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# TDA7299

## SOUND 2W MONO AMPLIFIER

- CAN DELIVER 2W THD 10% 12V/8Ω
- INTERNAL FIXED GAIN 20dB
- NO BOUCHEROT CELL
- THERMAL PROTECTION
- AC SHORT CIRCUIT PROTECTION
- SVR CAPACITOR FOR BETTER RIPPLEREJECTION
- LOW TURN-ON/OFF POP
- STAND-BY MODE



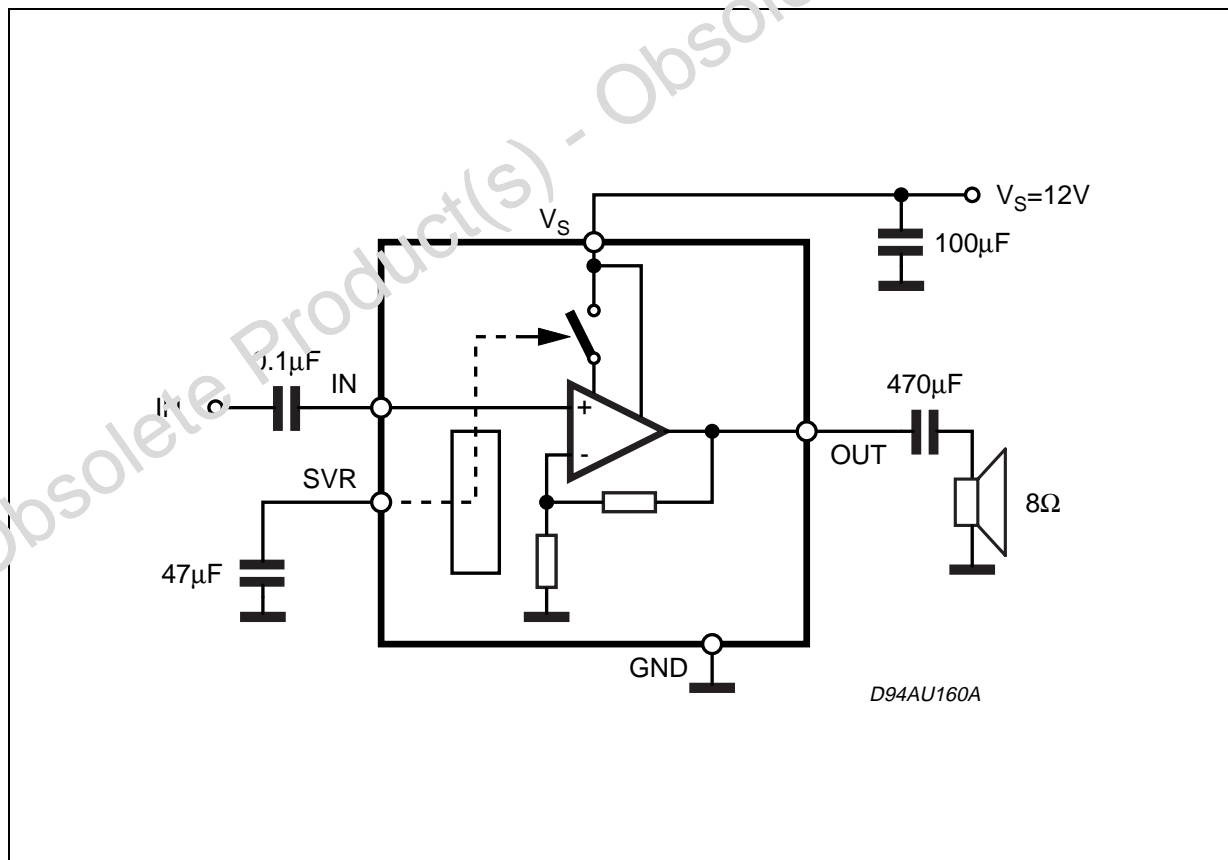
### DESCRIPTION

The device TDA7299 is a new technology Mono Audio Amplifier in SO package specially designed for 12V sound cards application.

