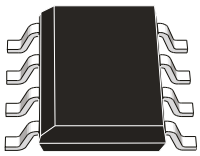
TDA2822D

Datasheet

Dual low voltage power amplifier



SO8

Features

- Supply voltage down to 1.8 V
- Low crossover distortion
- Low quiescent current
- Bridge or stereo configuration

Description

The TDA2822D is a monolithic integrated circuit in 8 lead (SO-8) package. It is intended for use as a dual audio power amplifier in portable cassette players, radios and CD players.

Product status link
TDA2822D

Ordering information
TDA2822D013TR

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1 Application circuit

Figure 1. Application circuit

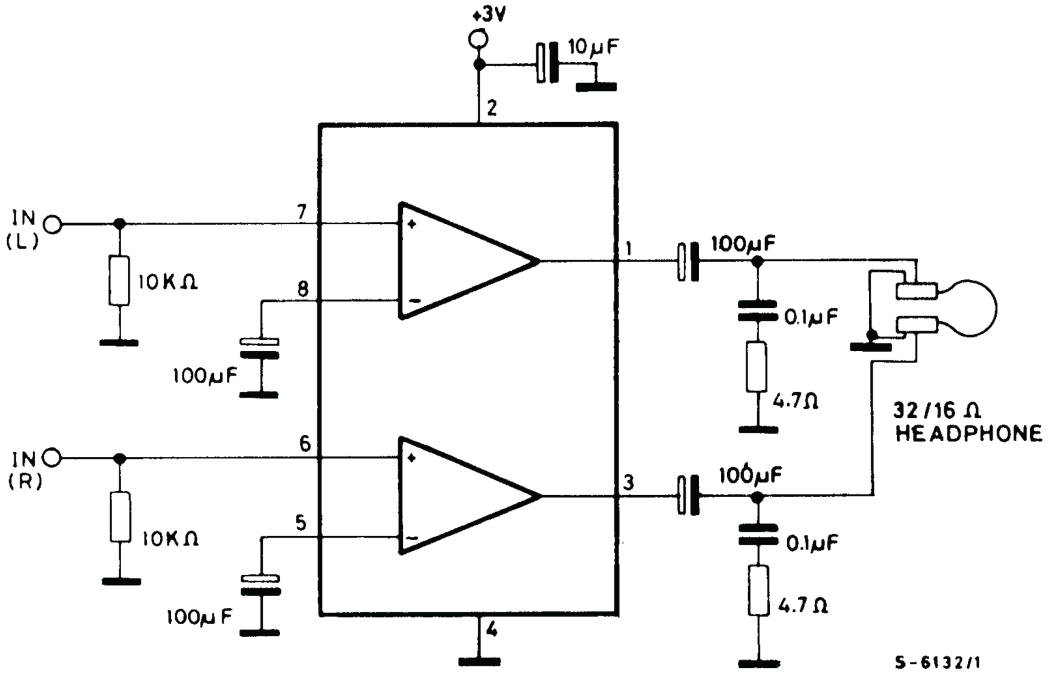
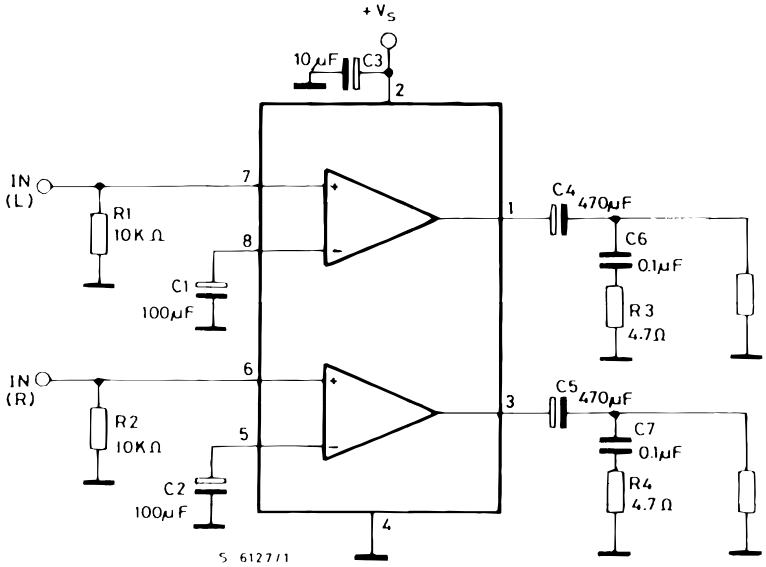
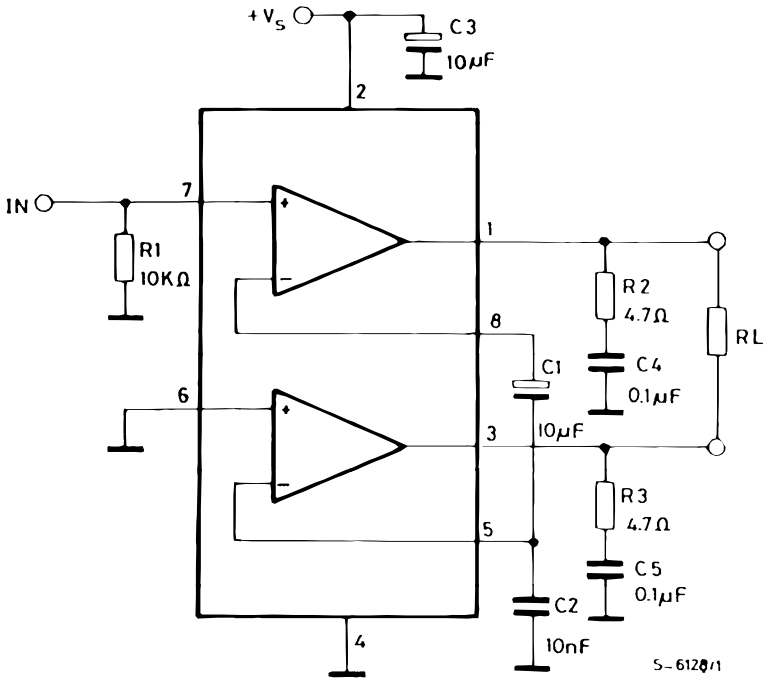


