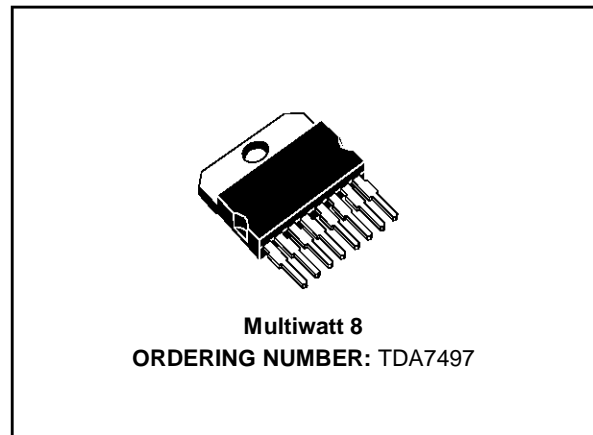


## 10 + 10W STEREO AMPLIFIER WITH MUTE/ST-BY

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

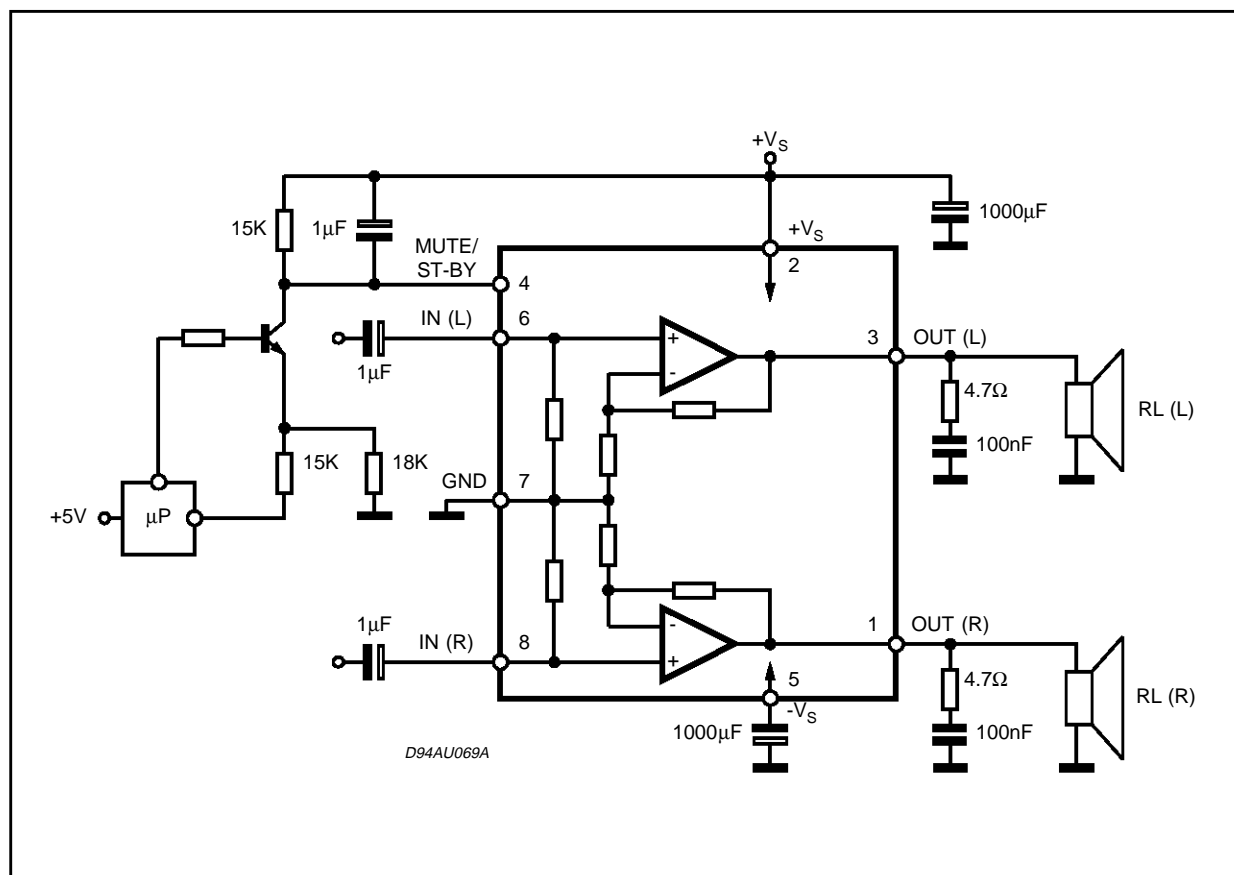


