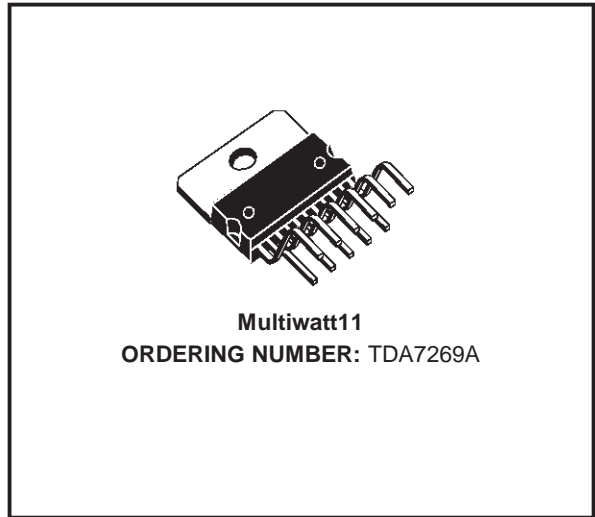


14 + 14W STEREO AMPLIFIER WITH MUTE & ST-BY

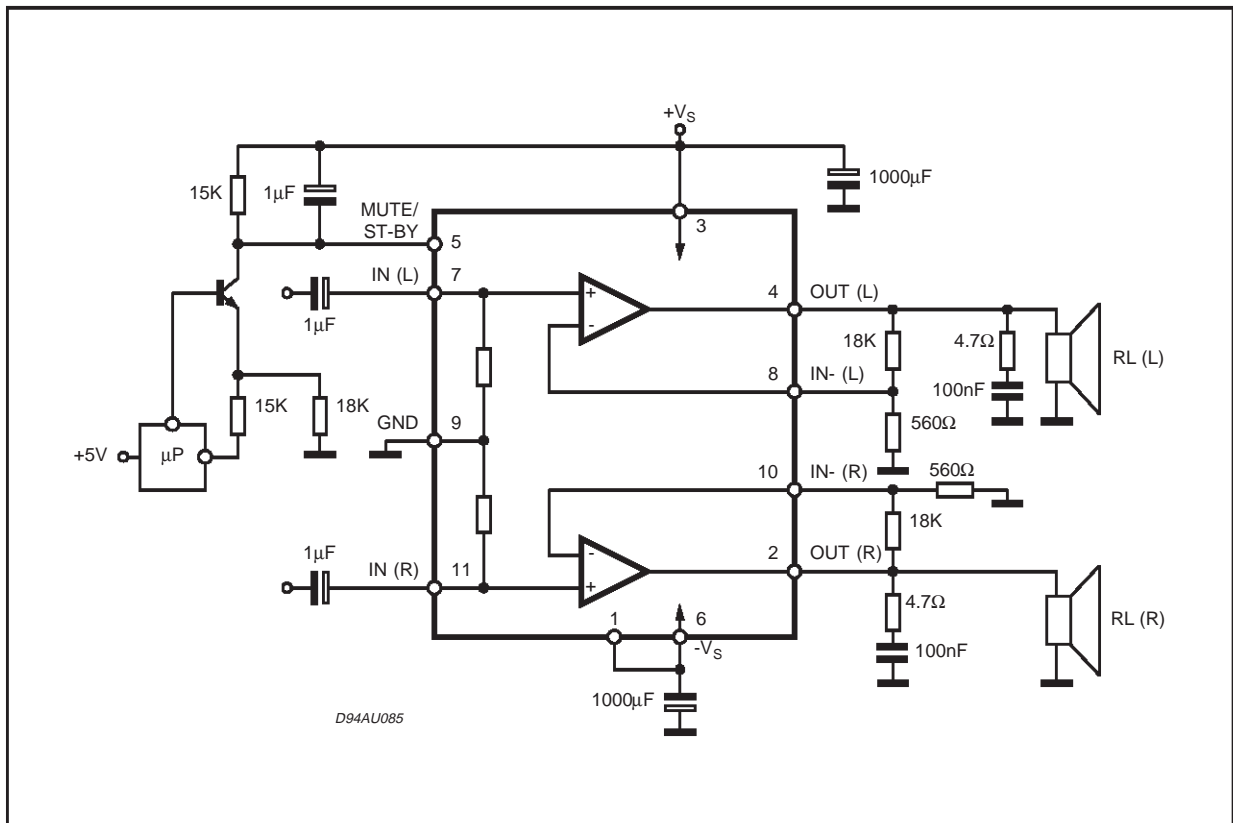
- WIDE SUPPLY VOLTAGE RANGE UP TO $\pm 20V$
- SPLIT SUPPLY
- HIGH OUTPUT POWER
14 + 14W @ THD=10%, $R_L = 8\Omega$, $V_S = \pm 16V$
- NO POP AT TURN-ON/OFF
- MUTE (POP FREE)
- STAND-BY FEATURE (LOW I_q)
- SHORT CIRCUIT PROTECTION TO GND
- THERMAL OVERLOAD PROTECTION



