

# 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**

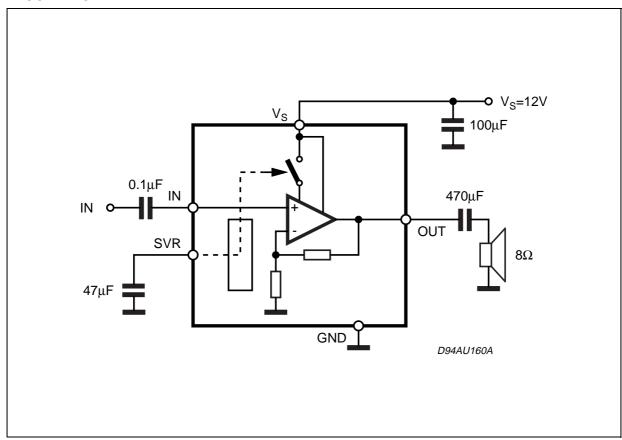
The device TDA7299 is a new technology Mono Audio Amplifier in SO package specially designed for 12V sound cards application.

Thanks to the fully complementary output configura-



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

#### **BLOCK DIAGRAM**

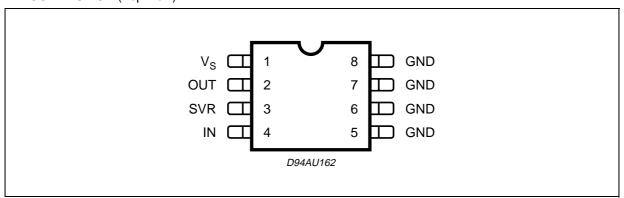


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### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
Vs	Operating Supply Voltage	18	V
Io	Output Put Peak Current	1.5	Α
T <sub>op</sub>	Operating Temperature Range	0 to 70	°C
Tj	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-40 to 125	°C

# PIN CONNECTION (Top view)



### THERMAL DATA

Symbol	Parameter	Value	Unit
R <sub>th j-amb</sub>	Thermal Resistance Junction to ambient (on PCB)	80	°C/W
R <sub>th j-case</sub>	Thermal Resistance Junction to case	20	°C/W

## **ELECTRICAL CHARACTERISTICS**

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

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Vs	Supply Voltage Range		4.5		18	V
IS	Quiescent Current			20	30	mA
I <sub>sb</sub>	Stand-By Current	Pin 2 shorted to GND			0.3	mA
Vo	Quiescent Output Voltage			6		V
A <sub>V</sub>	Voltage Gain			20		dB
R <sub>IN</sub>	Input Impedance		50	100		ΚΩ
Po	Output Power	THD = 10%	1.8	2		W
		$R_L = 4\Omega$ , $V_S = 8.5V$ , THD = 10%		2		W

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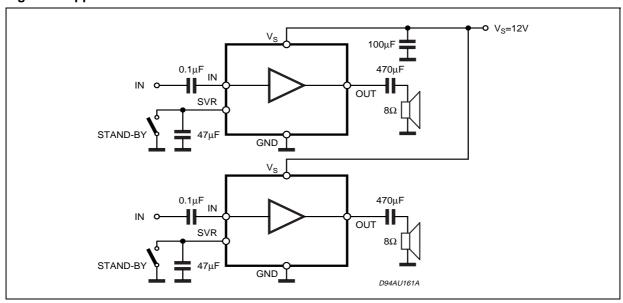
## **ELECTRICAL CHARACTERISTICS** (continued)

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

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Pot	Transient Output Power *)	$V_i$ = 400mVp, THD < 2%, $R_L$ = 4 $\Omega$		2		W
THD	Distortion	P <sub>O</sub> = 1W			1	%
SVR	Supply Voltage Rejection	V <sub>ripple</sub> = 150mVrms; F <sub>ripple</sub> = 1KHz		50		dB
E <sub>I</sub>	Input Noise Voltage	Rg = $10K\Omega$ ; BW = $20Hz$ to $20KHz$		1.5	5	μV
V <sub>sb</sub>	Stand-By Enable Voltage				1	V

<sup>\*)</sup> Limited by the R<sub>TH</sub> of the package

Figure 1. Application Circuit



#### **APPLICATION HINTS:**

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

Assumming that max ambient temperature is  $70^{\circ}$ C. required thermal resistance of the device and heat dissipating means must be equal to  $(150 - 70)/1.8 = 45^{\circ}$ 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<sub>svr</sub> current.