### DESCRIPTION

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.

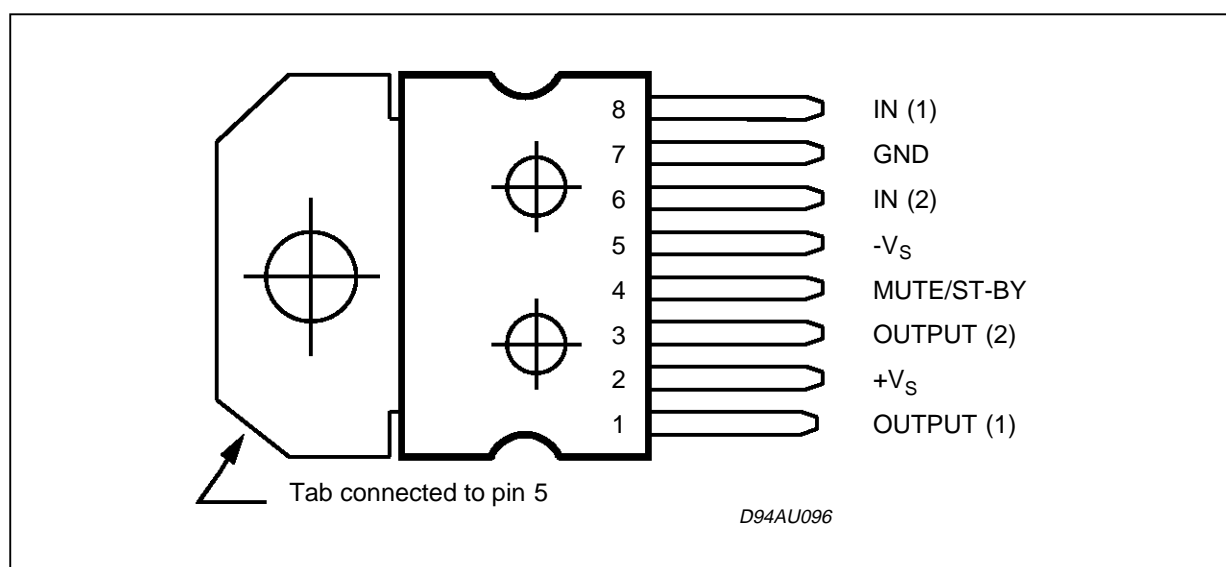
**Figure 1:** Typical Application Circuit



