

Order code	Manufacturer code	Description
82-0690	n/a	TDA2822D 1W+1W STEREO AUDIO AMPLIFIER SO

	Page 1 of 7
The enclosed information is believed to be correct, Information may change 'without notice' due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E.	Revision A 04/07/2003



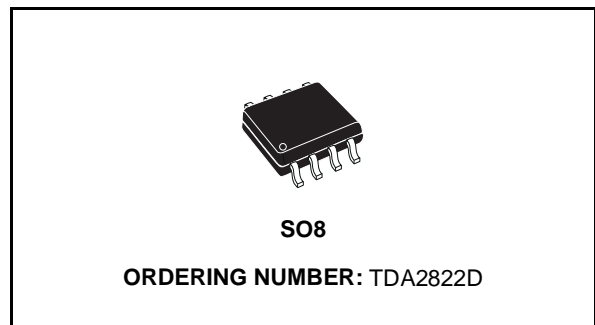
# TDA2822D

## DUAL LOW-VOLTAGE POWER AMPLIFIER

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

### DESCRIPTION

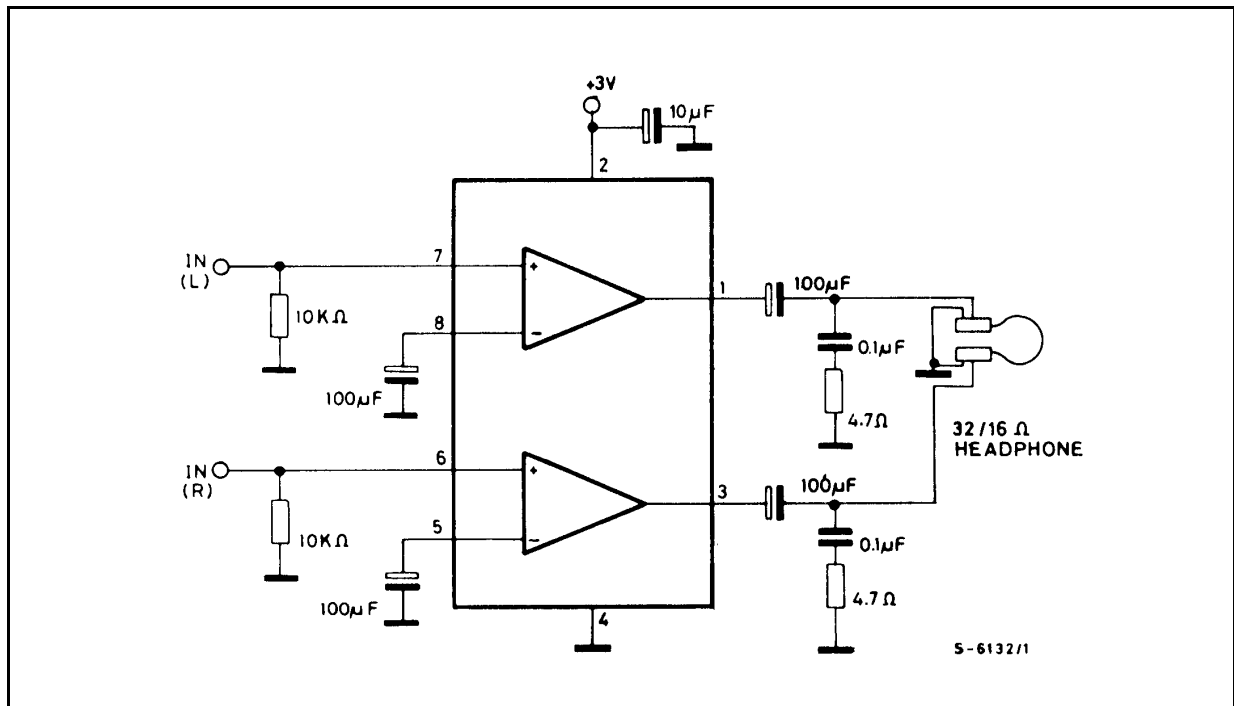
The TDA2822D is a monolithic integrated circuit in 8 lead (SO-8) package. It is intended for use as dual audio power amplifier in portable cassette players, radios and CD players



