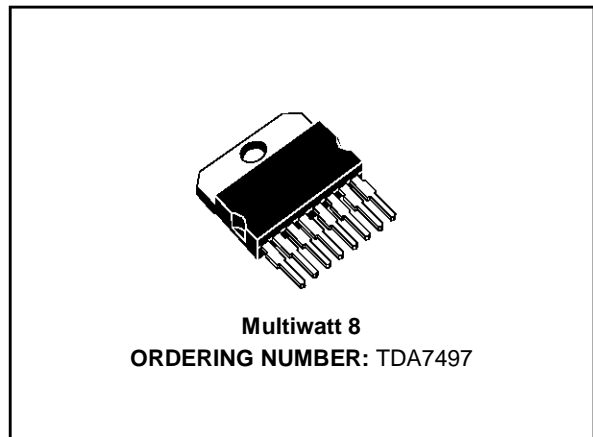


10 + 10W STEREO AMPLIFIER WITH MUTE/ST-BY

PRODUCT PREVIEW

- WIDE SUPPLY VOLTAGE RANGE (UP TO $\pm 22V$ ABS MAX.)
- 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)
- FEW EXTERNAL COMPONENTS
- SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

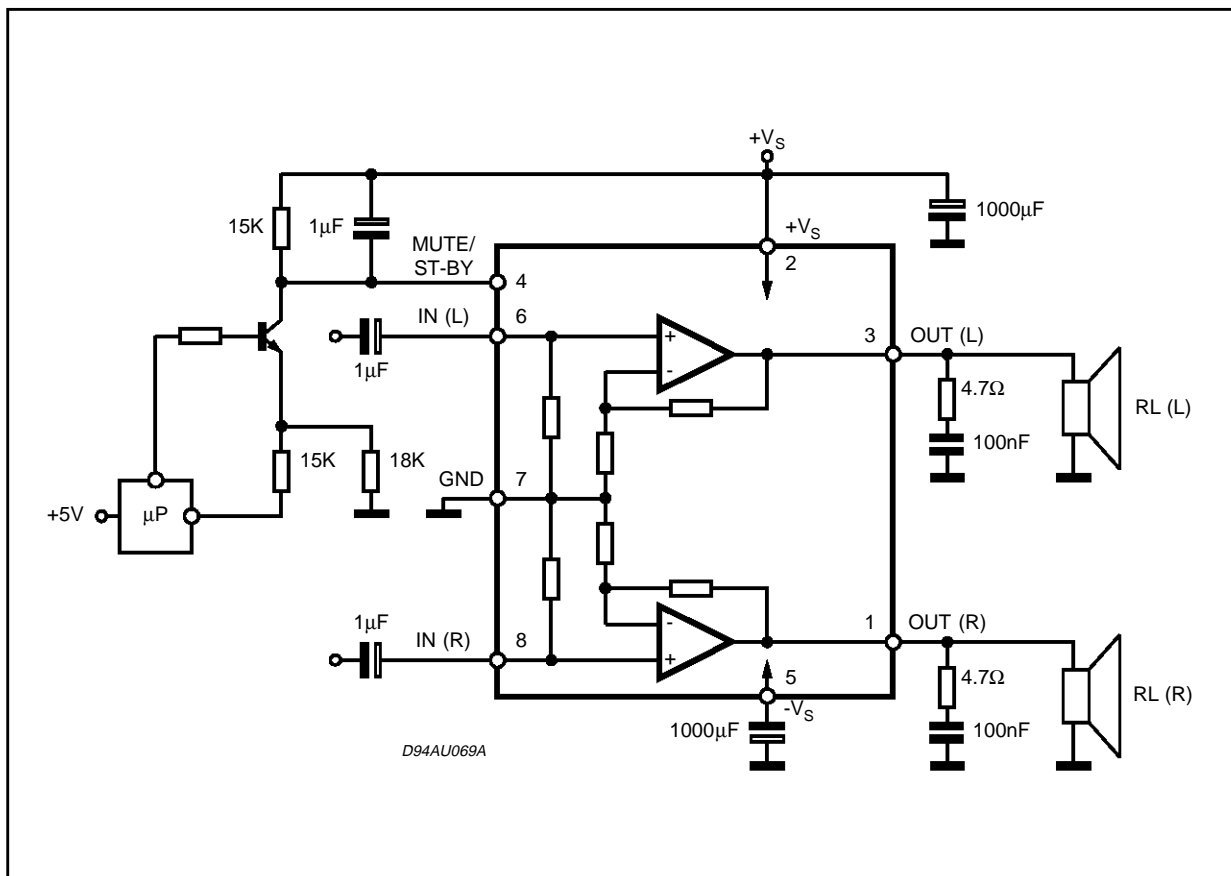


DESCRIPTION

The TDA7497 is class AB dual Audio power amplifier assembled in the Multiwatt package, spe-

cially designed for high quality sound application as Hi-Fi music centers and stereo TV sets.