Thanks to the fully complementary output configura-

tion the device delivers a rail voltage swing without need of bootstrap capacitors.

### BLOCK DIAGRAM

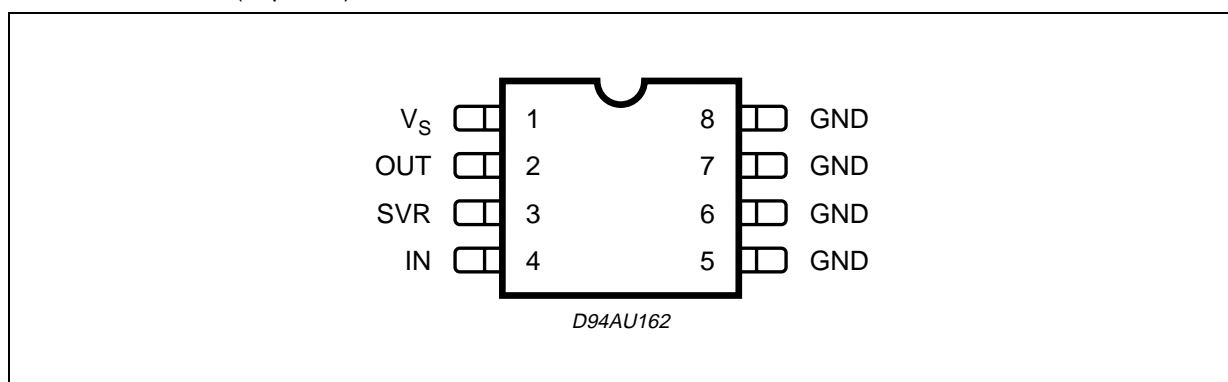


## TDA7299

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	Operating Supply Voltage	18	V
$I_O$	Output Put Peak Current	1.5	A
$T_{op}$	Operating Temperature Range	0 to 70	°C
$T_j$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature Range	-40 to 125	°C

### PIN CONNECTION (Top view)



### THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j-amb}$	Thermal Resistance Junction to ambient (on PCB)	80	°C/W
$R_{th\ j-case}$	Thermal Resistance Junction to case	20	°C/W

### ELECTRICAL CHARACTERISTICS

( $T_{amb} = 25^{\circ}C$ ;  $V_S = 12V$ ;  $R_L = 8\Omega$ ;  $f = 1KHz$ ; unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage Range		4.5		18	V
$I_S$	Quiescent Current			20	30	mA
$I_{sb}$	Stand-By Current	Pin 2 shorted to GND			0.3	mA
$V_O$	Quiescent Output Voltage			6		V
$A_V$	Voltage Gain			20		dB
$R_{IN}$	Input Impedance		50	100		K $\Omega$
$P_O$	Output Power	THD = 10%	1.8	2		W
		$R_L = 4\Omega$ , $V_S = 8.5V$ , THD = 10%		2		W

