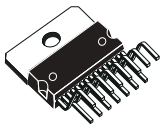
TDA7495S

11W +11W AMPLIFIER

- 11+11W OUTPUT POWER
- RL = 8. @THD = 10% VCC = 28V
- ST-BY AND MUTE FUNCTIONS
- LOW TURN-ON TURN-OFF POP NOISE
- NO BOUCHEROT CELL
- NO ST-BY RC INPUT NETWORK
- SINGLE SUPPLY RANGING UP TO 35V
- SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION
- INTERNALLY FIXED GAIN
- SOFT CLIPPING
- MULTIWATT 15 PACKAGE

MULTIPOWER BI50II TECHNOLOGY



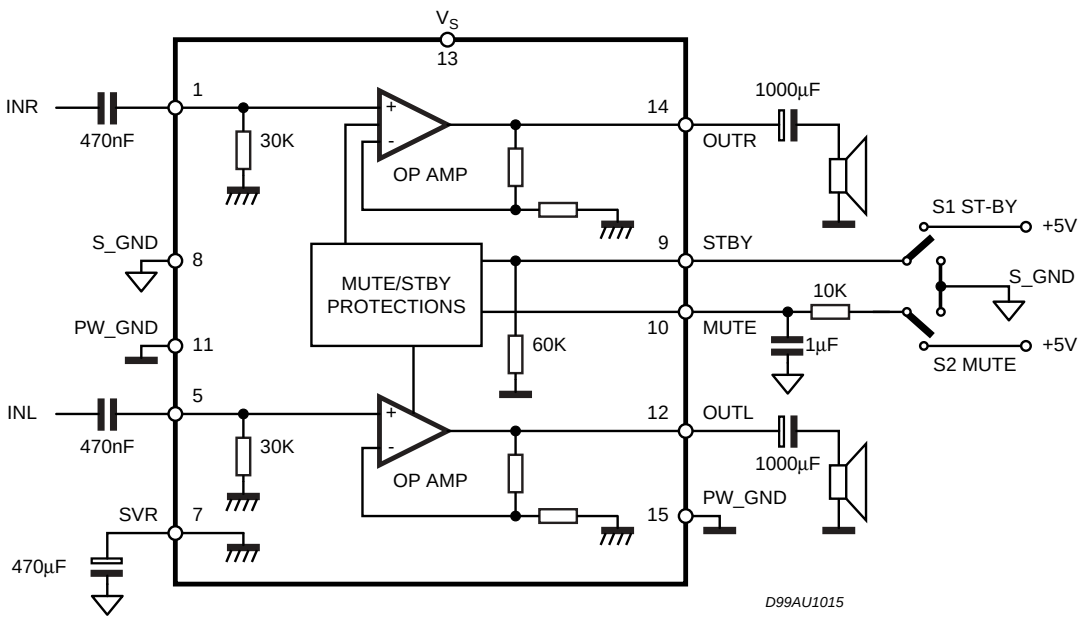
Multiwatt 15
ORDERING NUMBER: TDA7495S

DESCRIPTION

The TDA7495S is a stereo 11+11W class AB power amplifier assembled in the @ Multiwatt 15 package, specially designed for high quality sound, TV applications.

Features of the TDA7495S include linearStand-by and mute functions.

BLOCK AND APPLICATION CIRCUIT

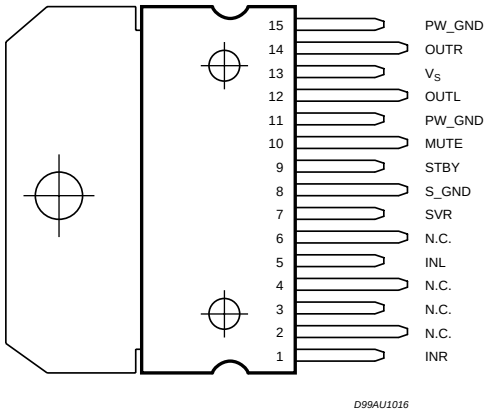


ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	DC Supply Voltage	40	V
V_{IN}	Maximum Input Voltage	8	Vpp
P_{tot}	Total Power Dissipation (T_{amb} = 70°C)	20	W
T_{amb}	Ambient Operating Temperature (1)	-20 to 85	°C
T_{stg},T_J	Storage and Junction Temperature	-40 to 150	°C

(1) Operation between -20 to 85 °C guaranteed by correlation with 0 to 70°C.