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	DC Supply Voltage	$\pm 22$	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		$\pm 5$		$\pm 20$	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/ $\mu s$
$G_V$	Closed Loop Voltage Gain		29	30	31	dB
$\Delta G_V$	Voltage Gain Matching			0.2		dB
$e_N$	Total Input Noise	A Curve $f = 20Hz$ to $22KHz$		2.5 3.5	8	$\mu V$ $\mu V$
$R_i$	Input Resistance		15	20		K $\Omega$
SVR	Supply Voltage Rejection (each channel)	$f_r = 100Hz$ ; $V_{ripple} = 0.5V_{RMS}$		60		dB
$T_j$	Thermal Shut-down Junction Temperature			145		$^\circ C$
<b>MUTE FUNCTION [ref: +Vs]</b>						
$VT_{MUTE}$	Mute / Play Threshold		-7	-6	-5	V
$A_M$	Mute Attenuation		60	90		dB
<b>STAND-BY FUNCTION [ref: +Vs]</b>						
$VT_{ST-BY}$	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 $\Omega$	Mute Circuit	Increase of $D_z$ Biasing Current	
R2	15K $\Omega$	Mute Circuit	$V_{pin\ #\ 4}$ Shifted Downward	$V_{pin\ #\ 4}$ Shifted Upward
R3	18K $\Omega$	Mute Circuit	$V_{pin\ #\ 4}$ Shifted Upward	$V_{pin\ #\ 4}$ Shifted Downward
R4	15K $\Omega$	Mute Circuit	$V_{pin\ #\ 4}$ Shifted Upward	$V_{pin\ #\ 4}$ Shifted Downward
R5, R6	4.7 $\Omega$	Frequency Stability	Danger of Oscillations	Danger of Oscillations
C1, C2	1 $\mu F$	Input DC Decoupling		Higher Low Frequency Cutoff
C3	1 $\mu F$	St-By/Mute Time Constant	Larger On/Off Time	Smaller On/Off Time
C4, C6	1000 $\mu F$	Supply Voltage Bypass		Danger of Oscillations
C5, C7	0.1 $\mu F$	Supply Voltage Bypass		Danger of Oscillations
C8, C9	0.1 $\mu F$	Frequency Stability		
$D_z$	5.1V	Mute Circuit		