## TDA7299

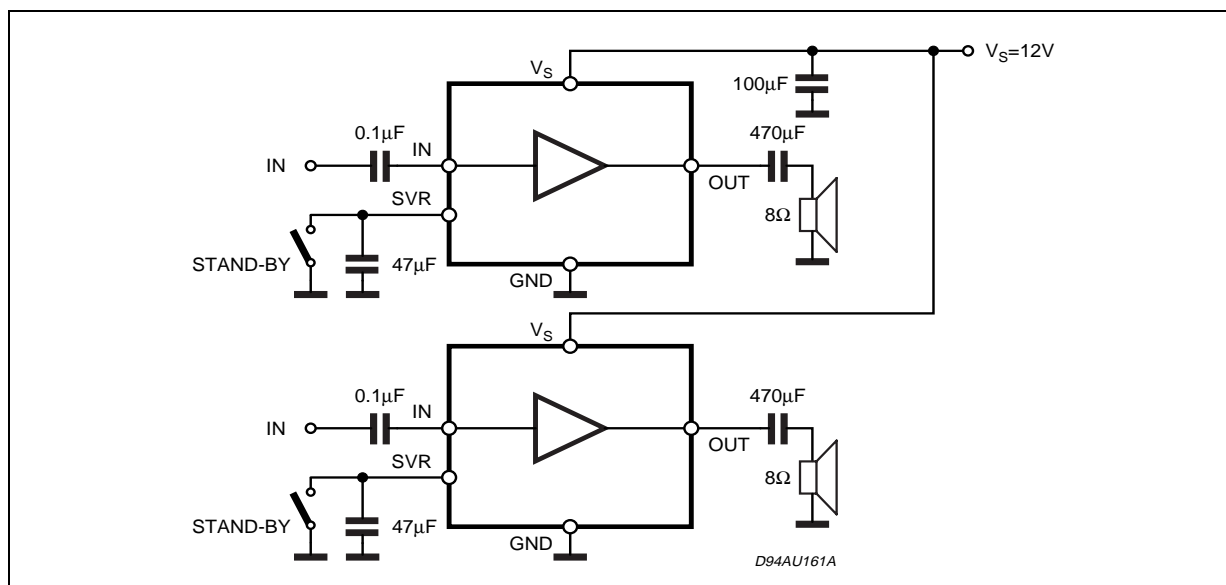
### ELECTRICAL CHARACTERISTICS (continued)

( $T_{amb} = 25^{\circ}\text{C}$ ;  $V_S = 12\text{V}$ ;  $R_L = 8\Omega$ ;  $f = 1\text{KHz}$ ; unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$P_{ot}$	Transient Output Power *)	$V_i = 400\text{mVp}$ , THD < 2%, $R_L = 4\Omega$		2		W
THD	Distortion	$P_O = 1\text{W}$			1	%
SVR	Supply Voltage Rejection	$V_{ripple} = 150\text{mVrms}$ ; $F_{ripple} = 1\text{KHz}$		50		dB
$E_i$	Input Noise Voltage	$R_g = 10\text{K}\Omega$ ; BW = 20Hz to 20KHz		1.5	5	$\mu\text{V}$
$V_{sb}$	Stand-By Enable Voltage				1	V

\*) Limited by the  $R_{TH}$  of the package

Figure 1. Application Circuit



### APPLICATION HINTS:

For 12V supply and 8Ω speaker application, its maximum power dissipation is about 1.8W.

Assuming that max ambient temperature is 70°C, required thermal resistance of the device and heat dissipating means must be equal to  $(150 - 70)/1.8 = 45^{\circ}\text{C/W}$ .

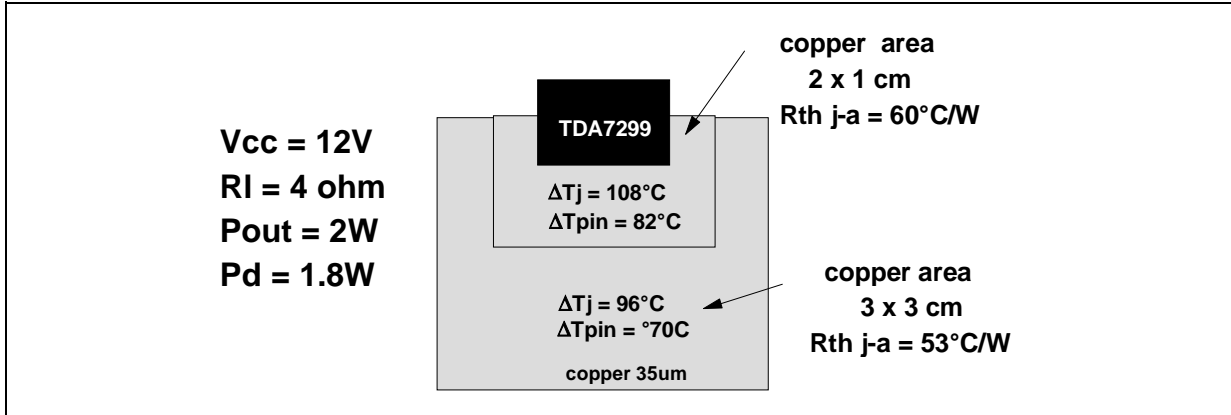
Junction to pin thermal resistance of the package is about 20°C/W. That means external heat sink of about 25°C/W is required.

