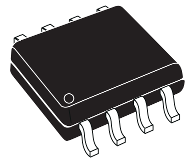
SGS-THOMSON MICROELECTRONICS

TDA2822D

DUAL LOW-VOLTAGE POWER AMPLIFIER

- SUPPLY VOLTAGE DOWN TO 1.8V
- LOWCROSSOVER DISTORTION
- LOW QUIESCENT CURRENT
- BRIDGE OR STEREO CONFIGURATION



SO8

ORDERING NUMBER: TDA2822D

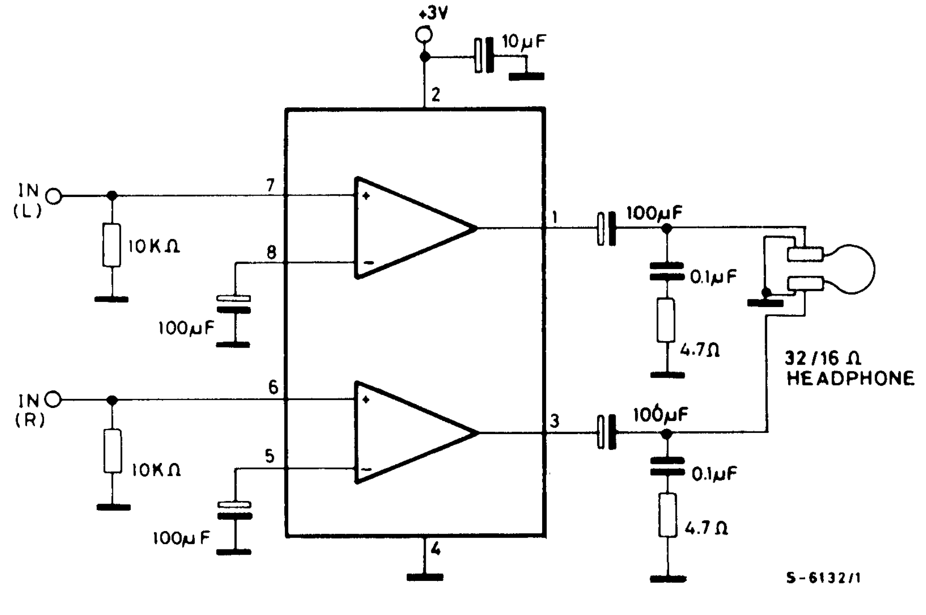
DESCRIPTION

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

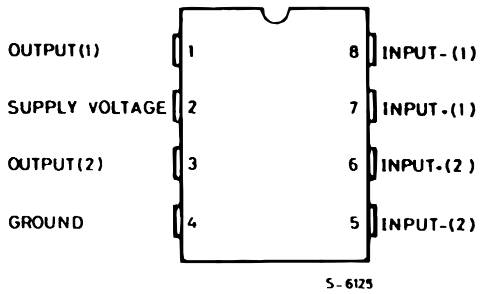
ABSOLUTE MAXIMUM RATINGS

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}, T_j	Storage and Junction Temperature	-40 to 150	°C

APPLICATION CIRCUIT



PIN CONNECTION (Top view)



THERMAL DATA

Symbol	Description		Value	Unit
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	200	°C/W

Figure 1: Stereo Application and Test Circuit

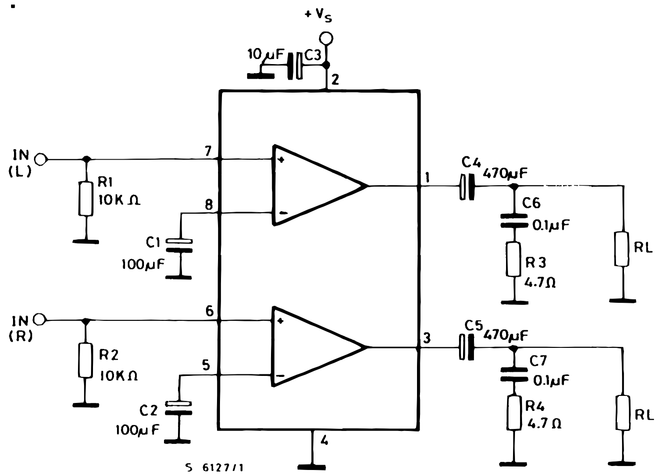
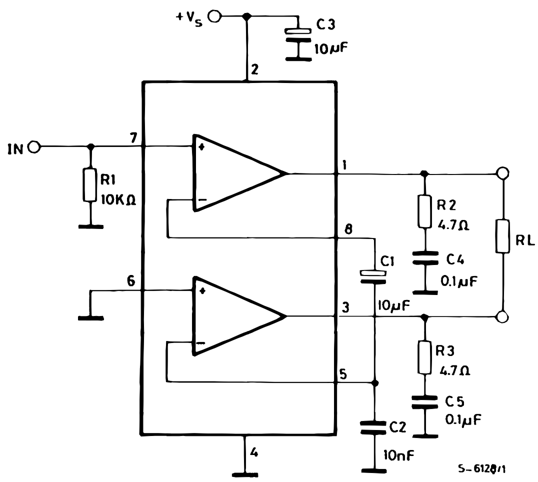


Figure 2: Bridge Application and Test Circuit



ELECTRICAL CHARACTERISTICS (V_S = 6V; T_{amb} = 25°C, unless otherwise specified.
STEREO (Test circuit of fig. 1).