PIN CONNECTION (top view)



THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j\text{-}case}$	Thermal Resistance junction-case	Typ. = 2; Max. = 2.8	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance junction-ambient	max 35	°C/W

ELECTRICAL CHARACTERISTCS (Refer to the test circuit Vs = 20V; RL = 8Ω, Rg = 50Ω, Tamb = 25°C)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Voltage Range		11		35	V
I_q	Total Quiescent Current			70	100	mA
DCV_{os}	Output DC Offset Referred to SVR Potential	No Input Signal	-750		750	mV
V_O	Quiescent Output Voltage		8.5	10	11.5	V
P_O	Output Power	THD = 10%; R_L = 8Ω;V_S = 28V THD = 1%; R_L = 8Ω; V_S = 28V	9.5 7.5	11 8.8		W W
		THD = 10%; R_L = 4Ω; V_S = 20V THD = 1%; R_L = 4Ω; V_S = 20V	7 5	8.7 6.8		W W
		THD = 10%; R_L = 8Ω;V_S = 18V THD = 1%; R_L = 8Ω; V_S = 18V	3.5 2.2	4 3.2		W W

ELECTRICAL CHARACTERISTCS (Refer to the test circuit Vs = 20V; RL = 8Ω, Rg = 50Ω, Tamb = 25°C)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
THD	Total Harmonic Distortion	G_v = 30dB; P_O = 1W; f = 1KHz			0.4	%
I_{peak}	Output Peak Current	(internally limited)	1.7	2.4		A
V_{IN}	Input Signal				2.8	Vrms
G_V	Closed Loop Gain		28.5	30	31.5	dB
BW				0.6		MHz
e_N	Total Output Noise	f = 20Hz to 22KHz PLAY,		500	800	µV
		f = 20Hz to 22KHz MUTE		60	150	µV
SR	Slew Rate		5	8		V/µs
R_i	Input Resistance		22.5	30		KΩ
SVR	Supply Voltage Rejection	f = 1KHz; max volume C_{SVR} = 470µF; V_{RIP} = 1Vrms	35	39		dB
		f = 1KHz; max attenuation C_{SVR} = 470µF; V_{RIP} = 1Vrms	55	65		dB
T_M	Thermal Muting			150		°C
T_S	Thermal Shut-down			160		°C
MUTE & INPUT SELECTION FUNCTIONS						
V_{ST-BY}	Stand-by ON Threshold		2.3	2.5	2.7	V
V_{MUTE}	Mute Threshold		2.3	2.5	2.7	V
I_{qST-BY}	Quiescent Current @ Stand-by			0.6	1	mA
A_{MUTE}	Mute Threshold		50	65		V
$I_{stbyBIAS}$	Stand-by bias current	Stand by ON: V_{ST-BY} = 5V; V_{mute} = 5V		80		µA
		Play or Mute	-20	-5		µA
$I_{muteBIAS}$	Mute Bias Current	Mute		1	5	µA
		Play		0.2	2	µA