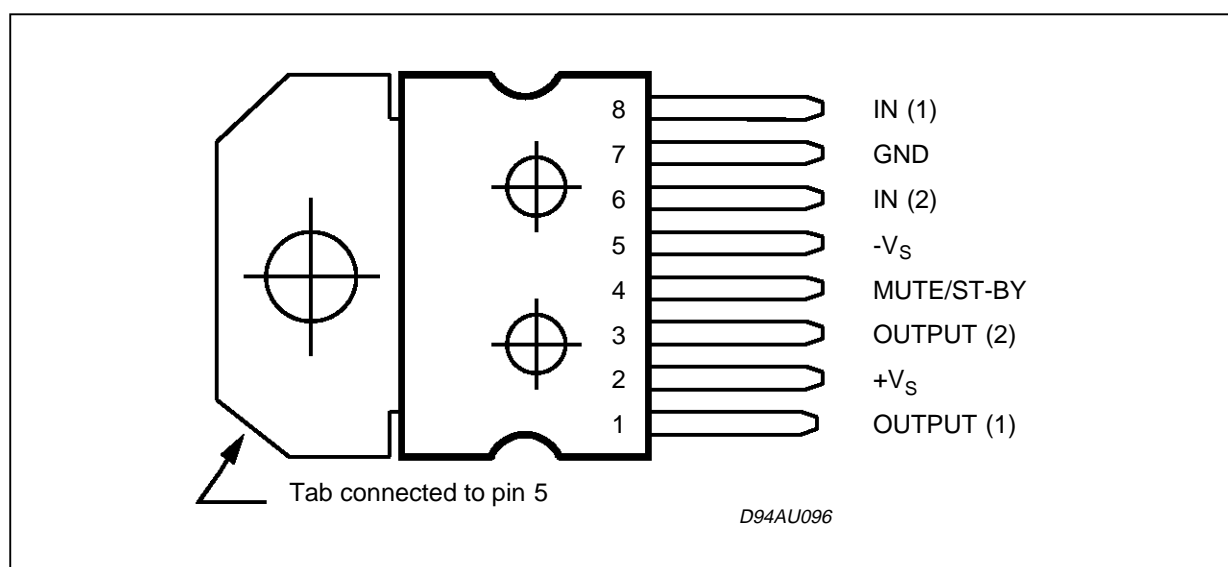
Figure 1: Typical Application Circuit



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 $T_{case} = 70^\circ\text{C}$ | 12 | W |
| 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 | $^\circ\text{C/W}$ |

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|-------------------------------------|---|--|---------|------------|----------|--------------------|
| V_S | Supply Range | | ± 5 | | ± 20 | V |
| I_q | Total Quiescent Current | | | 80 | | mA |
| P_O | Output Power | $d = 10\%$ $d = 1\%$ | | 10 7.5 | | W W |
| d | Total Harmonic Distortion | $P_O = 1W$ $P_O = 0.1$ to $5W$ $f = 0.1$ to $15KHz$ | | 0.02 | 0.5 | % % |
| C_T | Cross Talk | $f = 1KHz$ $f = 10KHz$ | | 70 60 | | dB dB |
| SR | Slew Rate | | | 10 | | V/ μs |
| G_V | Closed Loop Voltage Gain | | 29 | 30 | 31 | dB |
| ΔG_V | Voltage Gain Matching | | | 0.2 | | dB |
| e_N | Total Input Noise | A Curve $f = 20Hz$ to $22KHz$ | | 2.5 3.5 | 8 | μV μV |
| R_i | Input Resistance | | 15 | 20 | | K Ω |
| SVR | Supply Voltage Rejection (each channel) | $f_r = 100Hz$; $V_{ripple} = 0.5V_{RMS}$ | | 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 | 90 | | dB |
| STAND-BY FUNCTION [ref: +Vs] | | | | | | |
| $V_{T_{ST-BY}}$ | 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 | | mA |

Note :

(*) **FULL POWER** up to. $V_S = \pm 22.5V$ with $R_L = 8\Omega$ and $V_S = \pm 16V$ with $R_L = 4\Omega$

MUSIC POWER is the maximal power which the amplifier is capable of producing across the rated load resistance (regardless of non linearity) 1 sec after the application of a sinusoidal input signal of frequency 1KHz.