### ABSOLUTE MAXIMUM RATINGS

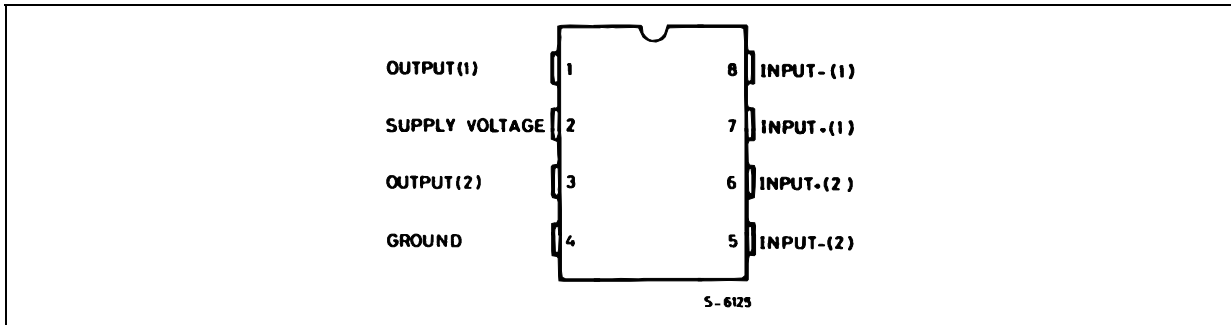
Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage	15	V
$I_O$	Peak Output	1	A
$P_{tot}$	Total Power Dissipation $T_{amb} = 50^\circ C$	0.5	W
$T_{stg}, T_j$	Storage and Junction Temperature	-40 to 150	$^\circ C$

### APPLICATION CIRCUIT



# TDA2822D

## PIN CONNECTION (Top view)



## THERMAL DATA

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

Figure 1: Stereo Application and Test Circuit

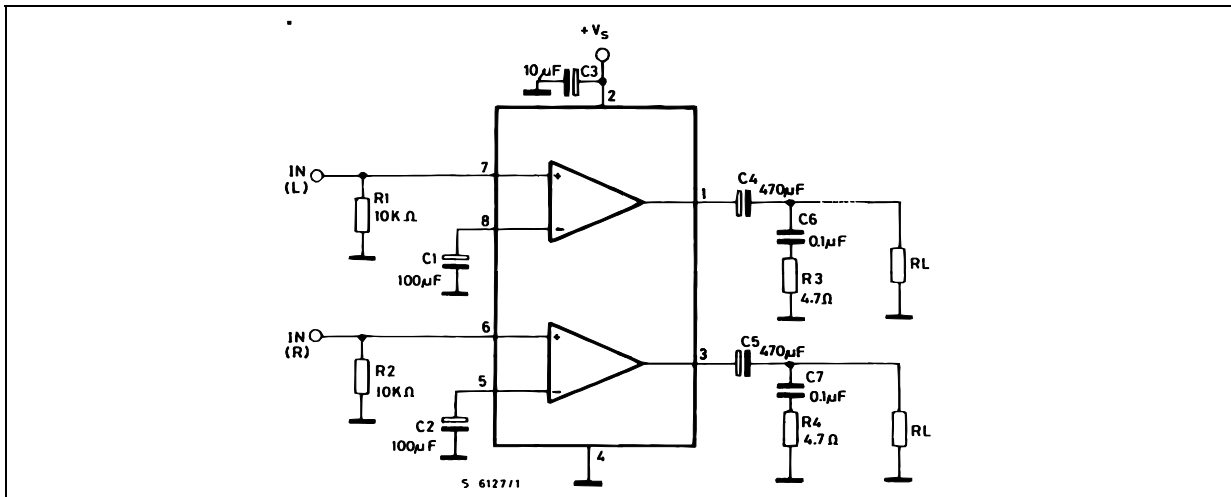
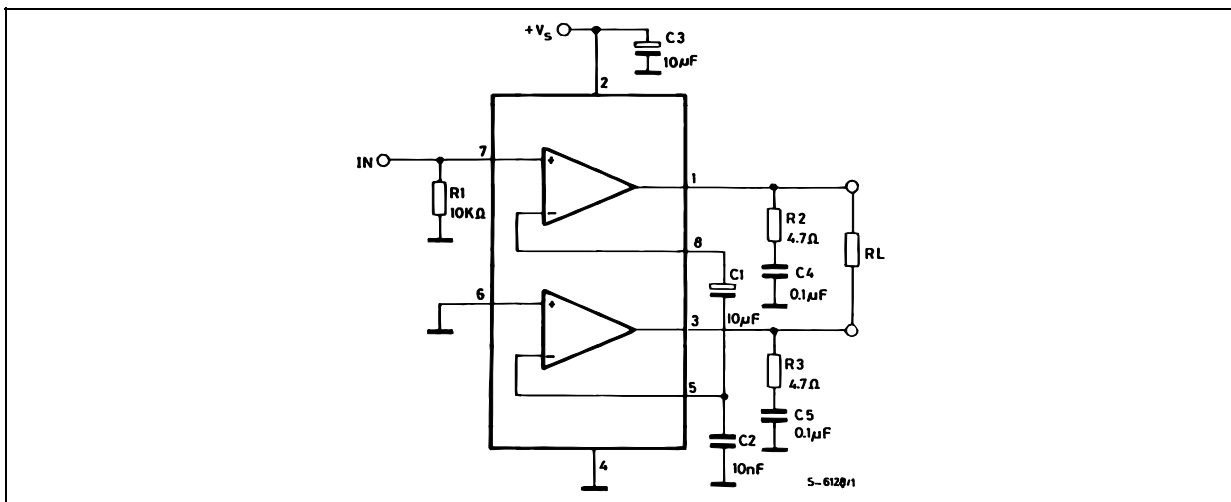


