

# 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

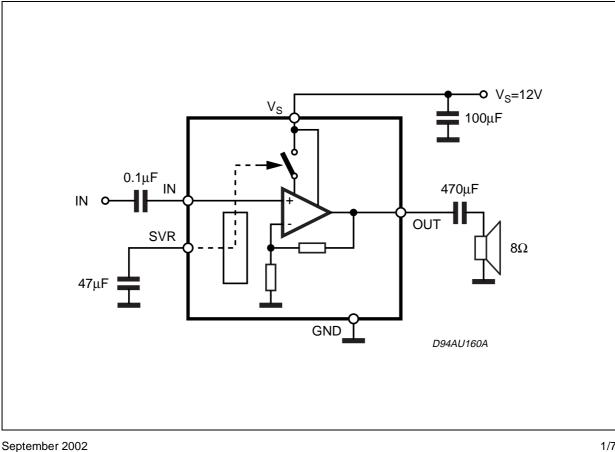
The device TDA7299 is a new technology Mono Audio Amplifier in SO package specially designed for 12V sound cards application.

Thanks to the fully complementary output configura-

#### **BLOCK DIAGRAM**



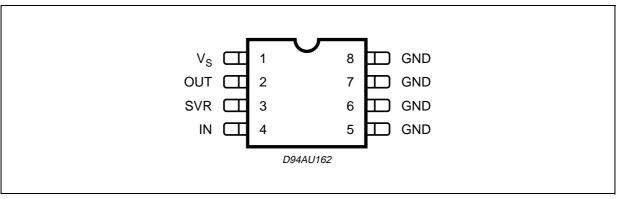
tion the device delivers a rail voltage swing without need of boostrap capacitors.



#### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
Vs	Operating Supply Voltage	18	V
lo	Output Put Peak Current	1.5	А
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**

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

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
VS	Supply Voltage Range		4.5		18	V
I <sub>S</sub>	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		KΩ
Po	Output Power	THD = 10%	1.8	2		W
		$R_L = 4\Omega$ , $V_S = 8.5V$ , THD = 10%		2		W

57

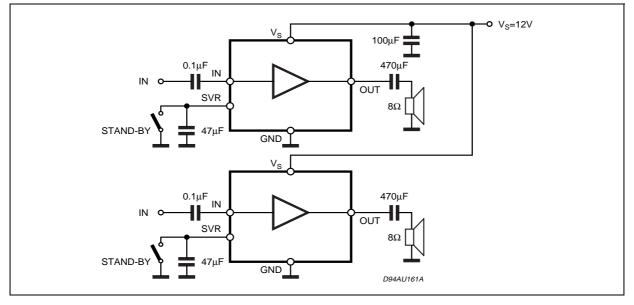
#### ELECTRICAL CHARACTERISTICS (continued)

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

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Unit
Pot	Transient Output Power *)	$V_i$ = 400mVp, THD < 2%, R <sub>L</sub> = 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
EI	Input Noise Voltage	Rg = $10K\Omega$ ; BW = $20Hz$ to $20KHz$		1.5	5	μV
$V_{\text{sb}}$	Stand-By Enable Voltage				1	V

\*) 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°C. required thermal resistance of the device and heat dissipating means must be equal to (150 - 70)/1.8 = 45°C/W.

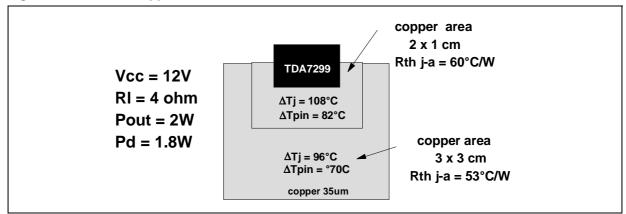
Junction to pin thermal resistance of the package is about 20°C/W. That means external heat sink of about 25°C/W is required.

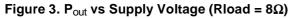
Cu ground plane of PCB can be used as heat dissipating means.