APPLICATIONS SUGGESTION

(Demo Board Schematic)

The recommended values of the external compo-

nents are those shown on 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 | 10K Ω | Mute Circuit | Increase of D_z Biasing Current | |
| R2 | 15K Ω | Mute Circuit | $V_{pin \# 4}$ Shifted Downward | $V_{pin \# 4}$ Shifted Upward |
| R3 | 18K Ω | Mute Circuit | $V_{pin \# 4}$ Shifted Upward | $V_{pin \# 4}$ Shifted Downward |
| R4 | 15K Ω | Mute Circuit | $V_{pin \# 4}$ Shifted Upward | $V_{pin \# 4}$ Shifted Downward |
| R5, R6 | 4.7 Ω | Frequency Stability | Danger of Oscillations | Danger of Oscillations |
| C1, C2 | 1 μF | Input DC Decoupling | | Higher Low Frequency Cutoff |
| C3 | 1 μF | St-By/Mute Time Constant | Larger On/Off Time | Smaller On/Off Time |
| C4, C6 | 1000 μF | Supply Voltage Bypass | | Danger of Oscillations |
| C5, C7 | 0.1 μF | Supply Voltage Bypass | | Danger of Oscillations |
| C8, C9 | 0.1 μF | Frequency Stability | | |
| D_z | 5.1V | Mute Circuit | | |

