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STMicroelectronics
TDA7299

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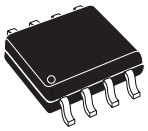
sales@integrated-circuit.com

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



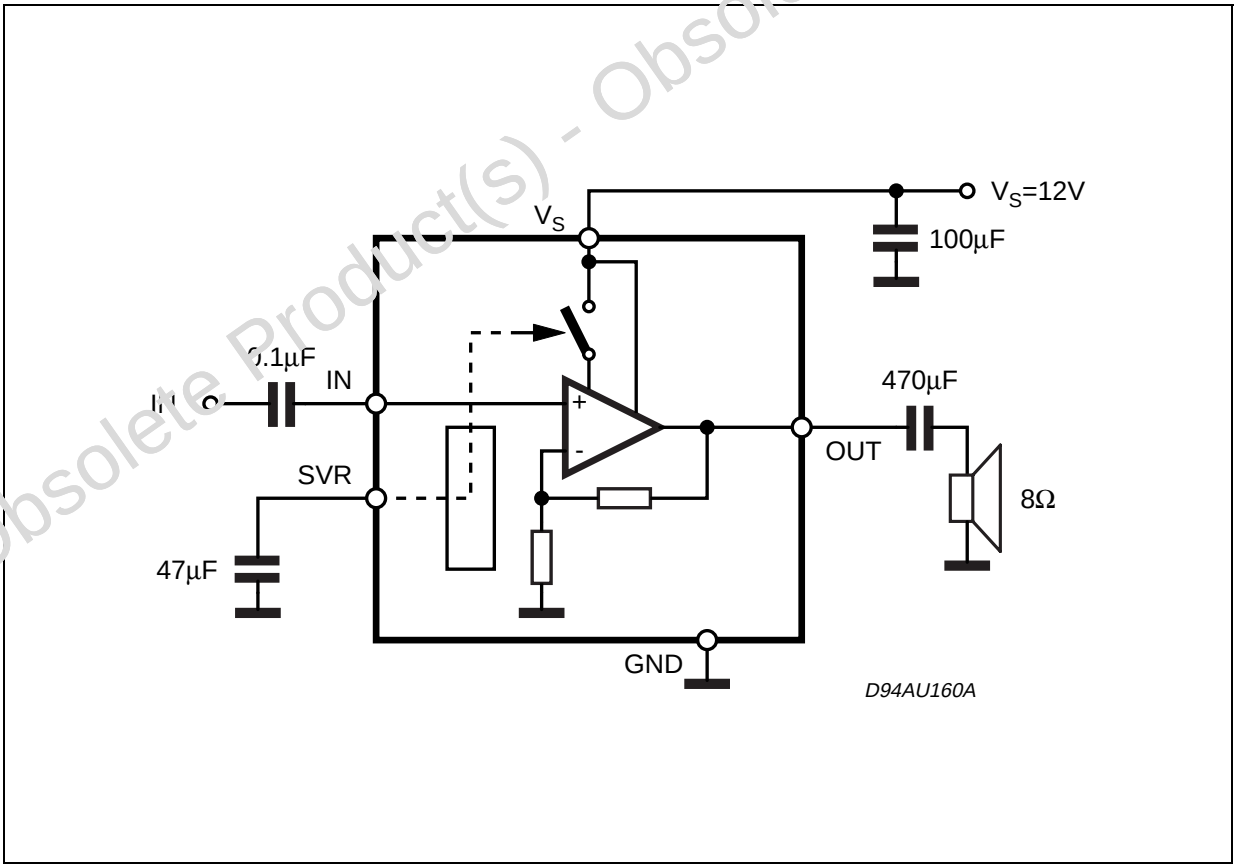
SO8 (4+4)
ORDERING NUMBER: TDA7299

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

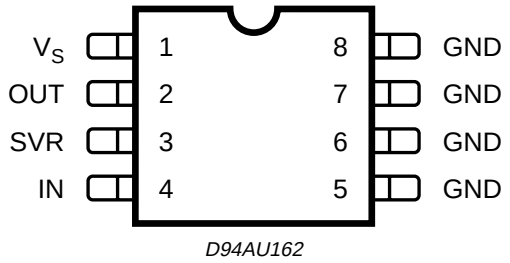
BLOCK DIAGRAM



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)