Figure 2: Application circuit

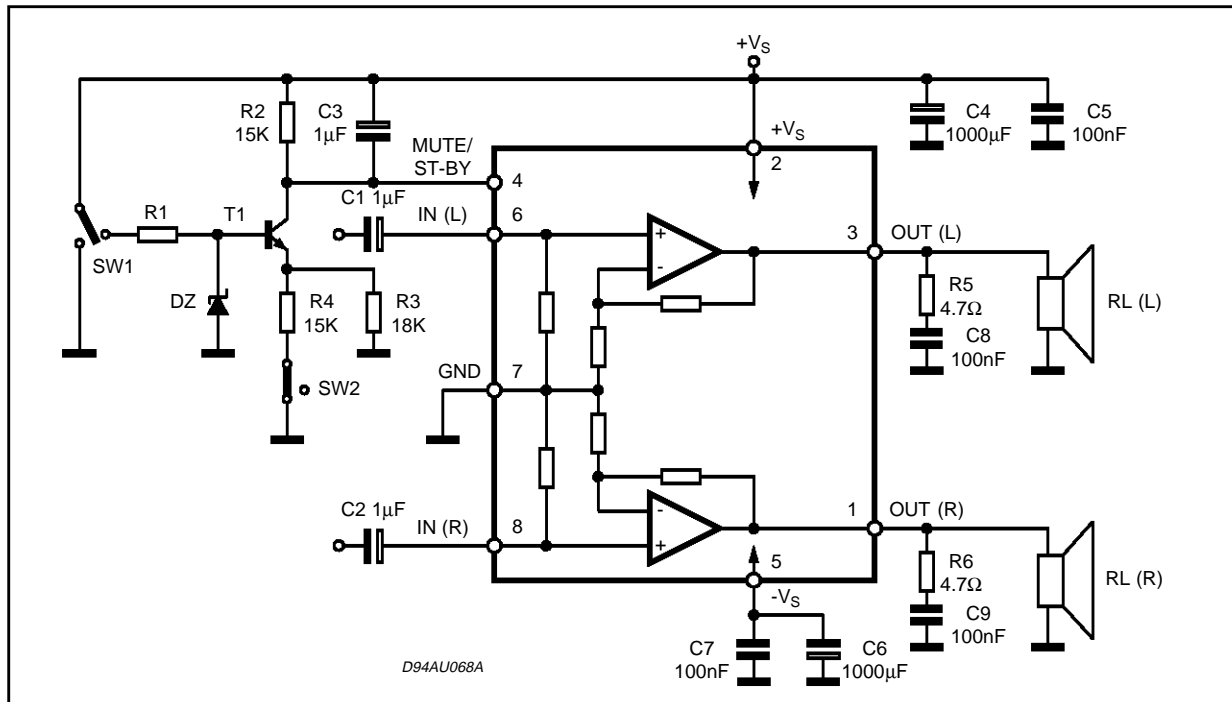
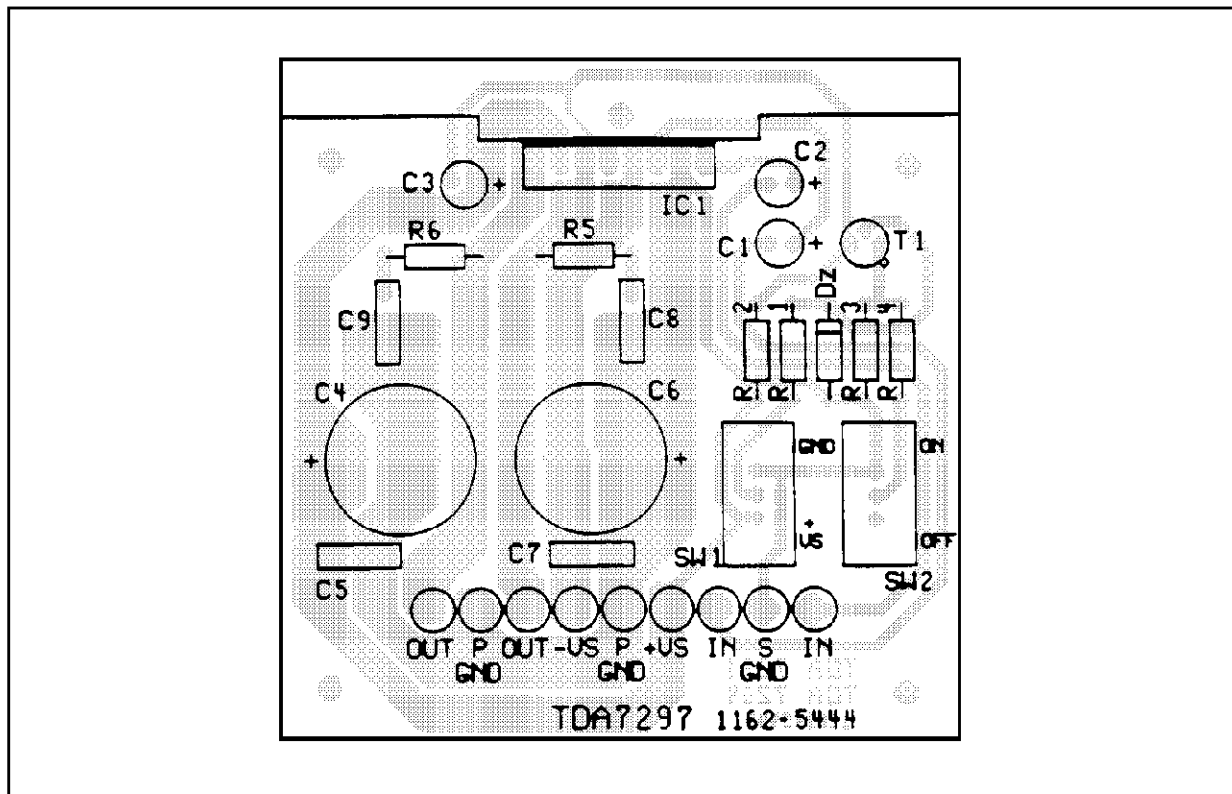