Symbol	Parameter	Test Condition		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 = 3V			1.2		V
I_b	Input Bias Current				100		nA
P_O	Output Power (each channel) (f = 1KHz, d = 10%)	R_L = 32Ω	V_S = 9V V_S = 6V V_S = 4.5V V_S = 3V V_S = 2V		300 120 60 20 5		mW
		R_L = 16Ω	V_S = 6V	170	220		mW
		R_L = 8Ω	V_S = 6V	300	380		mW
		R_L = 4Ω	V_S = 4.5V V_S = 3V		320 110		mW mW
d	Distortion	R_L = 32Ω	P_O = 40mW		0.2		%
		R_L = 16Ω	P_O = 75mW		0.2		%
		R_L = 8Ω	P_O = 150mW		0.2		%
G_V	Closed Loop Voltage Gain	f = 1KHz		36	39	41	dB
ΔG_V	Channel Balance					±1	dB
R_i	Input Resistance	f = 1KHz		100			KΩ
e_N	Total Input Noise	R_s = 10kΩ B = Curve A			2		µV
		R_s = 10kΩ B = 22Hz to 22KHz			2.5		µV
SVR	Supply Voltage Rejection	f = 100Hz C1 = C2 = 100µF		24	30		dB
C_s	Channel Separation	f = 1KHz			50		dB

BRIDGE (Test circuit of fig.2)

Symbol	Parameter	Test Condition		Min.	Typ.	Max.	Unit
V_S	Supply Voltage			1.8		15	V
I_d	Total Quiescent Drain Current	$R_L = \infty$				15	mA
V_{os}	Output Offset Voltage (between the outputs)	R_L = 8Ω				±80	mV
I_b	Input Bias Current				100		nA
P_O	Output Power (f = 1KHz, d = 10%)	R_L = 32Ω	V_S = 9V V_S = 6V V_S = 4.5V V_S = 3V V_S = 2V	320 50	1000 400 200 65 8		mW
		R_L = 16Ω	V_S = 6V V_S = 3V		800 120		mW mW
		R_L = 8Ω	V_S = 4.5V V_S = 3V		700 220		mW mW
		R_L = 4Ω	V_S = 3V V_S = 2V		350 80		mW mW
d	Distortion	R_L = 8Ω P_O = 0.5W f = 1KHz			0.2		%
G_V	Closed Loop Voltage Gain	f = 1KHz			39		dB
R_i	Input Resistance	f = 1KHz		100			KΩ
e_N	Total Input Noise	R_s = 10kΩ B = Curve A			2.5		µV
		R_s = 10kΩ B = 22Hz to 22KHz			3		µV
SVR	Supply Voltage Rejection	f = 100Hz			40		dB
B	Power Bandwidth (-3dB)	R_L = 8Ω P_O = 1W			120		KHz

Figure 3: Supply Voltage Rejection vs. Frequency

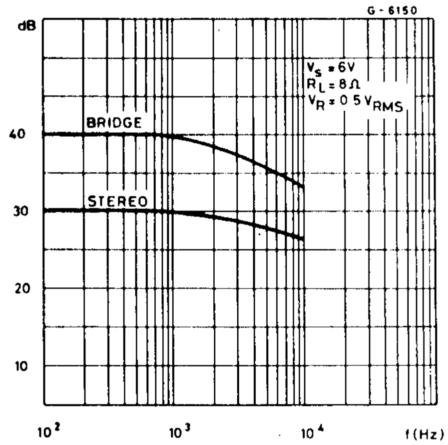


Figure 4: Output Power vs. Supply Voltage (THD = 10%, f = 1KHz Stereo)

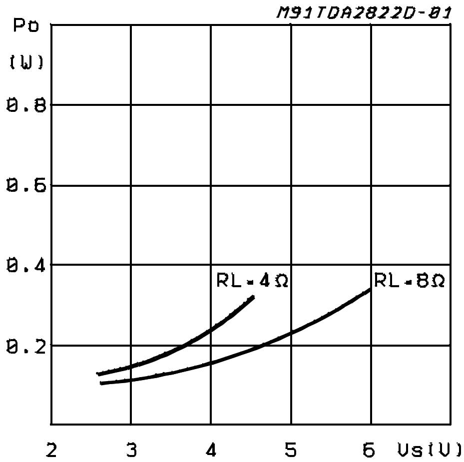


Figure 5: Total Power Dissipation vs. Output Power (Bridge)

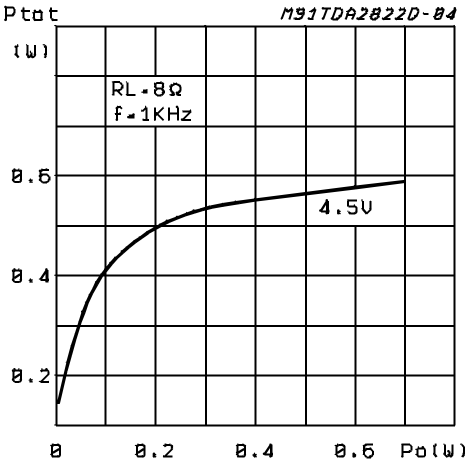
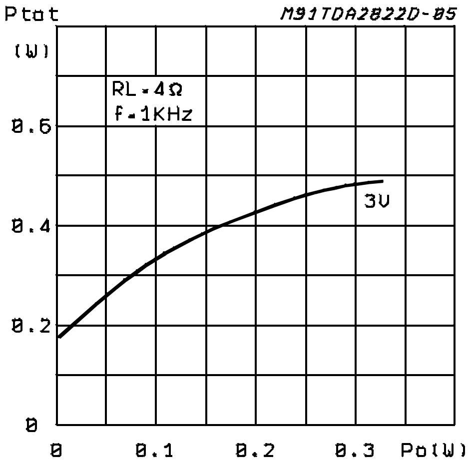


Figure 6: Total Power Dissipation vs. Output Power (Bridge)



SO8 PACKAGE MECHANICAL DATA

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	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	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.)