Cu ground plane of PCB can be used as heat dissipating means.

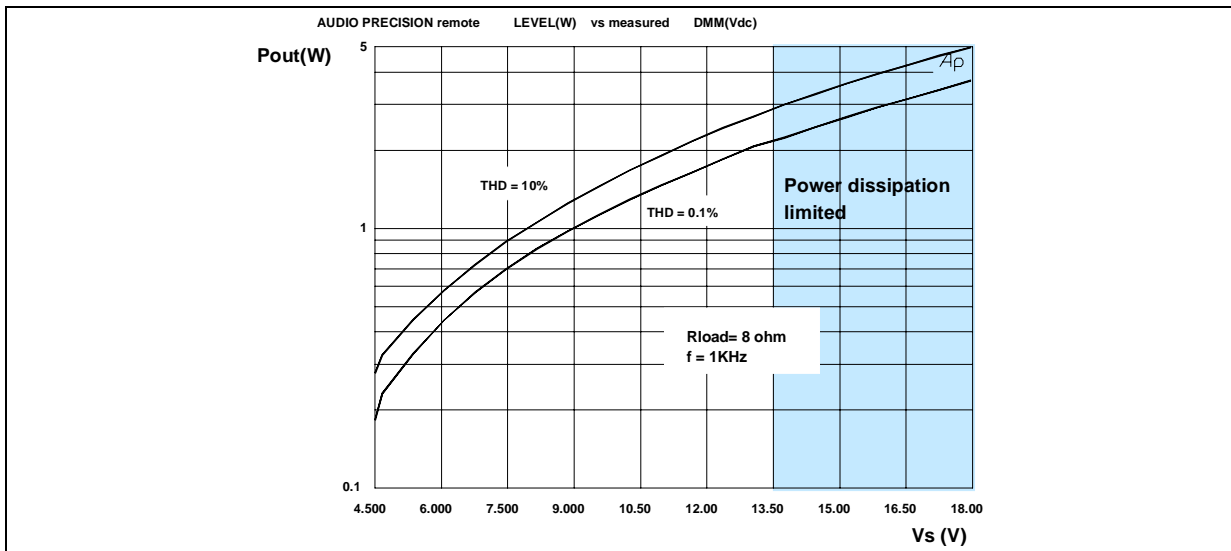
Stand-By switches must be able to discharge  $C_{svr}$  current.