D94AU162

THERMAL DATA

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

ELECTRICAL CHARACTERISTICS

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

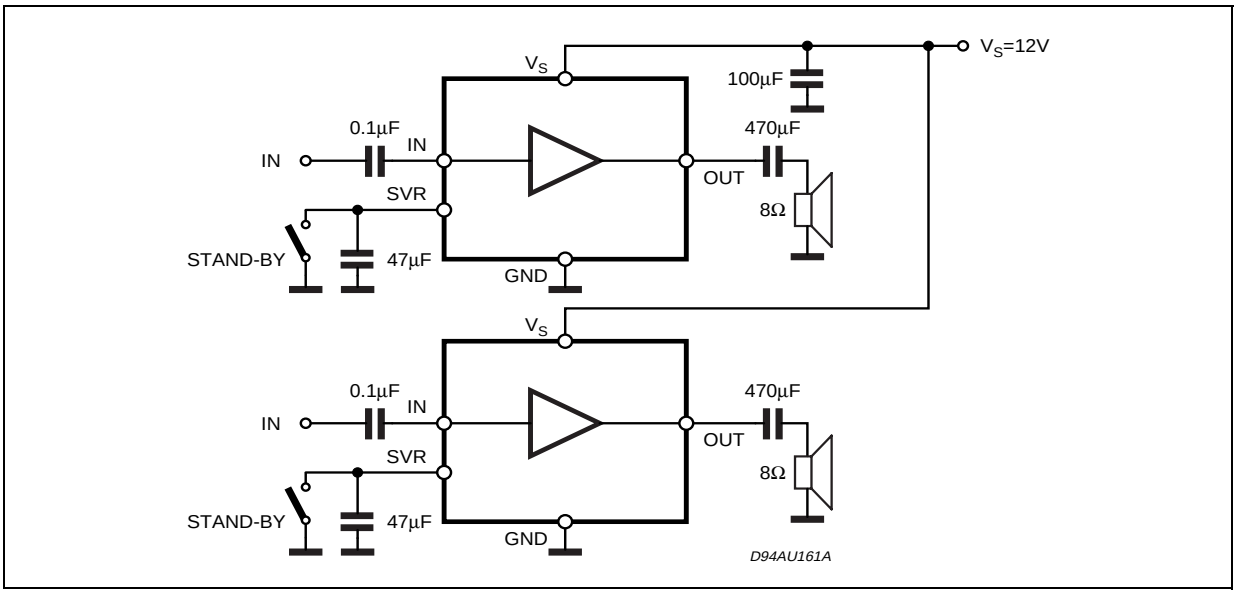
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Voltage Range		4.5		18	V
I_S	Quiescent Current			20	30	mA
I_{sb}	Stand-By Current	Pin 2 shorted to GND			0.3	mA
V_O	Quiescent Output Voltage			6		V
A_V	Voltage Gain			20		dB
R_{IN}	Input Impedance		50	100		KΩ
P_O	Output Power	THD = 10%	1.8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

ELECTRICAL CHARACTERISTICS (continued)
(T_{amb} = 25°C; V_S = 12V; R_L = 8Ω; f = 1KHz; unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
P_{ot}	Transient Output Power *)	V_i = 400mVp, THD < 2%, R_L = 4Ω		2		W
THD	Distortion	P_O = 1W			1	%
SVR	Supply Voltage Rejection	V_{ripple} = 150mVrms; F_{ripple} = 1KHz		50		dB
E_I	Input Noise Voltage	Rg = 10KΩ; BW = 20Hz to 20KHz		1.5	5	µV
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.

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_{svr} current.