Figure 2: Bridge Application and Test Circuit



**ELECTRICAL CHARACTERISTICS** ( $V_S = 6V$ ;  $T_{amb} = 25^\circ C$ , unless otherwise specified).

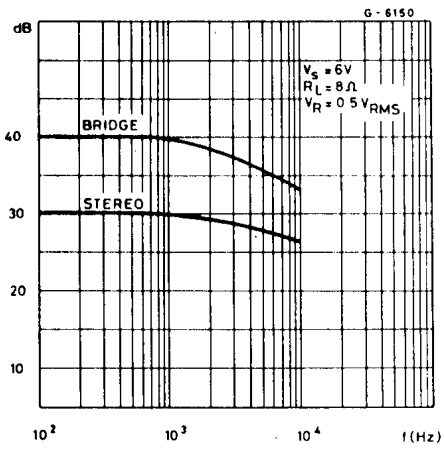
STEREO (Test circuit of fig. 1).

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) ( $f = 1KHz$ , $d = 10\%$ )	$R_L = 32\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$		300 120 60 20 5		mW
		$R_L = 16\Omega$ $V_S = 6V$	170	220		mW
		$R_L = 8\Omega$ $V_S = 6V$	300	380		mW
		$R_L = 4\Omega$ $V_S = 4.5V$ $V_S = 3V$		320 110		mW mW
$d$	Distortion	$R_L = 32\Omega$ $P_O = 40mW$		0.2		%
		$R_L = 16\Omega$ $P_O = 75mW$		0.2		%
		$R_L = 8\Omega$ $P_O = 150mW$		0.2		%
$G_V$	Closed Loop Voltage Gain	$f = 1KHz$	36	39	41	dB
$\Delta G_V$	Channel Balance				$\pm 1$	dB
$R_i$	Input Resistance	$f = 1KHz$	100			K $\Omega$
$e_N$	Total Input Noise	$R_s = 10k\Omega$ $B = \text{Curve A}$		2		$\mu V$
		$R_s = 10k\Omega$ $B = 22Hz \text{ to } 22KHz$		2.5		$\mu V$
SVR	Supply Voltage Rejection	$f = 100Hz$ $C1 = C2 = 100\mu F$	24	30		dB
$C_s$	Channel Separation	$f = 1KHz$		50		dB