Figure 2: Application circuit

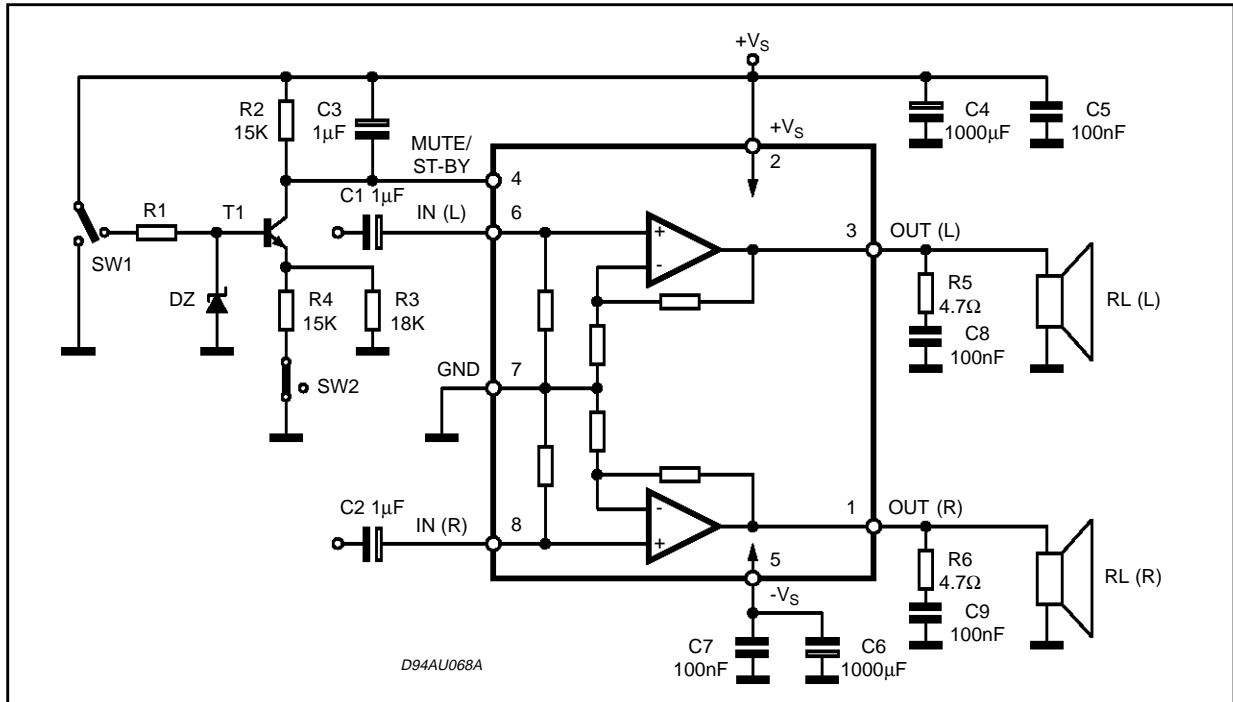
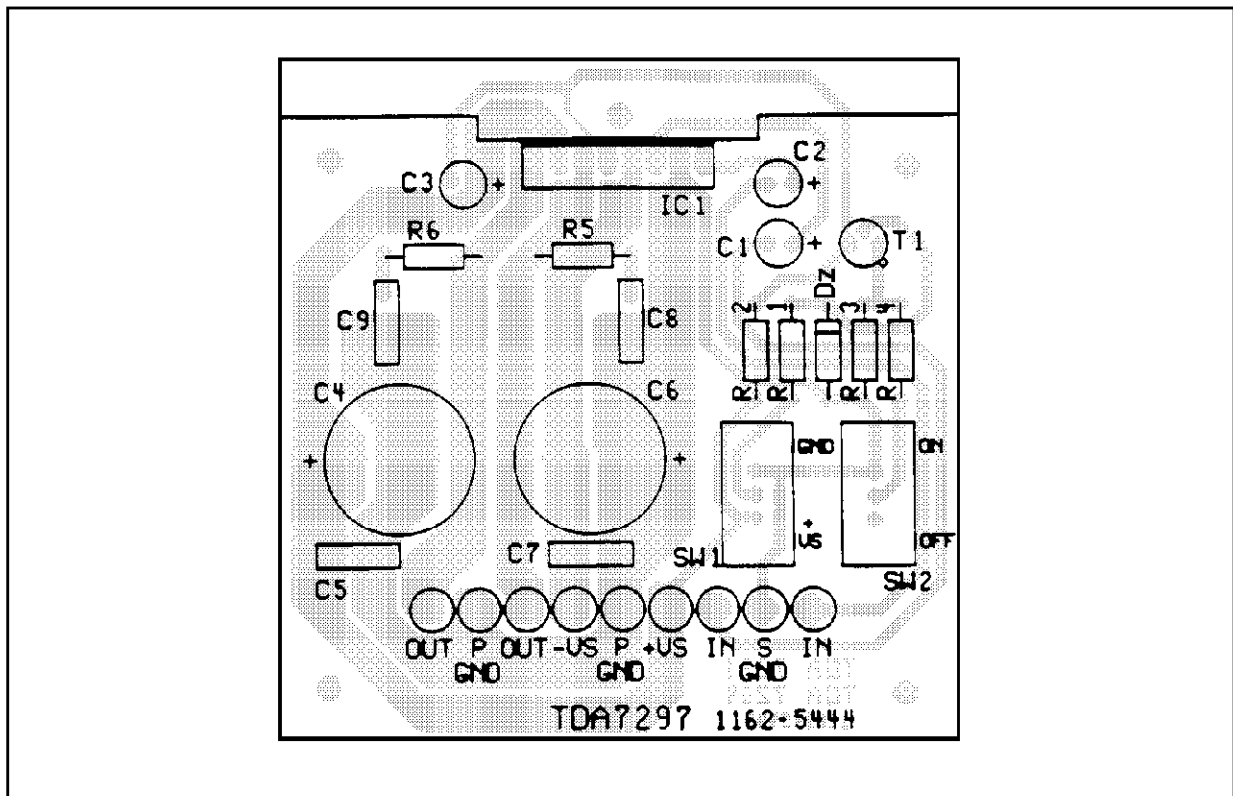