Figure 2. On Board Copper Area

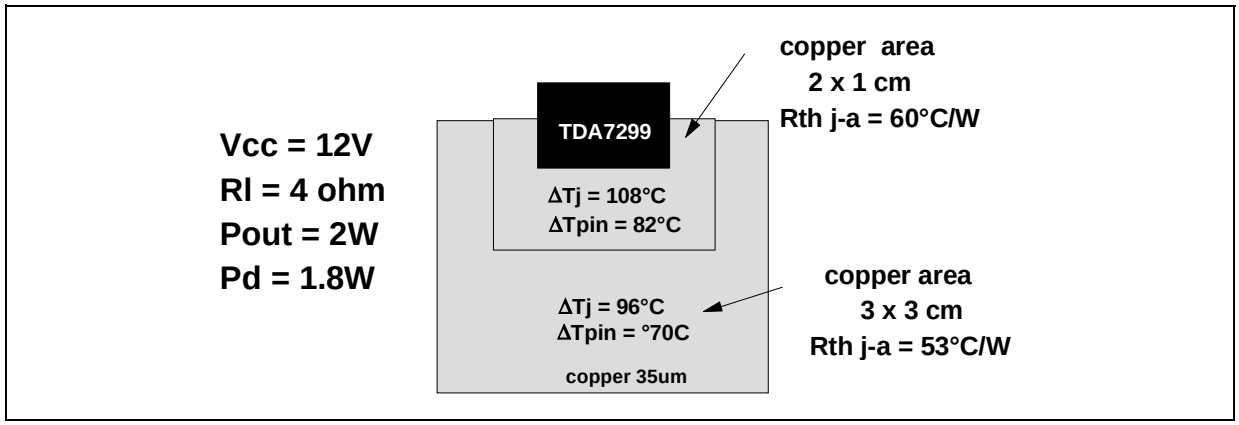


Figure 3. P_{out} vs Supply Voltage (Rload = 8Ω)

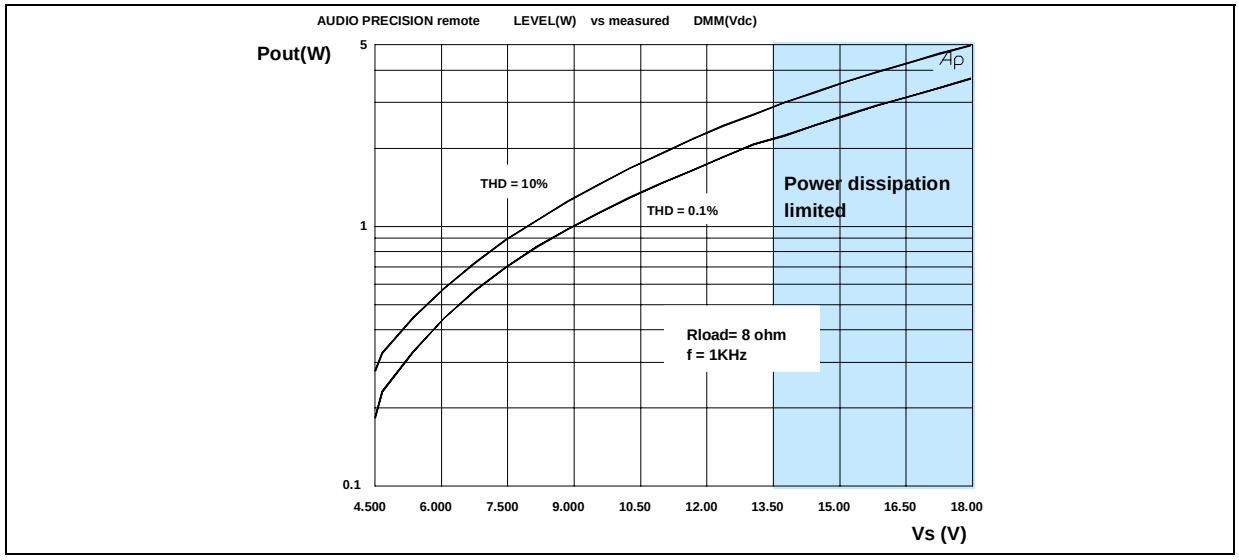


Figure 4. P_{out} vs Supply Voltage (Rload = 4Ω)