Figure 3: Demo Board Schematic

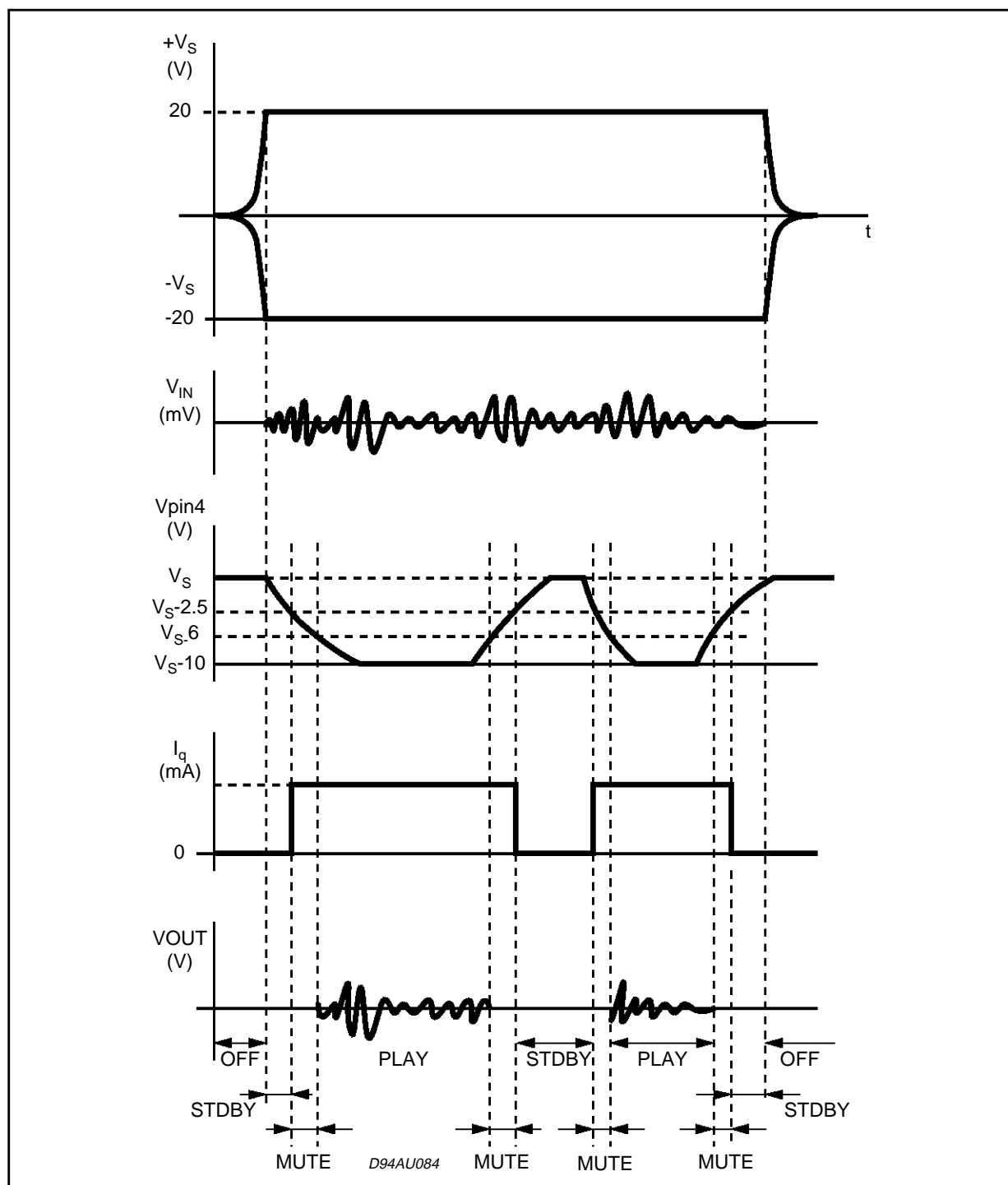


**MUTE STAND-BY FUNCTION**

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

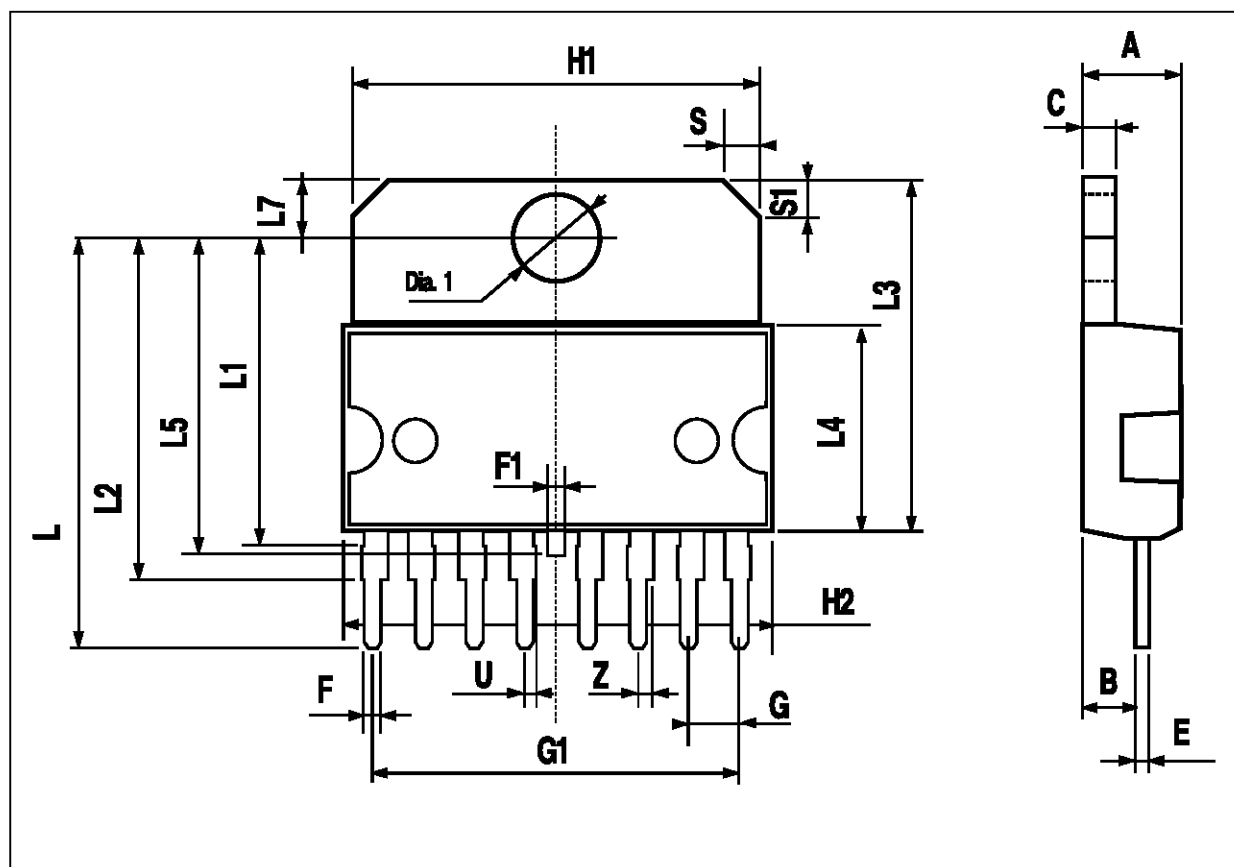
- When  $V_{pin4}$  higher than  $+V_S - 2.5V$  the amplifier is in Stand-by mode and the final stage generators are off
- when  $V_{pin4}$  is between  $+V_S - 2.5V$  and  $+V_S - 6V$  the final stage current generators are switched on and the amplifier is in mute mode
- when  $V_{pin4}$  is lower than  $+V_S - 6V$  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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