**TDA7299**

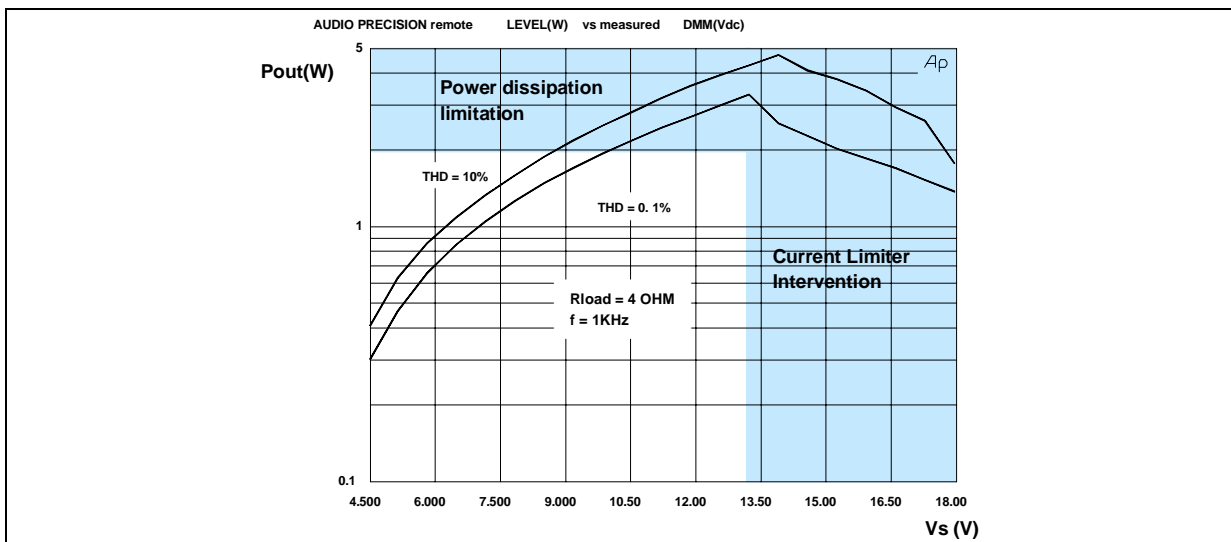
**Figure 2. On Board Copper Area**



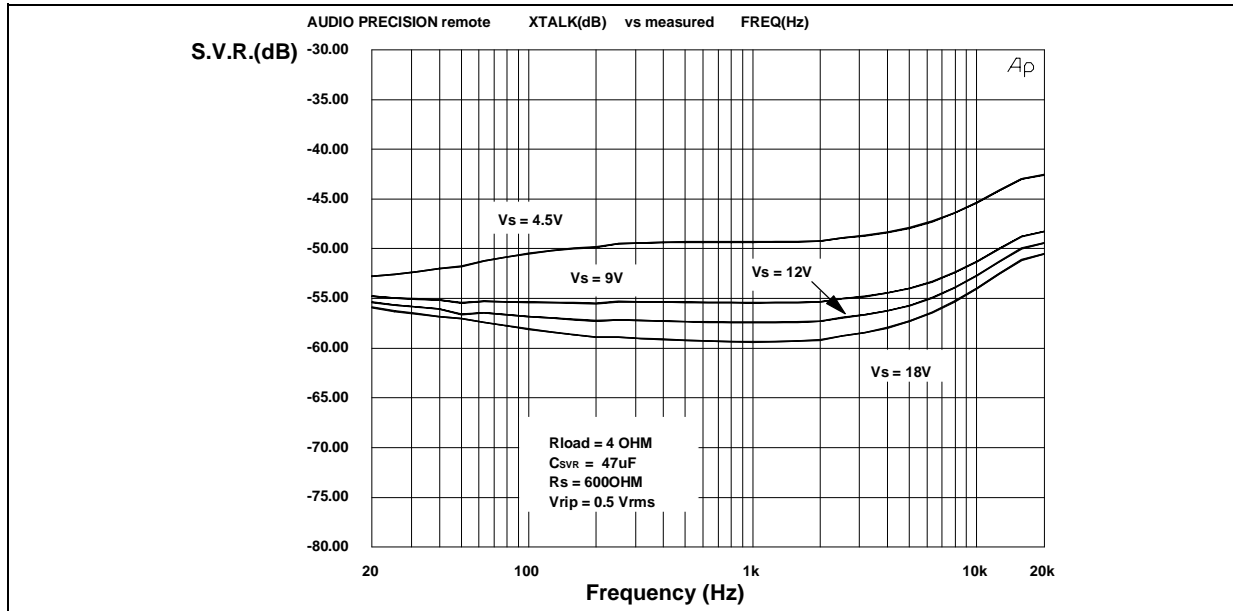
**Figure 3. P<sub>out</sub> vs Supply Voltage (Rload = 8Ω)**