Figure 2. Stereo application and test circuit



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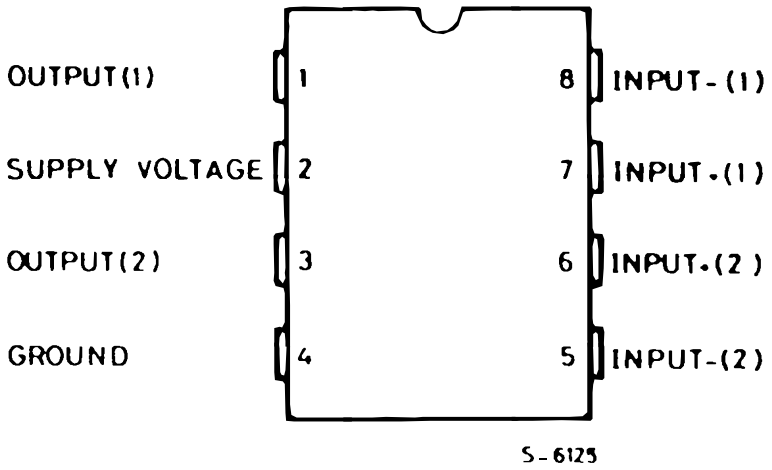
Figure 3. **Bridge application and test circuit**



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2 Pin connection

Figure 4. **Pin connection**



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3 Absolute maximum ratings

Table 1. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_S	Supply voltage	15	V
I_O	Peak output	1	A
P_{tot}	Total power dissipation T_{amb} = 50 °C	0.5	W
T_{stg}	Storage and junction temperature	-40 to 150	°C
T_j			

Table 2. Thermal data

Symbol	Description	Value	Unit
$R_{thj\text{-}amb}$	Thermal resistance junction-ambient max.	200	°C/W

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4 Electrical characteristics

(V_S = 6 V; Tamb = 25 °C, unless otherwise specified.
STEREO (see Figure 2. Stereo application and test circuit).

Table 3. Electrical characteristics (stereo)

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
V_S	Supply voltage			1.8		15	V
I_d	Total quiescent drain current					15	mA
V_O	Quiescent output voltage				2.7		V
		V_S = 3 V			1.2		V
I_b	Input bias current				100		nA
P_O	Output power (each channel) (f = 1 kHz, d = 10%)	R_L = 32 Ω	V_S= 9 V		300		mW
			V_S= 6 V		120		
			V_S = 4.5 V		60		
			V_S = 3 V		20		
			V_S = 2 V		5		
		R_L = 16 Ω	V_S = 6 V	170	220		mW
		R_L = 8 Ω	V_S = 6 V	300	380		mW
		R_L = 4 Ω	V_S = 4.5 V		320		mW
			V_S = 3 V		110		
d	Distortion	R_L = 32 Ω	P_O = 40 mW		0.2		%
		R_L=16 Ω	P_O = 75 mW		0.2		%
		R_L = 8 Ω	P_O = 150 mW		0.2		%
G_V	Closed loop voltage gain	f = 1 kHz		36	39	41	dB
ΔG_V	Channel balance					1	dB
R_i	Input resistance	f = 1 kHz		100			kΩ
e_N	Total input noise	R_s = 10 kΩ, B = curve A			2		µV
		R_s = 10 kΩ, B = 22 Hz to 22 kHz			2.5		µV
SVR	Supply voltage rejection	f = 100 Hz, C1 = C2 = 100 F		24	30		dB
C_s	Channel separation	f = 1 kHz			50		dB

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Bridge (see Figure 3. Bridge application and test circuit).