Figure 3: Demo Board Schematic



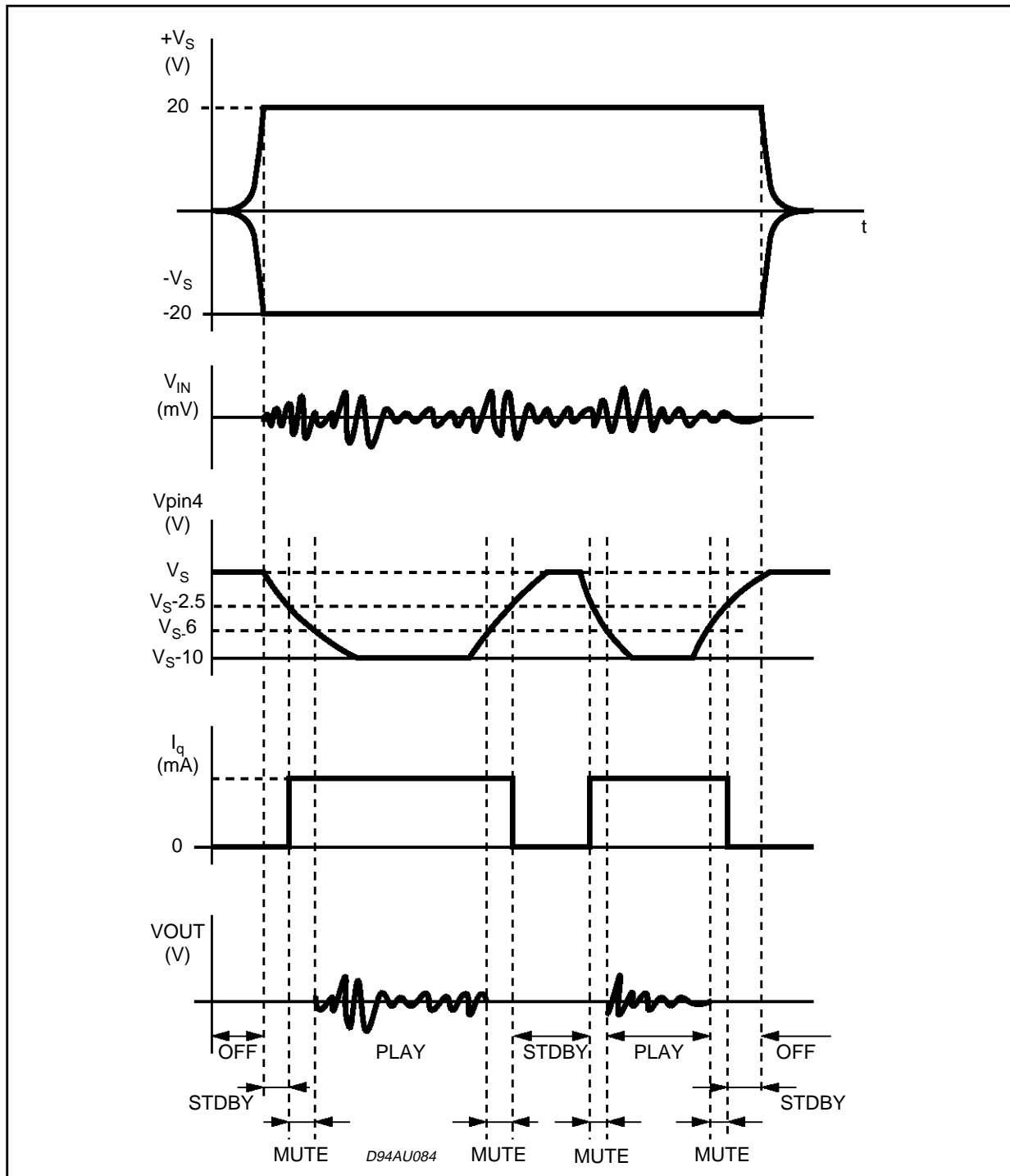
MUTE STAND-BY FUNCTION

The pin 4 (MUTE/STAND-BY) controls the amplifier status by two different thresholds, referred to +Vs.

- When V_{pin4} higher than $= +V_s - 2.5V$ the amplifier is in Stand-by mode and the final stage generators are off