Figure 1. Application circuit

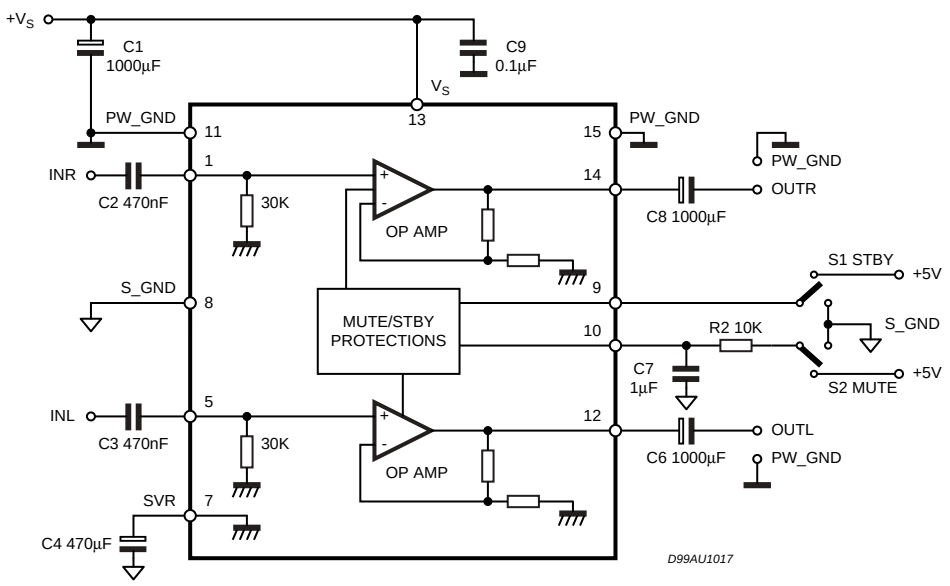
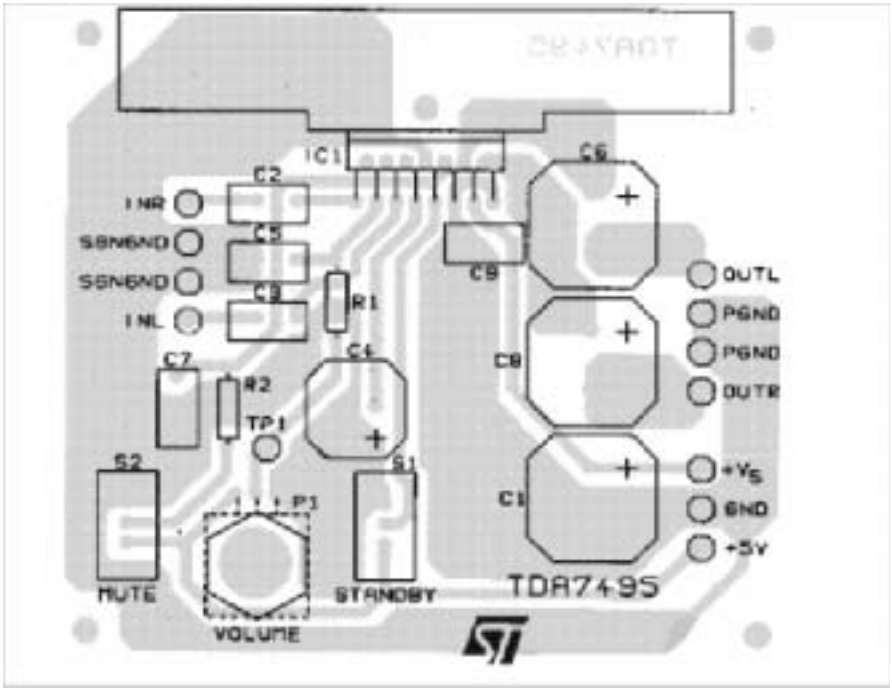


Figure 2. PCB and Component Layout



APPLICATION SUGGESTIONS

The recommended values of the external components are those shown on the application circuit of figure 1. Different values can be used, the following table can help the designer.