Table 4. Electrical characteristics (bridge)

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
V_S	Supply voltage			1.8		15	V
I_d	Total quiescent drain current	R_L = ∞				15	mA
V_{OS}	Output offset voltage between the outputs	R_L = 8 Ω				±80	mV
I_b	Input bias current				100		nA
P_O	Output power (f = 1 kHz, d = 10%)	R_L = 32 Ω	V_S = 9 V	1000			mW
			V_S = 6 V	320	400		
			V_S = 4.5 V		200		
			V_S = 3 V	50	65		
			V_S = 2 V		8		
		R_L = 16 Ω	V_S = 6 V		800		mW
			V_S = 3 V		120		
		R_L = 8 Ω	V_S = 4.5 V		700		mW
			V_S = 3 V		220		
		R_L = 4 Ω	V_S = 3 V		350		mW
			V_S = 2 V		80		
d	Distortion	R_L = 8 Ω	P_O = 0.5 mW, f = 1 kHz		0.2		%
G_V	Closed loop voltage gain	f = 1 kHz			39		dB
R_i	Input resistance	f = 1 kHz		100			kΩ
e_N	Total input noise	R_s =10 kΩ, B = curve A			2.5		μV
		R_s = 10 kΩ, B = 22 Hz to 22 kHz			3		
SVR	Supply voltage rejection	f = 100 Hz			40		dB
B	Power bandwidth (-3 dB)	R_L = 8 kΩ, P_O = 1 W			120		kHz

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Figure 5. Supply voltage rejection vs. frequency

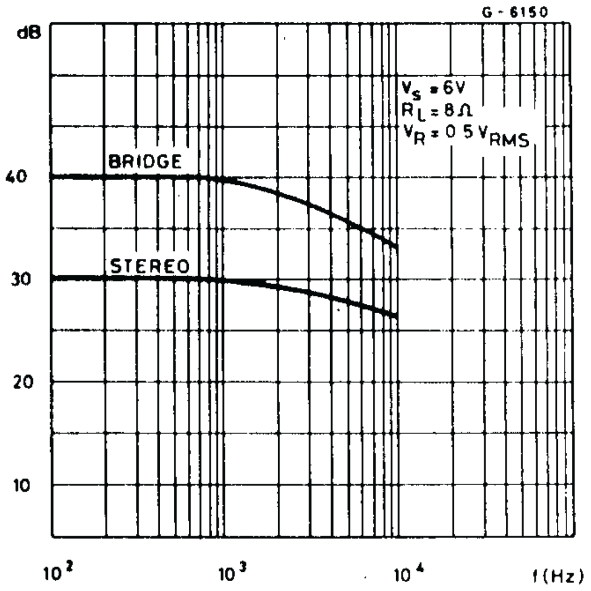


Figure 6. Output power vs. supply voltage (THD= 10%, f=1 kHz stereo)

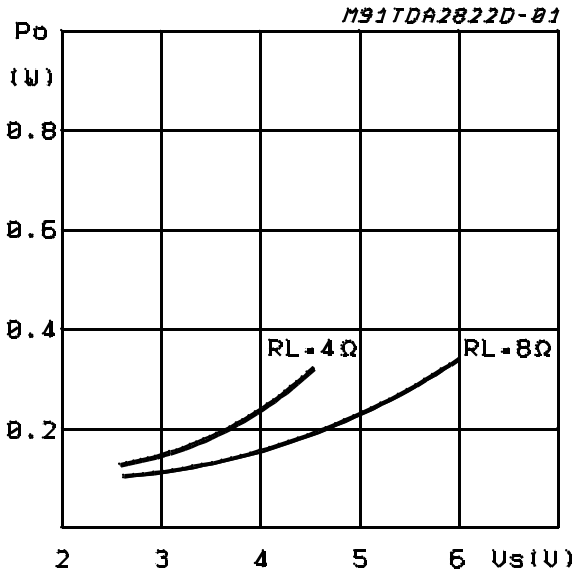


Figure 7. Total power dissipation vs. output power (bridge, RL=8 Ω)

