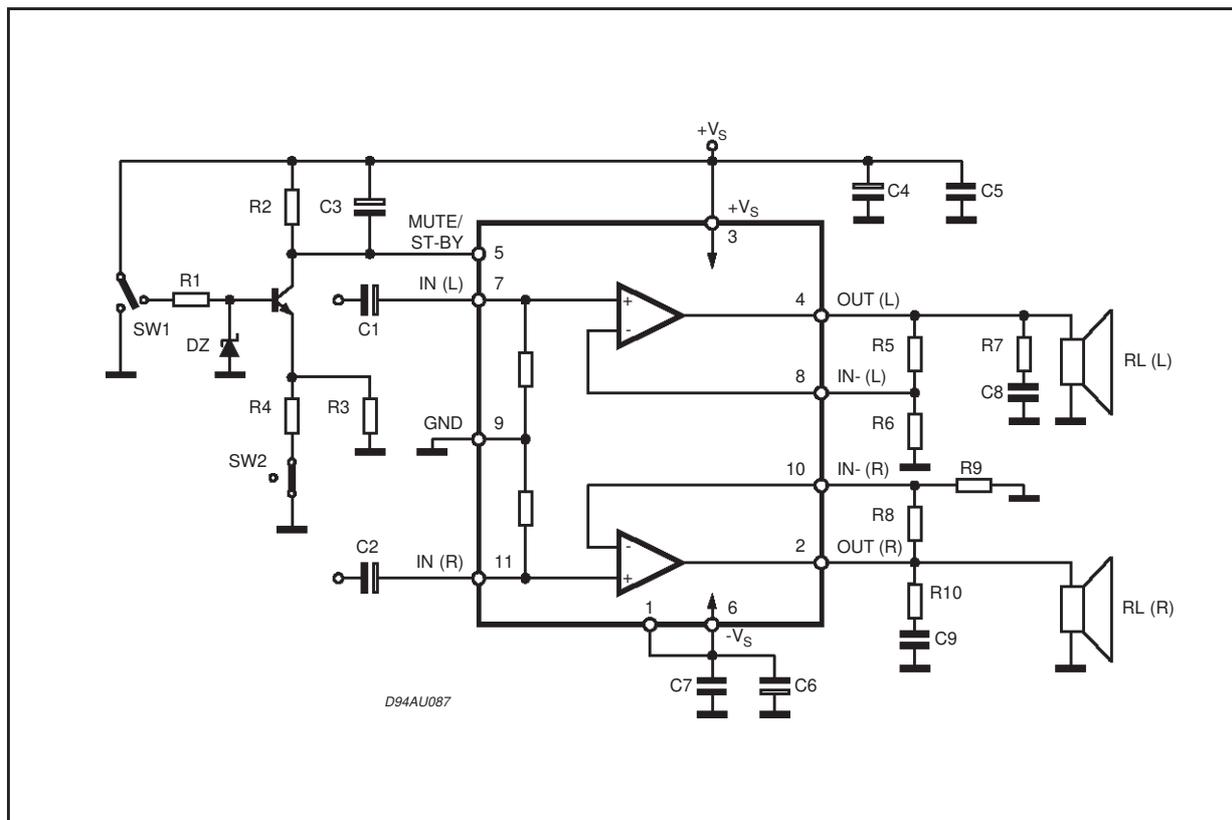


Figure 3: Test and Application Circuit (Stereo Configuration)



APPLICATIONS SUGGESTION
(Demo Board Schematic)