**Figure 4. P<sub>out</sub> vs Supply Voltage (Rload = 4Ω)**



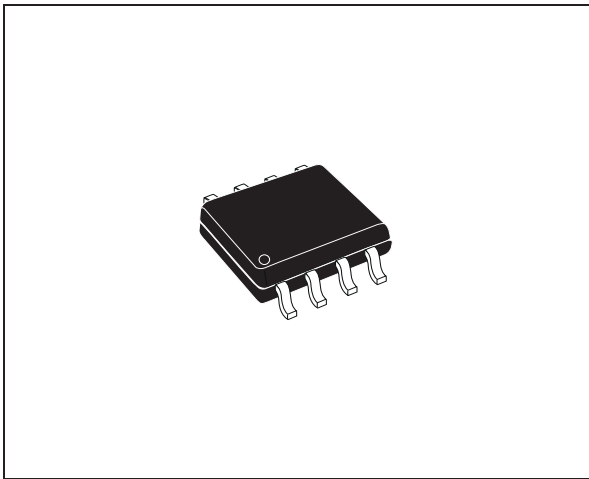
**Figure 5. SVR vs Frequency**



**TDA7299**

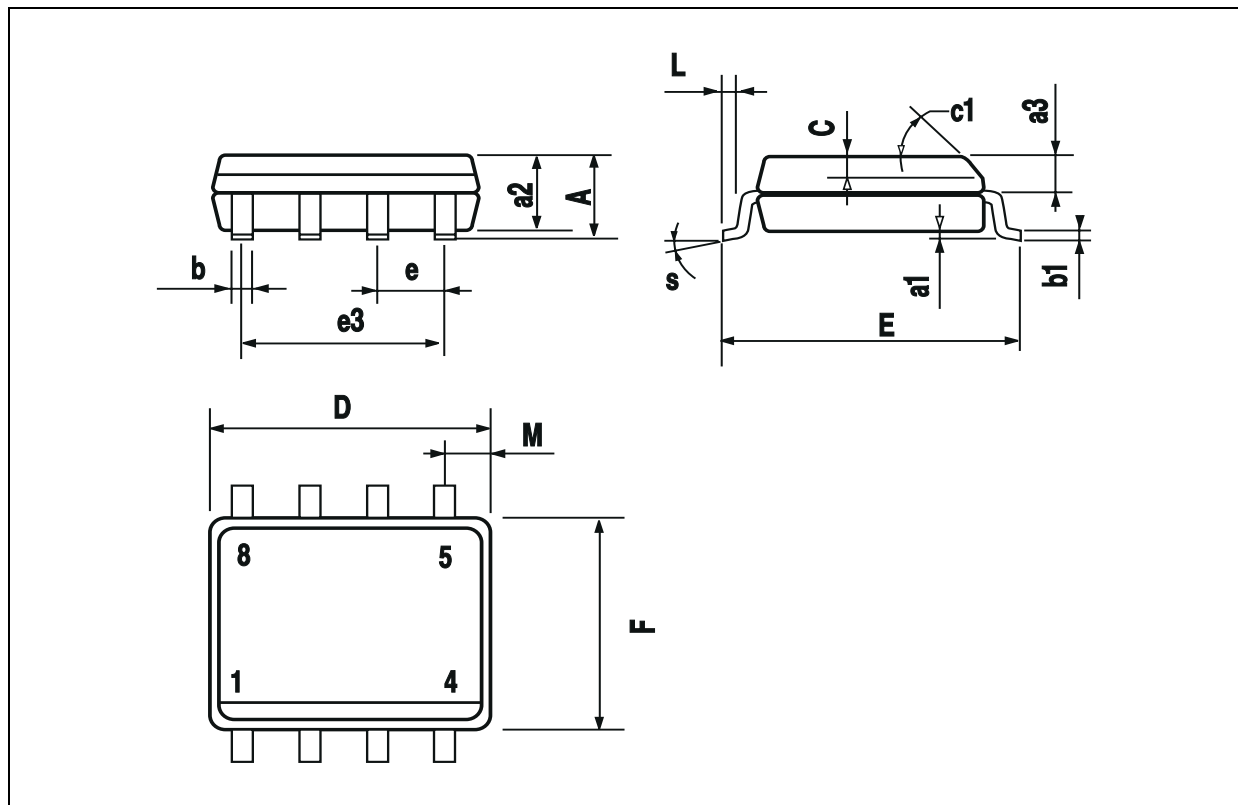
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D (1)	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F (1)	3.8		4.0	0.15		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max.)					

**OUTLINE AND MECHANICAL DATA**



**SO8**

(1) D and F do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.15mm (.006inch).



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