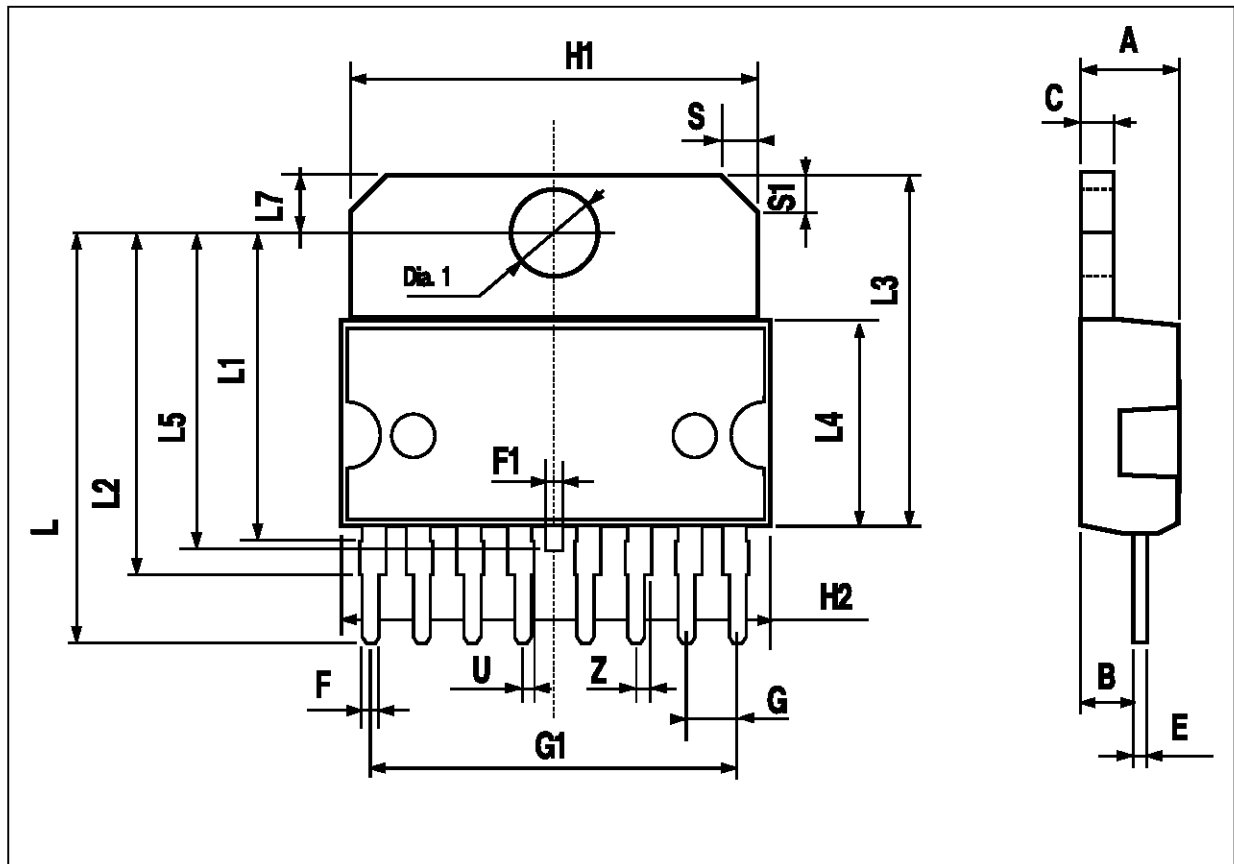
- when V_{pin4} is between $+V_s - 2.5V$ and $+V_s - 6V$ the final stage current generators are switched on and the amplifier is in mute mode
- when V_{pin4} is lower than $+V_s - 6V$ the amplifier is play mode.

Figure 4: Attenuation & Total Quiescent Current vs. V_{pin4} Voltage



MULTIWATT8 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 |
| E | 0.49 | | 0.55 | 0.019 | | 0.022 |
| F | 0.78 | | 0.85 | 0.030 | | 0.033 |
| F1 | 0.68 | | 0.75 | 0.027 | | 0.029 |
| G | 2.40 | 2.54 | 2.68 | 0.094 | 0.10 | 0.105 |
| G1 | 17.64 | 17.78 | 17.92 | 0.69 | 0.70 | 0.71 |
| H1 | 19.6 | | | 0.772 | | |
| H2 | | | 20.2 | | | 0.795 |
| L | 20.35 | | 20.65 | 0.80 | | 0.81 |
| L1 | | 15.7 | | | 0.62 | |
| L2 | 17.05 | 17.20 | 17.35 | 0.67 | 0.68 | 0.68 |
| 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 |
| L5 | 15.45 | | 15.75 | 0.61 | | 0.62 |
| L7 | 2.65 | | 2.9 | 0.104 | | 0.114 |
| S | 1.9 | | 2.6 | 0.075 | | 0.102 |
| S1 | 1.9 | | 2.6 | 0.075 | | 0.102 |
| U | 0.40 | | 0.55 | 0.015 | | 0.022 |
| Z | 0.70 | | 0.85 | 0.028 | | 0.034 |
| Dia1 | 3.65 | | 3.85 | 0.144 | | 0.152 |



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