DESCRIPTION

The TDA7269A 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

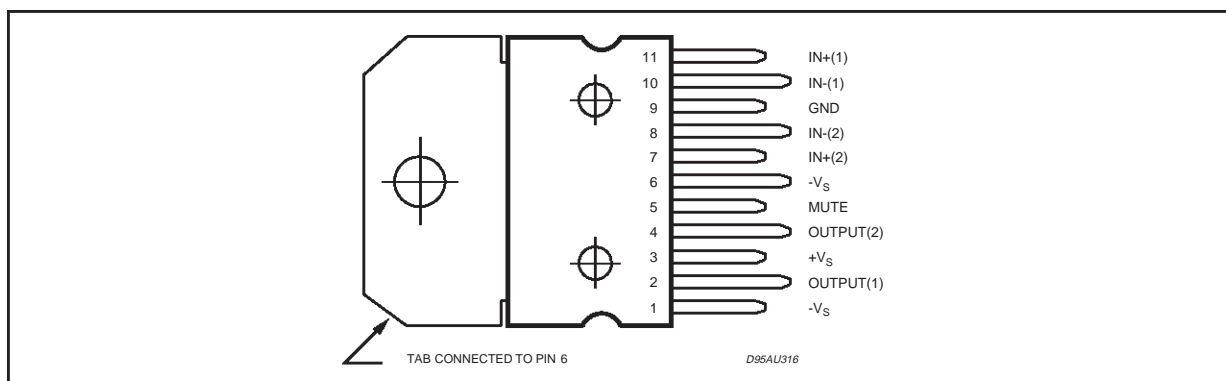


TDA7269A

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 | $^\circ\text{C}$ |

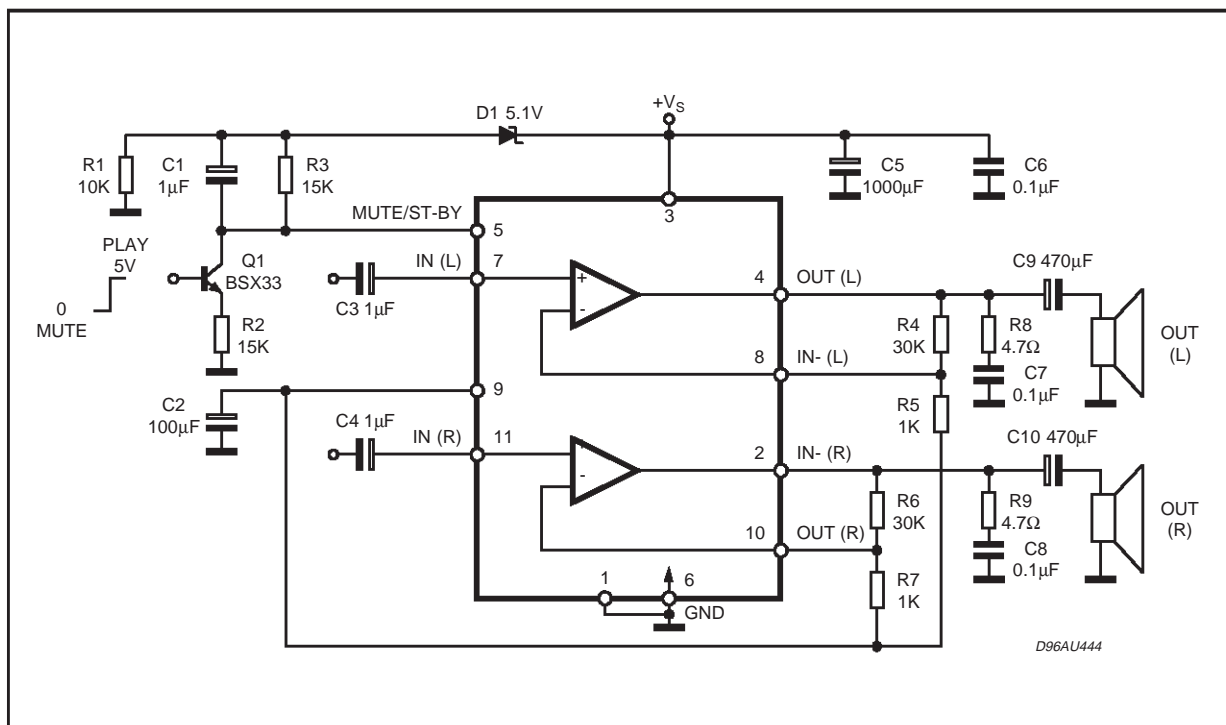
PIN CONNECTION (Top view)