COMPONENT	SUGGESTION VALUE	PURPOSE	LARGER THAN SUGGESTION	SMALLER THAN SUGGESTION
R2	10K	Mute time constant	Larger mute on/off time	Smaller mute on/off time
C1	1000µF	Supply voltage bypass		Danger of oscillation
C2	470nF	Input DC decoupling	Lower low frequency cutoff	Higher low frequency cutoff
C3	470nF	Input DC decoupling	Lower low frequency cutoff	Higher low frequency cutoff
C4	470µF	Ripple rejection	Better SVR	Worse SVR
C6	1000µF	Output DC decoupling	Lower low frequency cutoff	Higher low frequency cutoff
C7	1µF	Mute time constant	Larger mute on/off time	Smaller mute on/off time
C8	1000µF	Output DC decoupling	Lower low frequency cutoff	Higher low frequency cutoff
C9	100nF	Supply voltage bypass		Danger of oscillation

TYPICAL CHARACTERISTICS:

Refer to the application circuit of fig.1A T_{amb} = 25°C; V_S = 20V; R_L = 8Ω; f = 1KHz; R_S = 50Ω; unless otherwise specified.

Figure 3. Output Power vs Supply Voltage

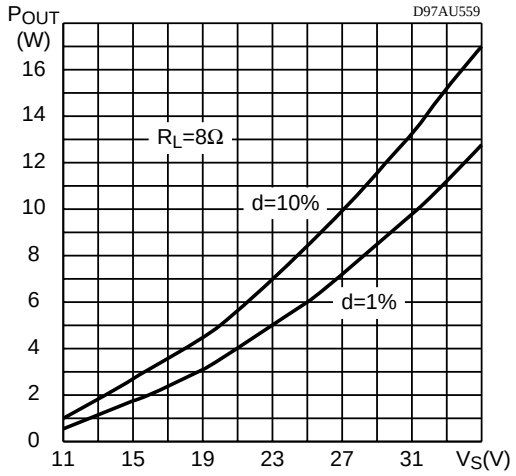


Figure 4. Distortion vs Output Power

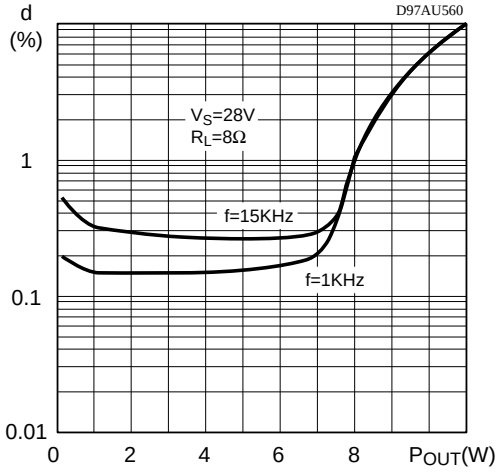


Figure 5. Output Power vs Supply Voltage

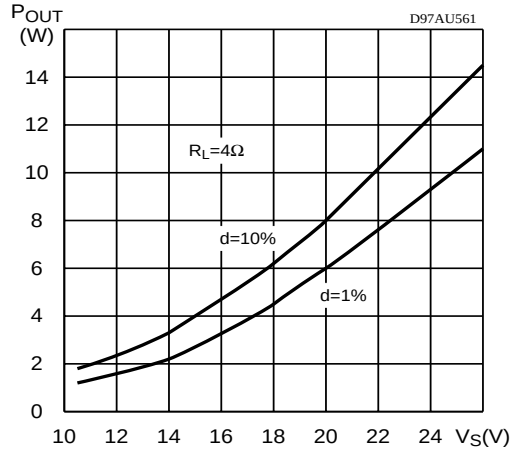


Figure 6. Distortion vs Output Power

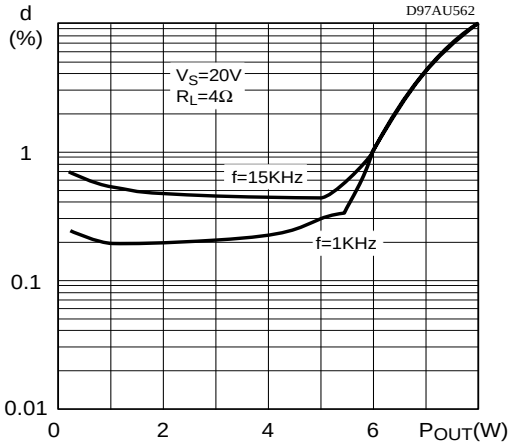


Figure 7. Stand-by Attenuation vs Vpin #9

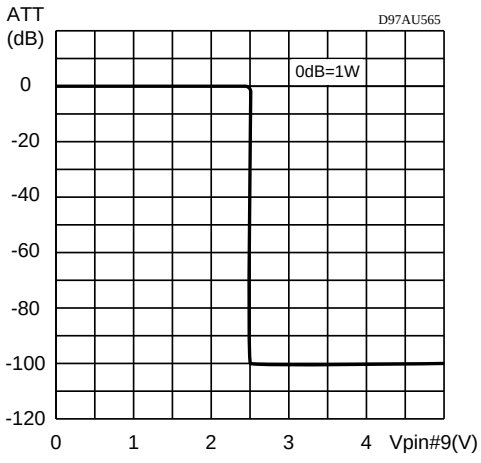


Figure 8. Mute Attenuation vs V pin #10

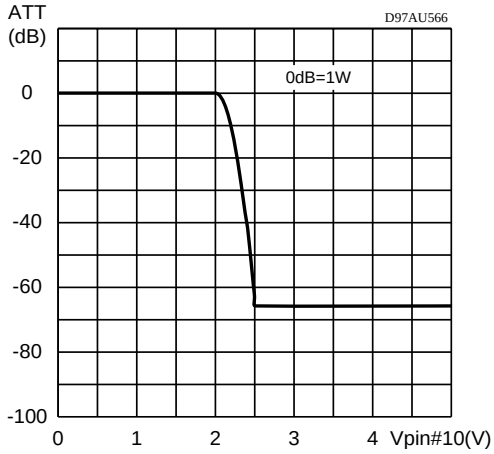


Figure 9. Power dissipation vs Output Power

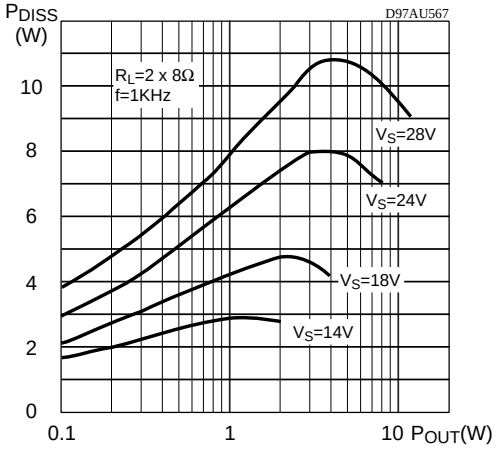
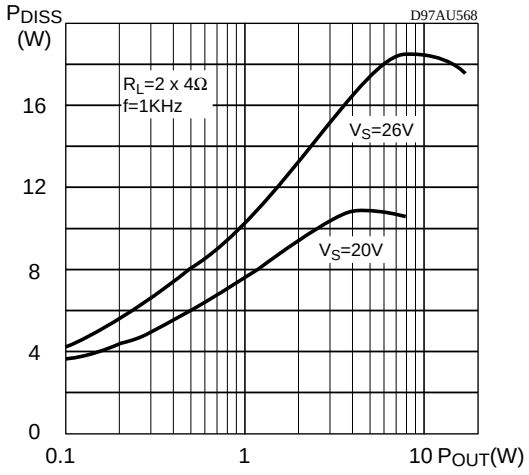