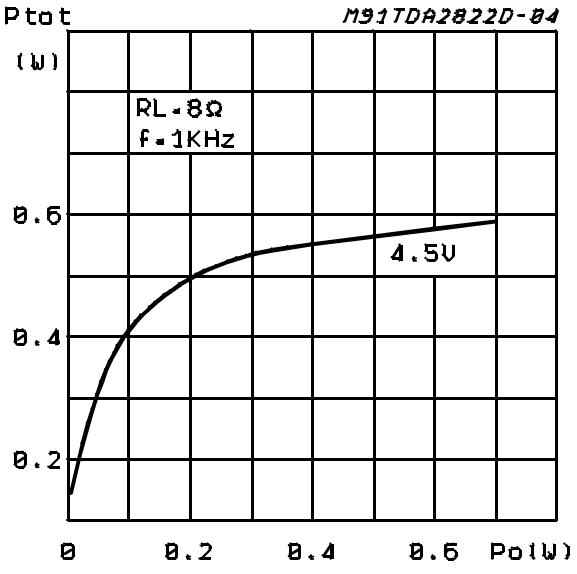
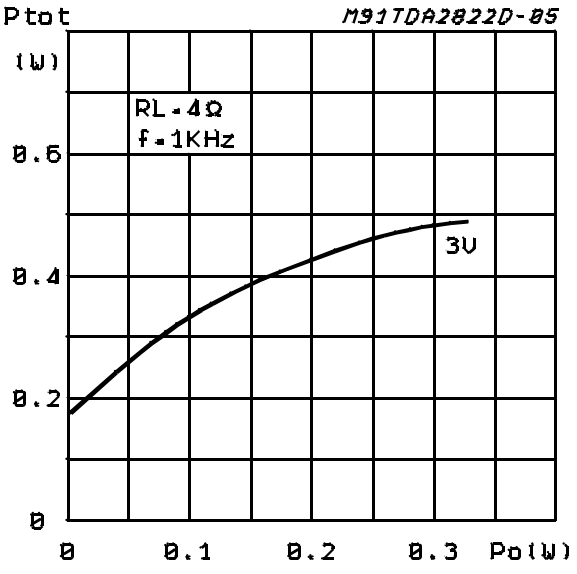


Figure 8. Total power dissipation vs. output power (bridge, RL=4 Ω)



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5 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

5.1 SO8 package information

Figure 9. SO8 package outline

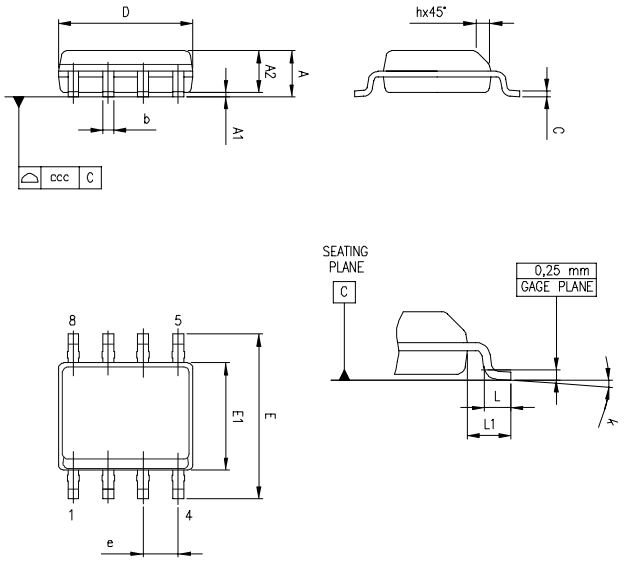


Table 5. SO-8 mechanical data

Dim.	mm			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
A1	0.1		0.25	0.004		0.01
A2	1.25			0.049		
b	0.28		0.48	0.011		0.019
c	0.17		0.23	0.007		0.01
D	4.8	4.9	5	0.189	0.193	0.197
E	5.8	6	6.2	0.228	0.236	0.244
E1	3.8	3.9	4	0.15	0.154	0.157
e		1.27			0.05	
h	0.25		0.5	0.01		0.02
L	0.4		1.27	0.016		0.05
L1		1.04			0.04	
k			8 °			8 °
ccc			0.1			0.004

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Revision history

Table 6. **Document revision history**

Date	Version	Changes
05-Sep-2003	1	No history because of migration.
19-Sep-2016	2	
28-Aug-2020	3	Updated the ordering information table in cover page.

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