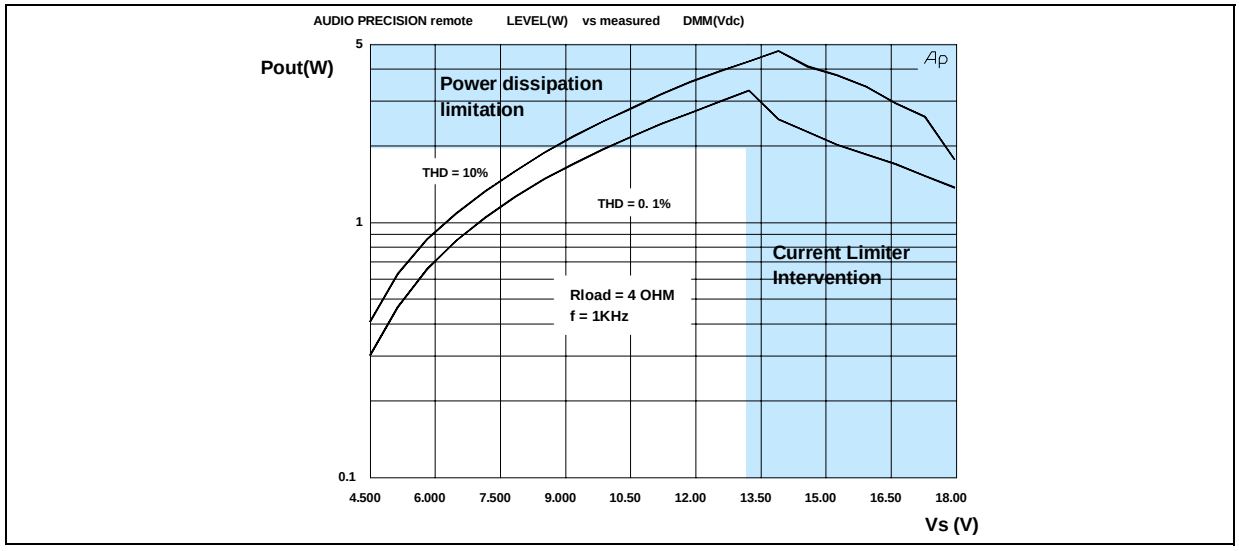
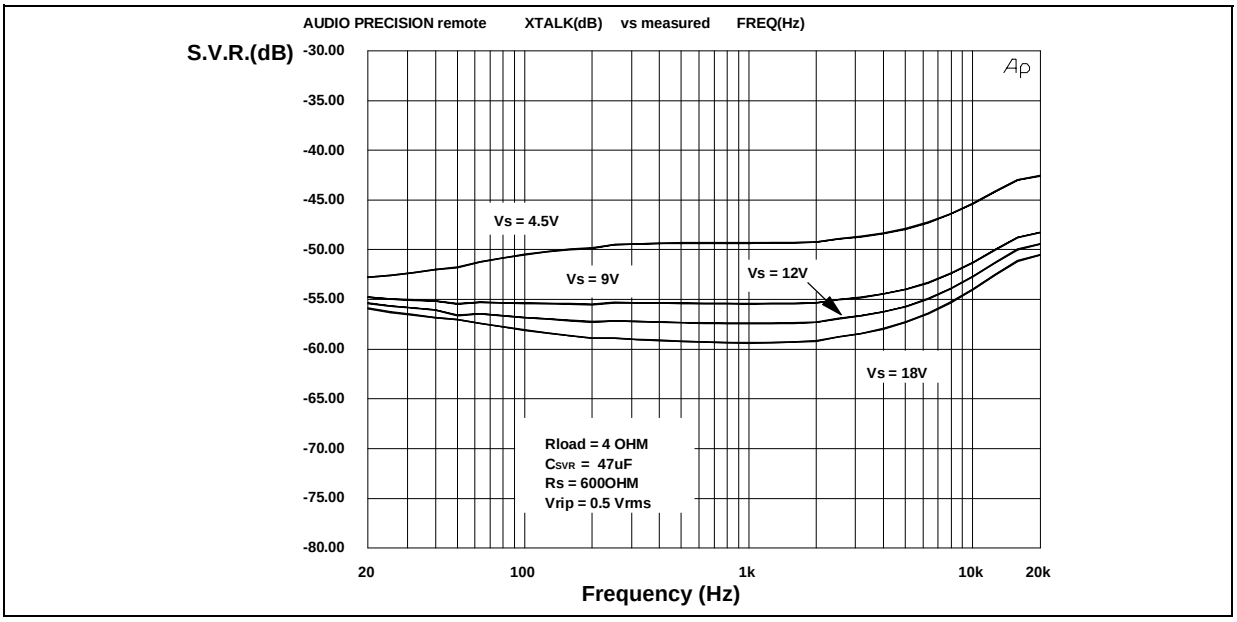


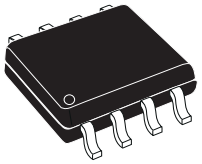
Figure 5. SVR vs Frequency



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.)					

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

OUTLINE AND MECHANICAL DATA



SO8