THERMAL DATA

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

SINGLE SUPPLY APPLICATION



ELECTRICAL CHARACTERISTICS (Refer to the test circuit, $V_S = \pm 16V$; $R_L = 8\Omega$; $R_S = 50\Omega$; $G_V = 30dB$; $f = 1KHz$; $T_{amb} = 25^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|---|--|--|---------|-----------|----------|--------------------|
| V_S | Supply Range | $R_L = 8\Omega$; | ± 5 | | ± 20 | V |
| | | $R_L = 4\Omega$; | ± 5 | | ± 15 | 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% $R_L = 8\Omega$; $V_S \pm 12.5V$; $R_L = 4\Omega$ | 12 8 | 14 10 | | W W |
| | | THD = 1% $R_L = 8\Omega$; $V_S \pm 12.5V$; $R_L = 4\Omega$ | 9 6 | 11 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 $7W$; $f = 100Hz$ 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 |
| R_i | Input Resistance | | 15 | 20 | | K Ω |
| 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

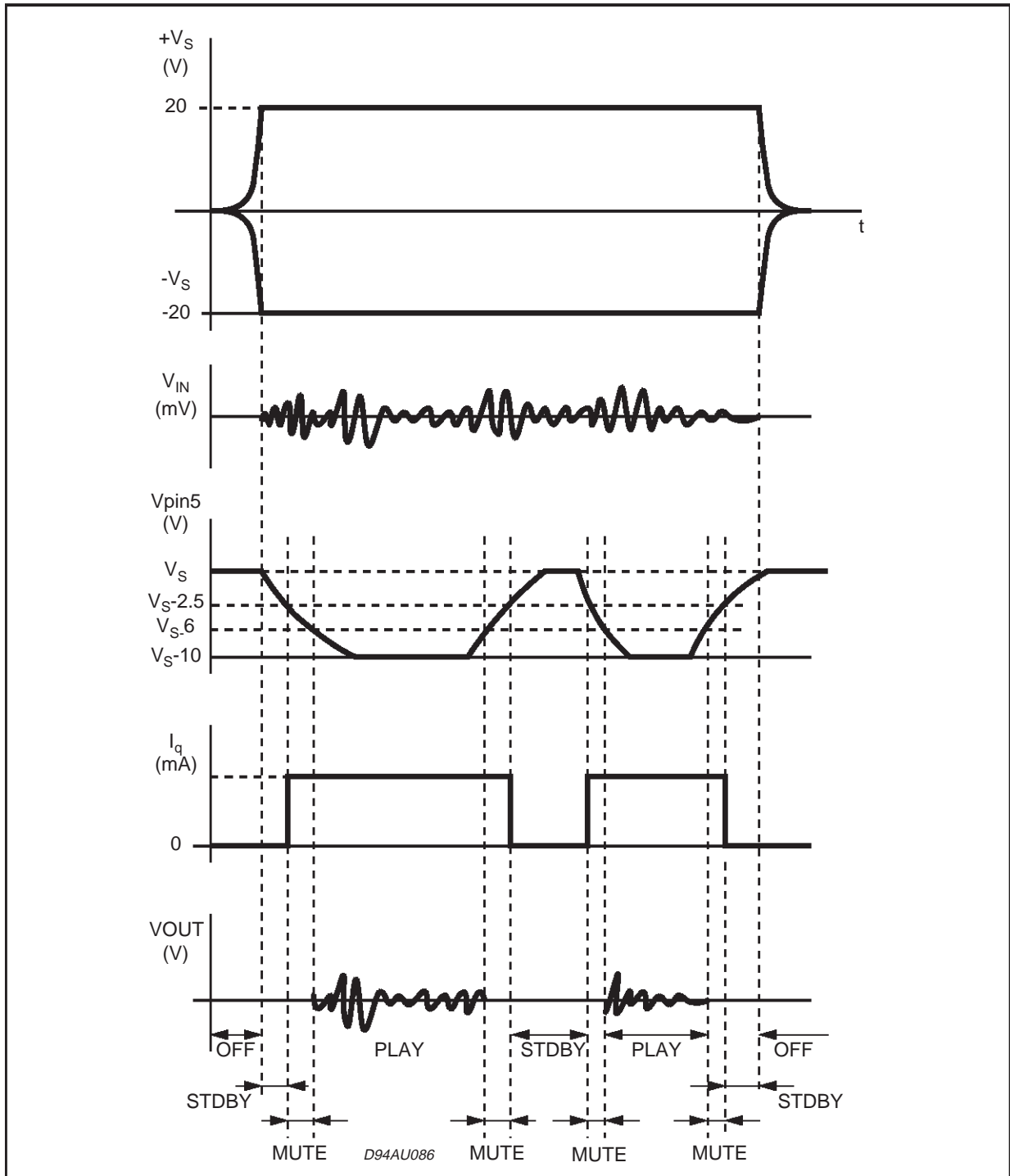
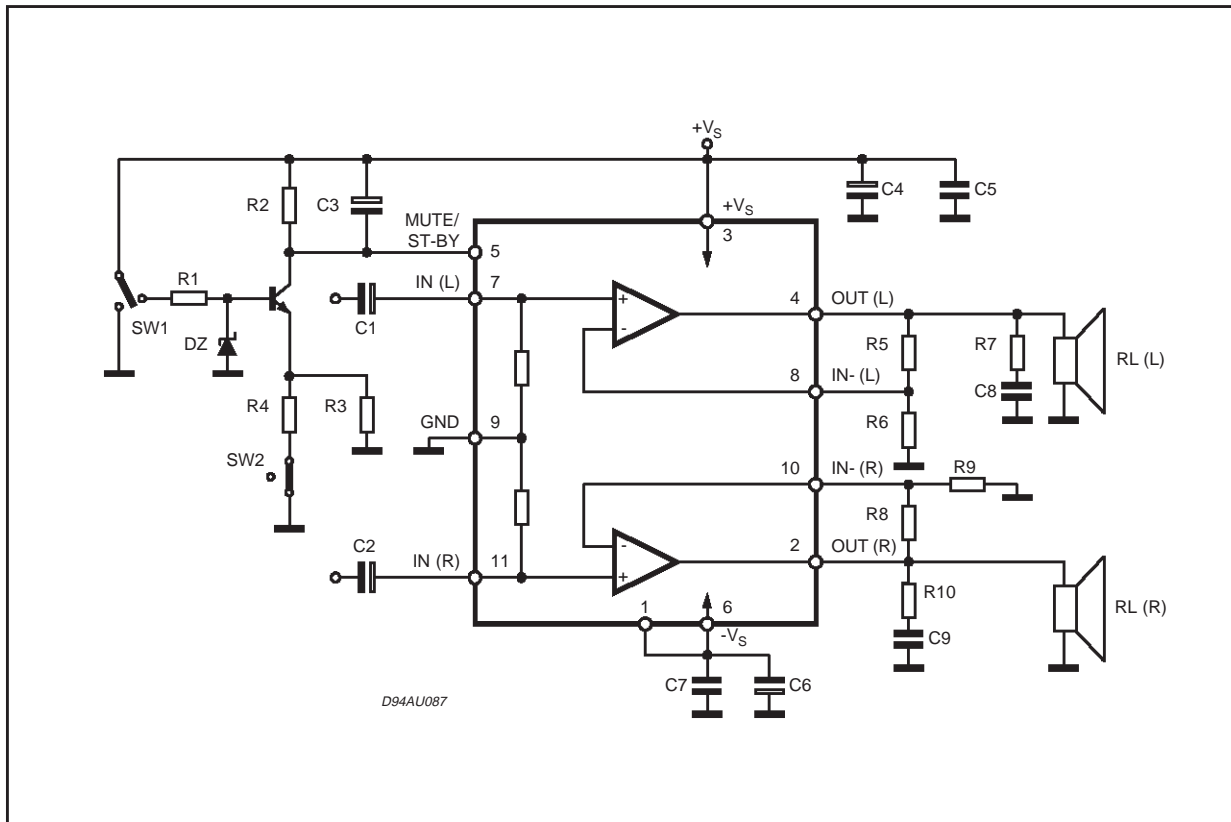