Figure 10. Power dissipation vs Output Power

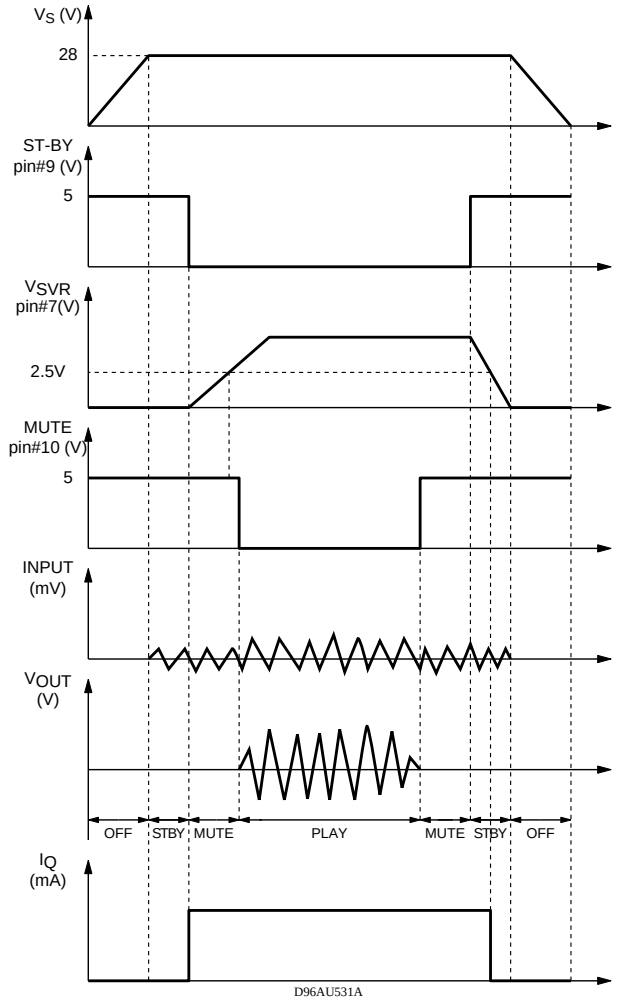


MUTE STAND-BY TRUTH TABLE

MUTE	St-BY	OPERATING CONDITION
H	H	STAND-BY
L	H	STAND-BY
H	L	MUTE
L	L	PLAY

Turn ON/OFF Sequences (for optimizing the POP performances)

A) USING ONLY THE MUTE FUNCTION



B) USING ONLY THE MUTE FUNCTION

To semplify the application, the stand-by pin can be connected directly to Ground. During the ON/OFF transitions is recommended to respect the following conditions:

– At the turn-on the transition mute to play must be made when the SVR pin is higher than 2.5V

– At the turn-off the TDA7495S must be brought to mute from the play condition when the SVR pin is higher than 2.5V.

