

TDA2822M

DUAL LOW-VOLTAGE POWER AMPLIFIER

- SUPPLY VOLTAGE DOWN TO 1.8V
- LOW CROSSOVER DISTORSION
- LOW QUIESCENT CURRENT
- BRIDGE OR STEREO CONFIGURATION



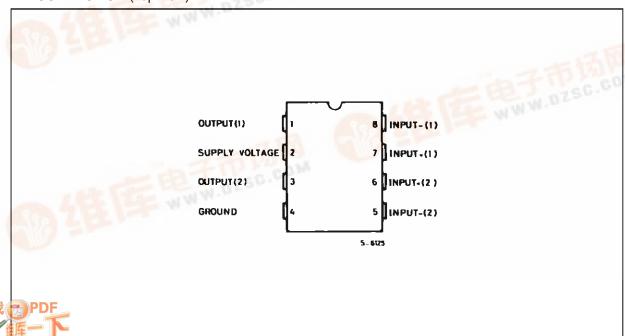
MINIDIP

ORDERING NUMBER: TDA2822M

DESCRIPTION

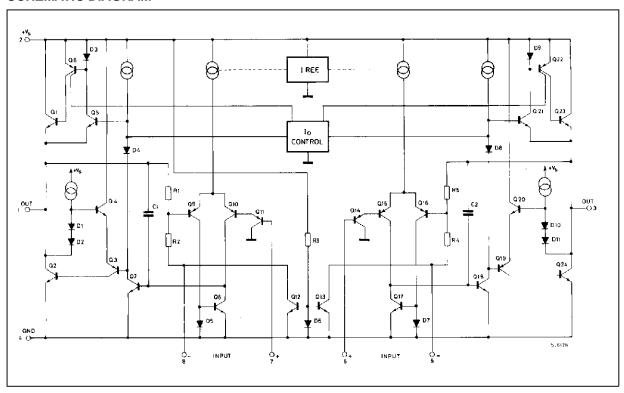
The TDA2822M is a monolithic integrated circuit in 8 lead Minidip package. It is intended for use as dual audio power amplifier in portable cassette players and radios.

PIN CONNECTION (Top view)



TDA2822M

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
Vs	Supply Voltage	15	V
Io	Peak Output Current	1	Α
P _{tot}	Total Power Dissipation at T _{amb} = 50 °C at T _{case} = 50 °C	1 1.4	W W
T _{stg} , T _j	Storage and Junction Temperature	- 40, + 150	°C

THERMAL DATA

Symbol	Parameter	Value	Unit
R _{th j-amb}	Thermal Resistance Junction-ambient Max.	100	°C/W
R _{th j-case}	Thermal Resistance Junction-pin (4) Max.	70	°C/W

)/1 1

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

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
STEREO (test circuit of Figure 1)	•	•	•		
Vs	Supply Voltage		1.8		15	V
Vo	Quiescent Output Voltage			2.7		V
	Ouissant Drain Current	$V_s = 3V$		1.2	9	V
I _d	Quiescent Drain Current Input Bias Current			100	9	mA nA
Po	Output Power (each channel)			100		mW
	(f = 1kHz, d = 10%)	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	90 15 170 300 450	300 120 60 20 5 220 1000 380 650 320 110		11100
d	Distortion (f = 1kHz)	$\begin{array}{ll} R_L=32\Omega & P_o=40 mW \\ R_L=16\Omega & P_o=75 mW \\ R_L=8\Omega & P_o=150 mW \end{array}$		0.2 0.2 0.2		% % %
Gv	Closed Loop Voltage Gain	f = 1kHz	36	39	41	dB
ΔG_{v}	Channel Balance				± 1	dB
Ri	Input Resistance	f = 1kHz	100			kΩ
e _N	Total Input Noise	$R_s = 10k\Omega$ B = Curve A B = 22Hz to 22kHz		2 2.5		μV μV
SVR	Supply Voltage Rejection	f = 100Hz, C1 = C2 = 100μF	24	30		dB
Cs	Channel Separation	f = 1kHz		50		dB
BRIDGE (t	est circuit of Figure 2)					
Vs	Supply Voltage		1.8		15	V
I _d	Quiescent Drain Current	R _L = ∞		6	9	mA
V _{os}	Output Offset Voltage (between the outputs)	$R_L = 8\Omega$			± 50	mV
I _b	Input Bias Current			100		nA
Po	Output Power (f = 1kHz, d = 10%)	$\begin{array}{lll} R_L = 32\Omega & V_S = 9V \\ & V_S = 6V \\ & V_S = 4.5V \\ & V_S = 3V \\ & V_S = 2V \\ R_L = 16\Omega & V_S = 9V \\ & V_S = 6V \\ & V_S = 3V \\ R_L = 8\Omega & V_S = 6V \\ & V_S = 4.5V \\ & V_S = 3V \\ R_L = 4\Omega & V_S = 4.5V \\ & V_S = 3V \\ & V_S = 2V \\ \end{array}$	320 50 900 200	1000 400 200 65 8 2000 800 120 1350 700 220 1000 350 80		mW
d	Distortion	$P_0 = 0.5W, R_L = 8\Omega, f = 1kHz$		0.2		%
Gv	Closed Loop Voltage Gain	f = 1kHz	ļ	39		dB
Ri	Input Resistance	f = 1kHz	100			kΩ
e _N	Total Input Noise	$R_s = 10k\Omega$ B = Curve A B = 22Hz to 22kHz		2.5		μV μV
SVR	Supply Voltage Rejection	f = 100Hz		40		dB
В	Power Bandwidth (–3dB)	$R_L = 8\Omega$, $P_0 = 1W$		120		kHz