Figure 3: Test and Application Circuit (Stereo Configuration)



APPLICATIONS SUGGESTION
(Demo Board Schematic)

The recommended values of the external compo-

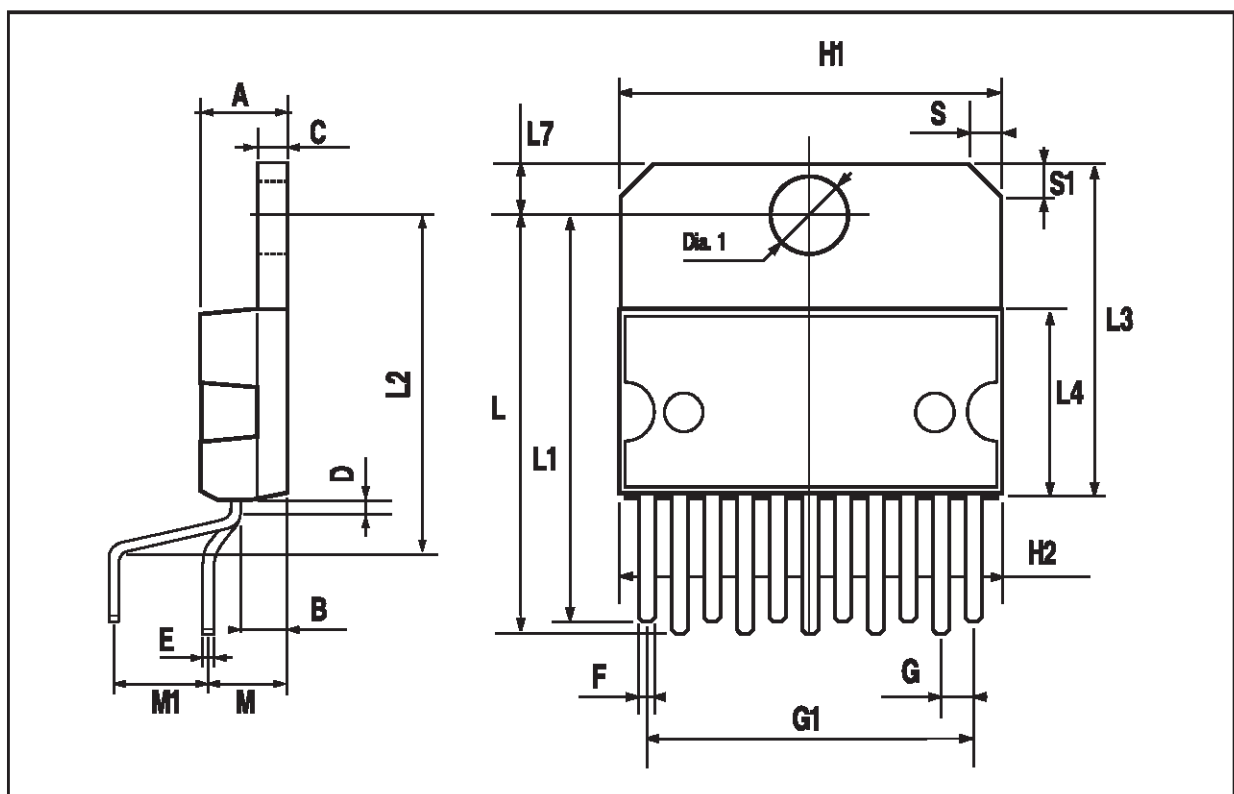
nents are those shown are the demo board schematic different values can be used: the following table can help the designer.

| 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 |



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics
© 1998 STMicroelectronics – Printed in Italy – All Rights Reserved
STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.