Figure 11. PINS: INL, INR

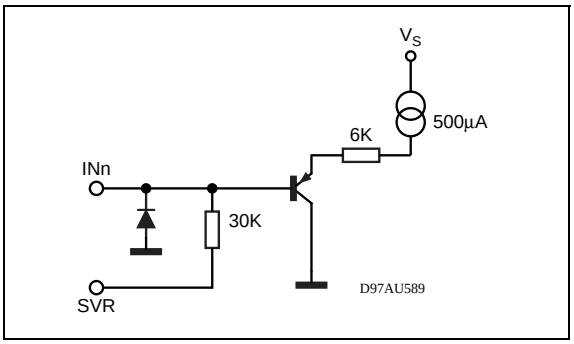


Figure 12. PINS: PW-GND, S-GND

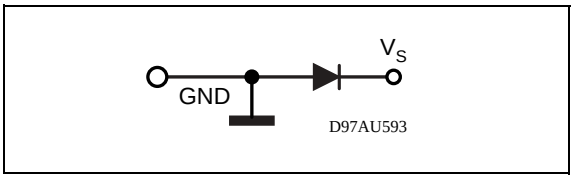


Figure 13. PIN: STBY

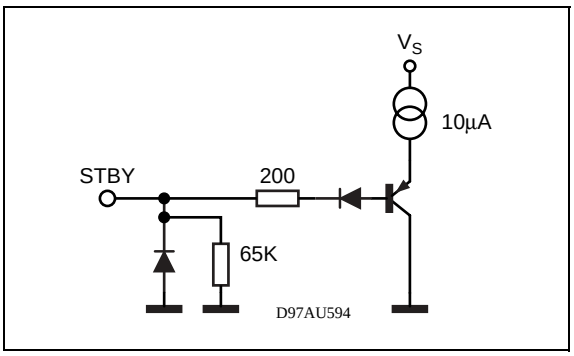


Figure 14. PIN :MUTE

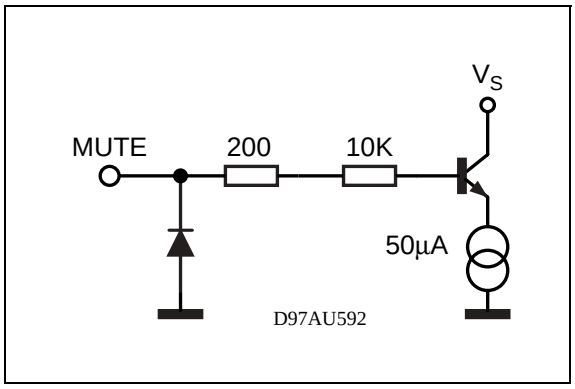


Figure 15. PINS: OUT R, OUT L

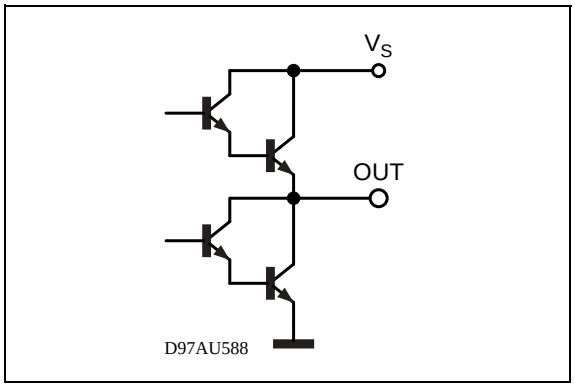
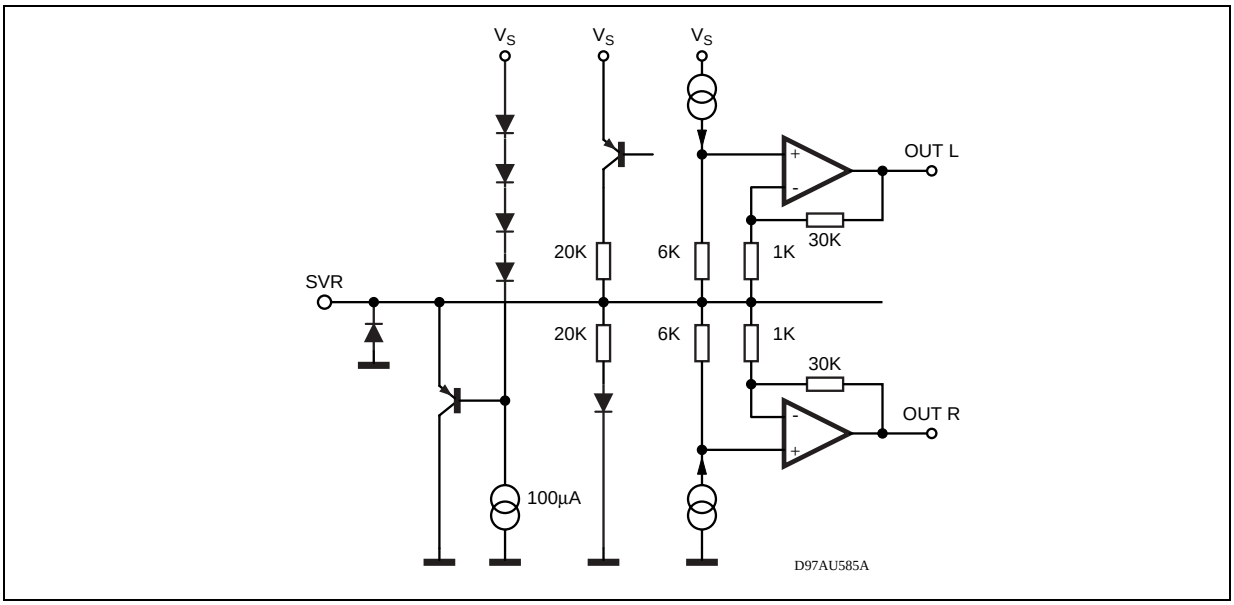
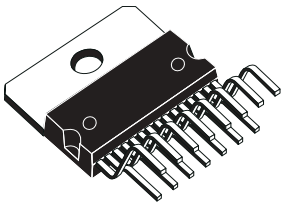