The recommended values of the external compo-

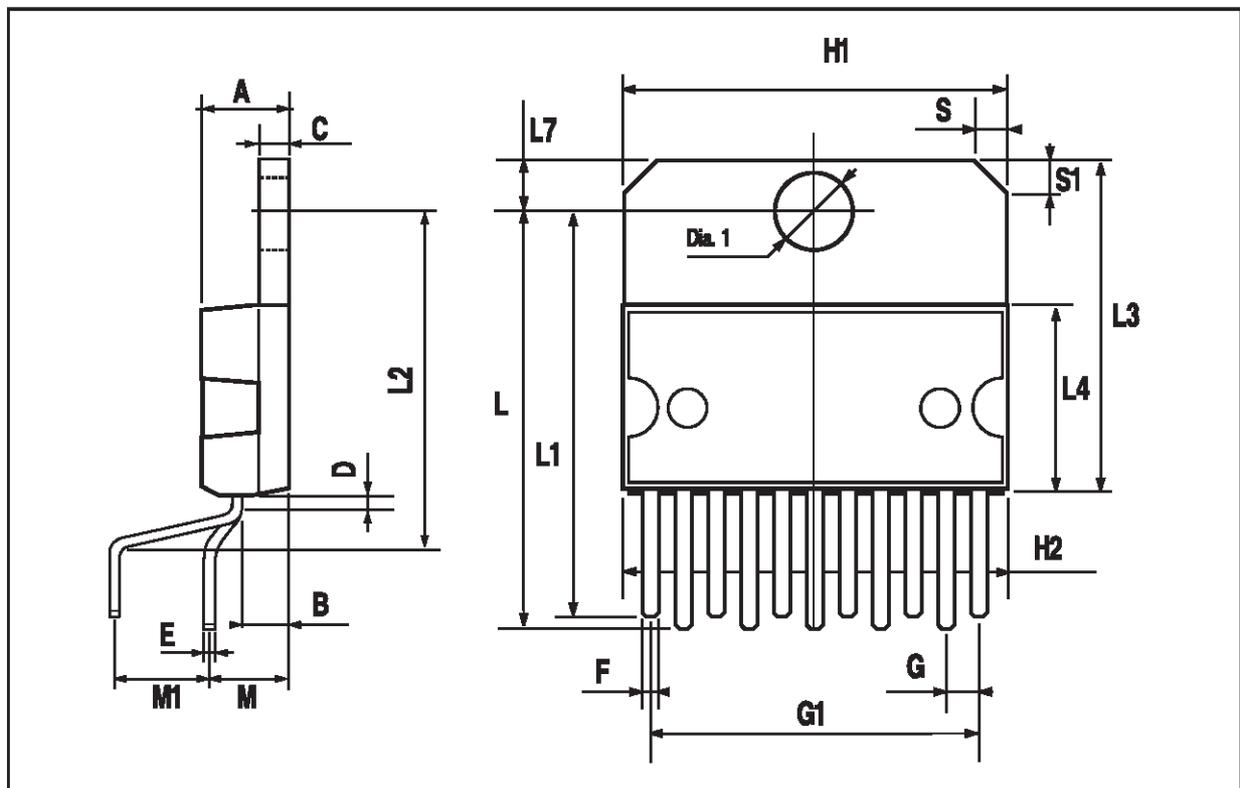
nents are those shown are the demo board schematic different values can be used: the following table can help the designer.

| COMPONENTS | RECOMMENDED VALUE | PURPOSE | LARGER THAN RECOMMENDED VALUE | SMALLER THAN RECOMMENDED VALUE |
|------------|-------------------|------------------------------|---------------------------------------|---------------------------------------|
| R1 | 10KΩ | Mute Circuit | Increase of Dz Biasing Current | |
| R2 | 15KΩ | Mute Circuit | V _{pin # 5} Shifted Downward | V _{pin # 5} Shifted Upward |
| R3 | 18KΩ | Mute Circuit | V _{pin # 5} Shifted Upward | V _{pin # 5} Shifted Downward |
| R4 | 15KΩ | Mute Circuit | V _{pin # 5} Shifted Upward | V _{pin # 5} Shifted Downward |
| R5, R8 | 18KΩ | Closed Loop Gain Setting (*) | Increase of Gain | |
| R6, R9 | 560Ω | | Decrease of Gain | |
| R7, R10 | 4.7Ω | Frequency Stability | Danger of Oscillations | Danger of Oscillations |
| C1, C2 | 1μF | Input DC Decoupling | | Higher Low Frequency Cutoff |
| C3 | 1μF | St-By/Mute Time Constant | Larger On/Off Time | Smaller On/Off Time |
| C4, C6 | 1000μF | Supply Voltage Bypass | | Danger of Oscillations |
| C5, C7 | 0.1μF | Supply Voltage Bypass | | Danger of Oscillations |
| C8, C9 | 0.1μF | Frequency Stability | | |
| Dz | 5.1V | Mute Circuit | | |

(*) Closed loop gain has to be => 25dB

MULTIWATT11 PACKAGE MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | | 5 | | | 0.197 |
| B | | | 2.65 | | | 0.104 |
| C | | | 1.6 | | | 0.063 |
| D | | 1 | | | 0.039 | |
| E | 0.49 | | 0.55 | 0.019 | | 0.022 |
| F | 0.88 | | 0.95 | 0.035 | | 0.037 |
| G | 1.57 | 1.7 | 1.83 | 0.062 | 0.067 | 0.072 |
| G1 | 16.87 | 17 | 17.13 | 0.664 | 0.669 | 0.674 |
| H1 | 19.6 | | | 0.772 | | |
| H2 | | | 20.2 | | | 0.795 |
| L | 21.5 | | 22.3 | 0.846 | | 0.878 |
| L1 | 21.4 | | 22.2 | 0.843 | | 0.874 |
| L2 | 17.4 | | 18.1 | 0.685 | | 0.713 |
| L3 | 17.25 | 17.5 | 17.75 | 0.679 | 0.689 | 0.699 |
| L4 | 10.3 | 10.7 | 10.9 | 0.406 | 0.421 | 0.429 |
| L7 | 2.65 | | 2.9 | 0.104 | | 0.114 |
| M | 4.1 | 4.3 | 4.5 | 0.161 | 0.169 | 0.177 |
| M1 | 4.88 | 5.08 | 5.3 | 0.192 | 0.200 | 0.209 |
| S | 1.9 | | 2.6 | 0.075 | | 0.102 |
| S1 | 1.9 | | 2.6 | 0.075 | | 0.102 |
| Dia1 | 3.65 | | 3.85 | 0.144 | | 0.152 |



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