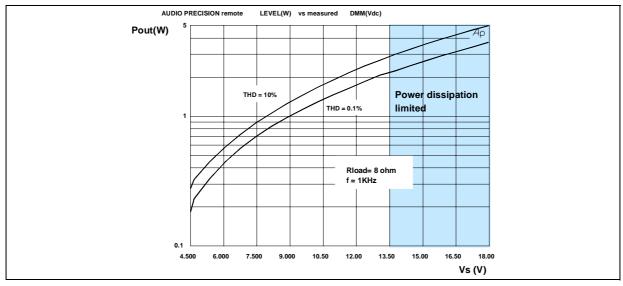
Stand-By switches must be able to discharge  $C_{\mbox{svr}}$  current.



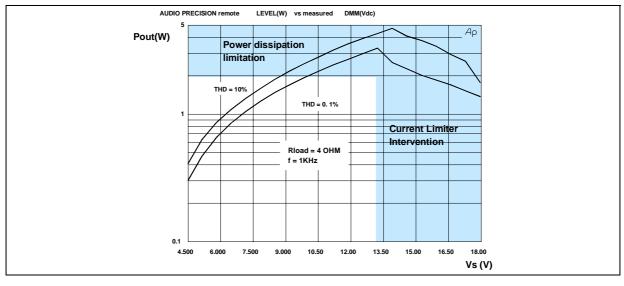
#### Figure 2. On Board Copper Area





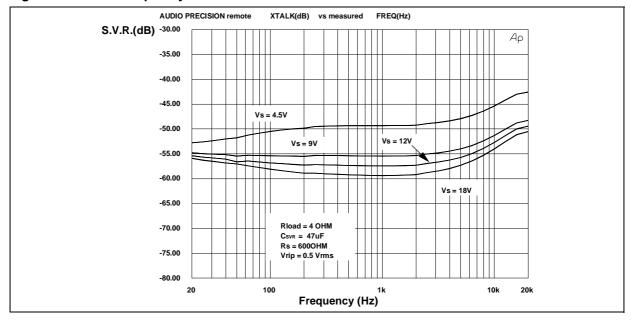




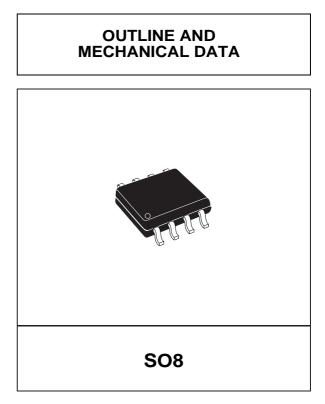


57

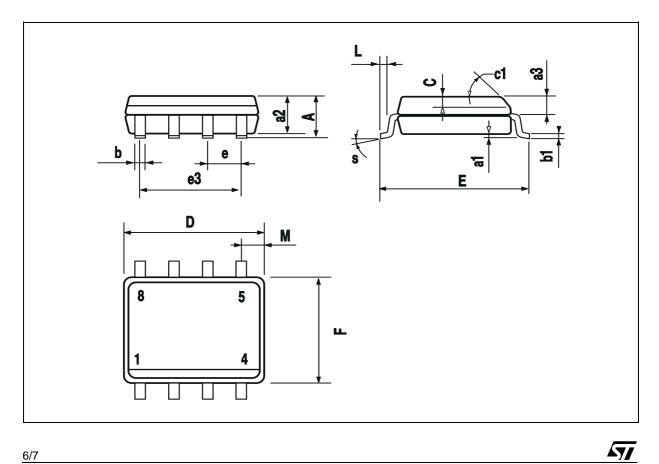
Figure 5. SVR vs Frequency



DIM.	mm			inch			
Dilvi.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
А			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	
С	0.25		0.5	0.010		0.020	
c1			45° (	(typ.)			
D (1)	4.8		5.0	0.189		0.197	
Е	5.8		6.2	0.228		0.244	
е		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	
М			0.6			0.024	
S	8° (max.)						



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



6/7

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics © 2002 STMicroelectronics - All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -Malaysia - Malta - Morocco -Singapore - Spain - Sweden - Switzerland - United Kingdom - United States. http://www.st.com