Figure 16. PIN: SVR

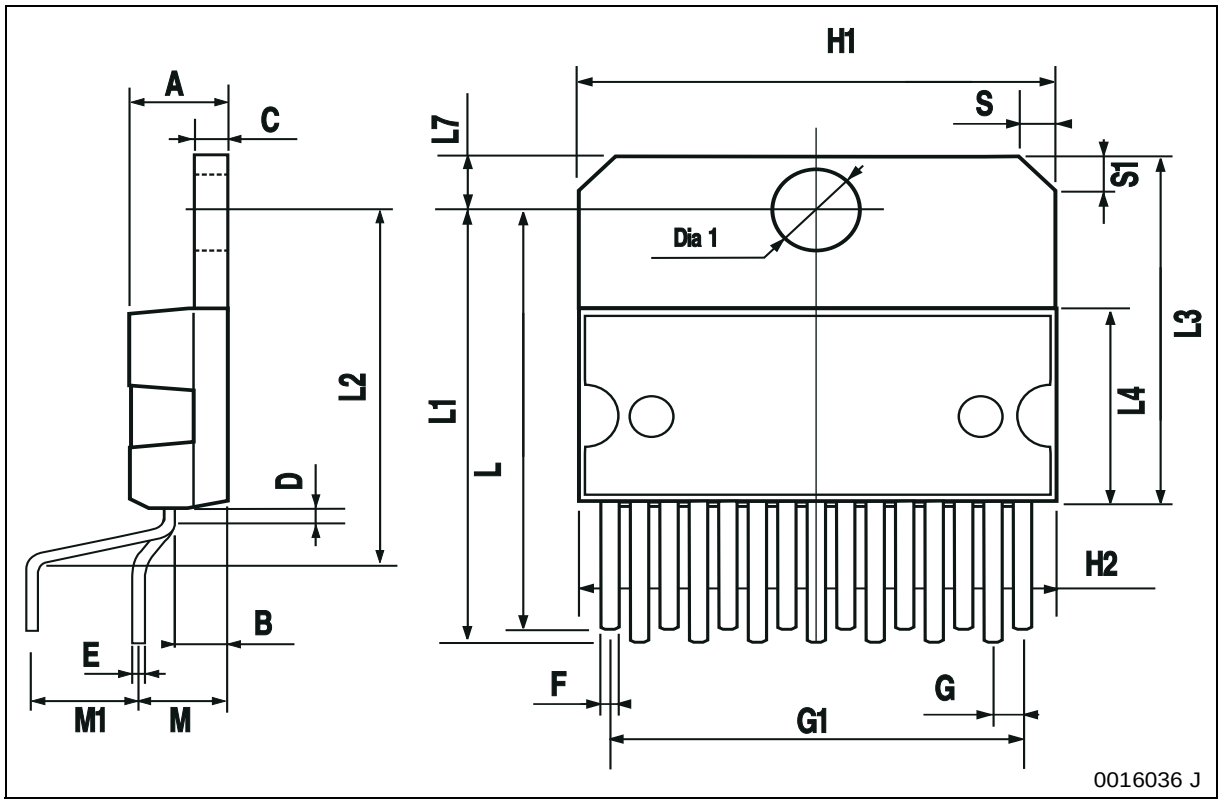


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A5						0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.66		0.75	0.026		0.030
G	1.02	1.27	1.52	0.040	0.050	0.060
G1	17.53	17.78	18.03	0.690	0.700	0.710
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.87	0.886
L2	17.65		18.1	0.695		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	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.73	5.08	5.43	0.186	0.200	0.214
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

OUTLINE AND MECHANICAL DATA



Multiwatt15 (Vertical)



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