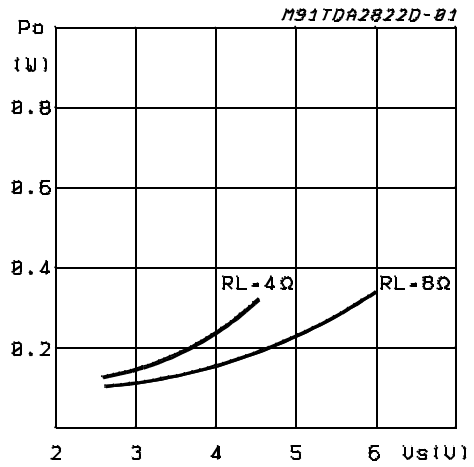
BRIDGE (Test circuit of fig.2)

$V_S$	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)	$R_L = 8\Omega$			$\pm 80$	mV
$I_b$	Input Bias Current			100		nA
$P_O$	Output Power ( $f = 1KHz$ , $d = 10\%$ )	$R_L = 32\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$	320 50	1000 400 200 65 8		mW
		$R_L = 16\Omega$ $V_S = 6V$ $V_S = 3V$		800 120		mW mW
		$R_L = 8\Omega$ $V_S = 4.5V$ $V_S = 3V$		700 220		mW mW
		$R_L = 4\Omega$ $V_S = 3V$ $V_S = 2V$		350 80		mW mW
$d$	Distortion	$R_L = 8\Omega$ $P_O = 0.5W$ $f = 1KHz$		0.2		%
$G_V$	Closed Loop Voltage Gain	$f = 1KHz$		39		dB
$R_i$	Input Resistance	$f = 1KHz$	100			K $\Omega$
$e_N$	Total Input Noise	$R_s = 10k\Omega$ $B = \text{Curve A}$		2.5		$\mu V$
		$R_s = 10k\Omega$ $B = 22Hz \text{ to } 22KHz$		3		$\mu V$
SVR	Supply Voltage Rejection	$f = 100Hz$		40		dB
B	Power Bandwidth (-3dB)	$R_L = 8\Omega$ $P_O = 1W$		120		KHz

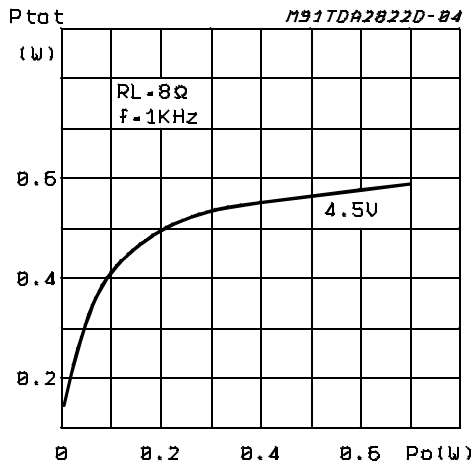
**Figure 3:** Supply Voltage Rejection vs. Frequency



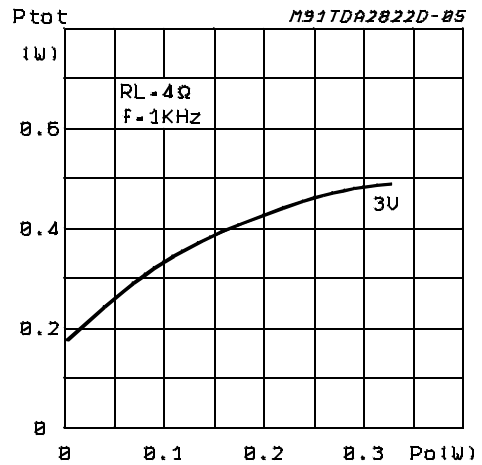
**Figure 4:** Output Power vs. Supply Voltage (THD = 10%, f = 1KHz Stereo)