Figure 2. On Board Copper Area

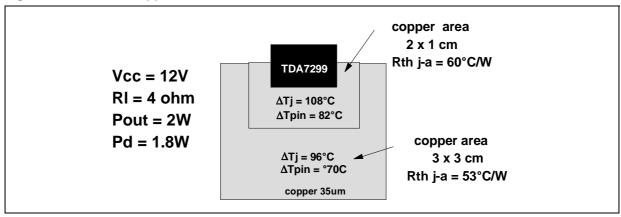


Figure 3.  $P_{out}$  vs Supply Voltage (Rload =  $8\Omega$ )

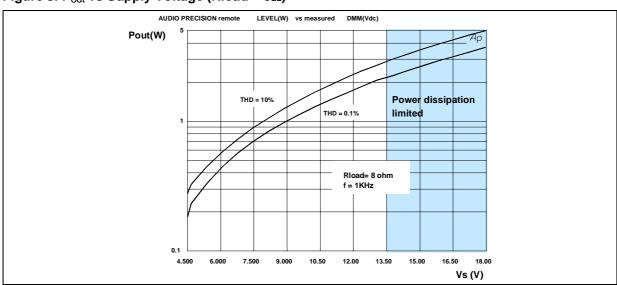
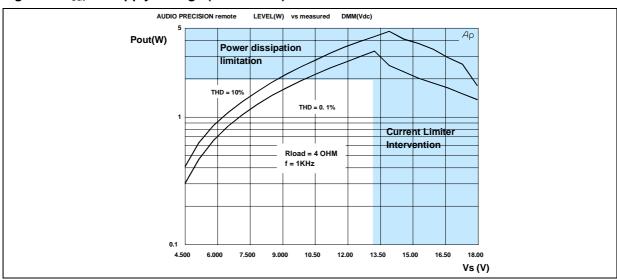
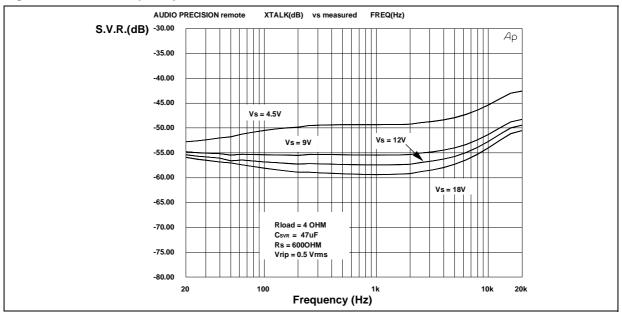


Figure 4.  $P_{\text{out}}$  vs Supply Voltage (Rload =  $4\Omega$ )



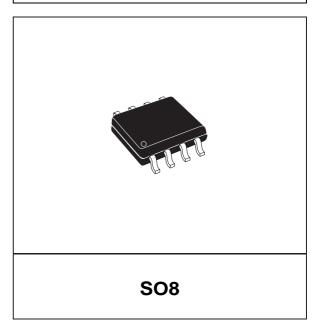
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Figure 5. SVR vs Frequency

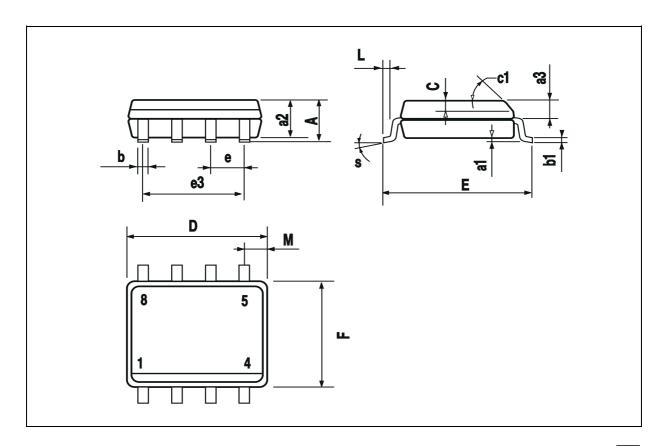


DIM.		mm			inch	
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
Α			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
аЗ	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
С	0.25		0.5	0.010		0.020
c1			45° (	(typ.)		
D (1)	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
е		1.27			0.050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

# OUTLINE AND MECHANICAL DATA



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



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