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

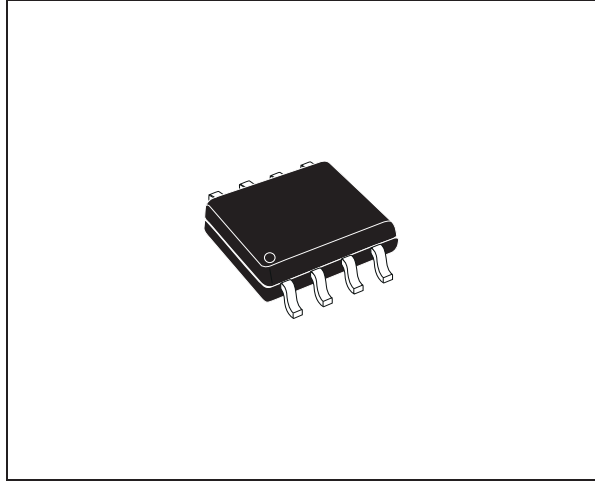


**Figure 6:** Total Power Dissipation vs. Output Power (Bridge)



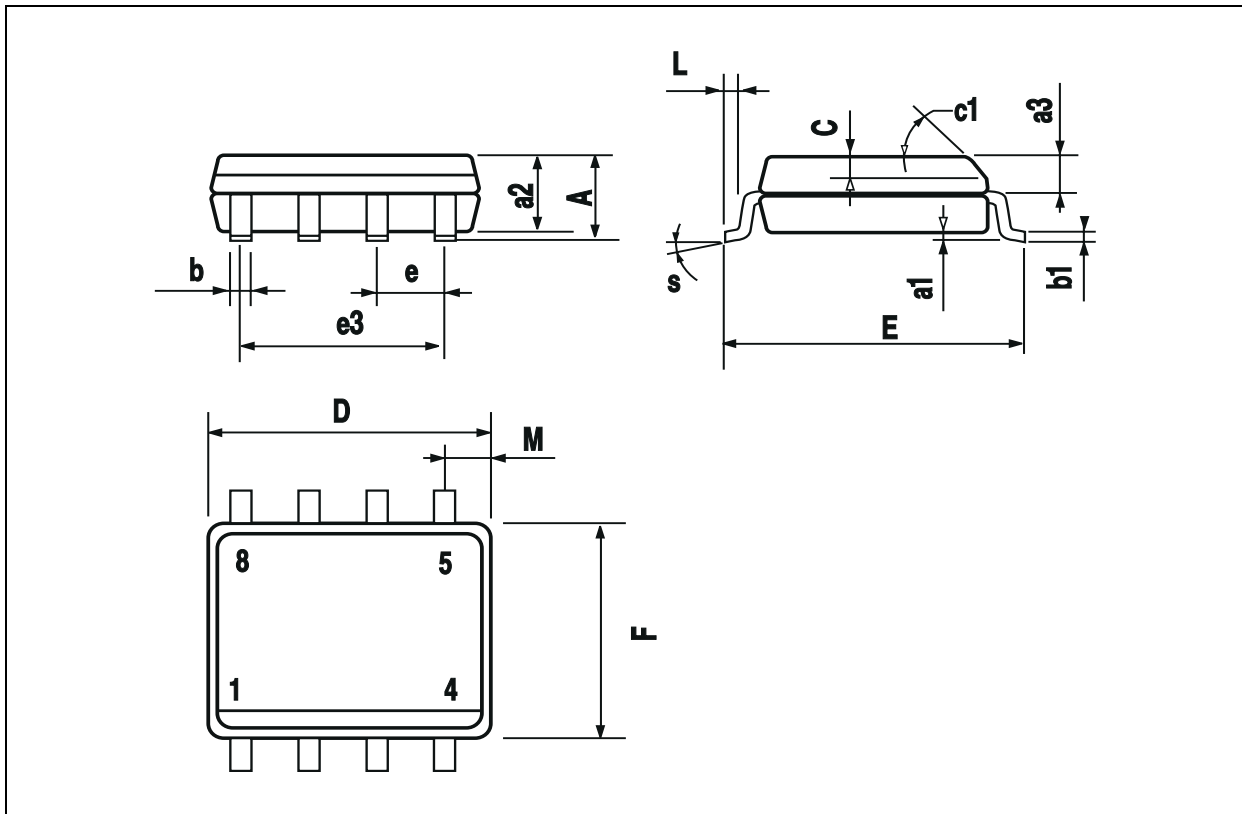
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D (1)	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
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.)					

**OUTLINE AND MECHANICAL DATA**



**SO8**

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



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.  
All other names are the property of their respective owners

© 2003 STMicroelectronics - All rights reserved

**STMicroelectronics GROUP OF COMPANIES**

Australia – Belgium - Brazil - Canada - China – Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States

[www.st.com](http://www.st.com)