Figure 1 : Test Circuit (Stereo)

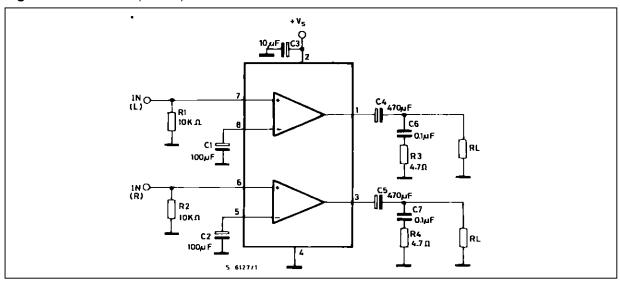


Figure 2: Test Circuit (Bridge)

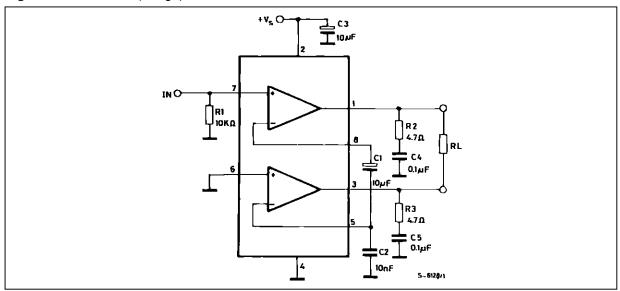


Figure 3 : P.C. Board and Components Layout of the Circuit of Figure 1

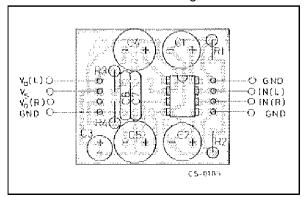


Figure 4 : P.C. Board and Components Layout of the Circuit of Figure 2

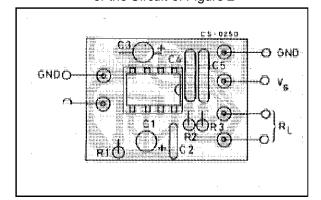


Figure 5: Quiescent Current versus Supply Voltage

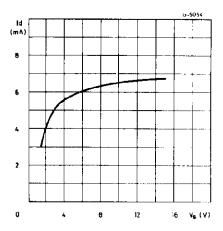


Figure 7: Output Power versus Supply Voltage (THD = 10%, f = 1kHz Stereo)

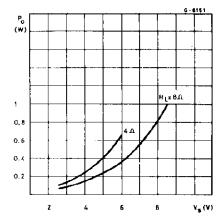


Figure 9 : Distorsion versus Output Power (Stereo)

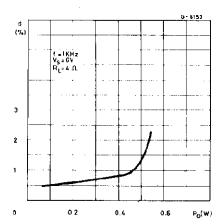


Figure 6 : Supply Voltage Rejection versus Frequency

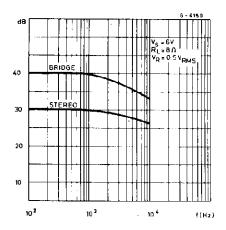


Figure 8 : Distorsion versus Output Power (Stereo)

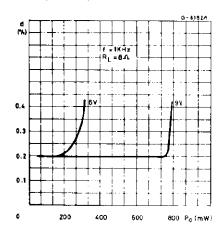


Figure 10: Output Power versus Supply Voltage (Bridge)

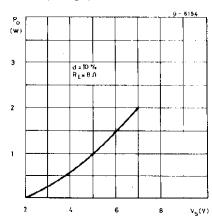


Figure 11: Distorsion versus Output Power (Bridge)

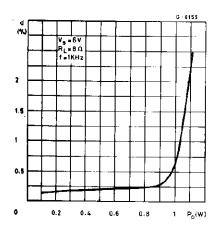


Figure 13: Total Power Dissipation versus Output Power (Bridge)

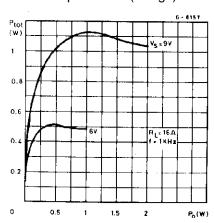


Figure 15: Total Power Dissipation versus Output Power (Bridge)

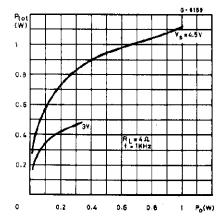


Figure 12 : Total Power Dissipation versus Output Power (Bridge)

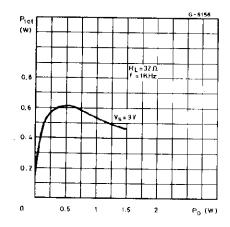


Figure 14: Total Power Dissipation versus Output Power (Bridge)

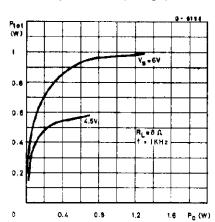


Figure 16: Typical Application in Portable Players

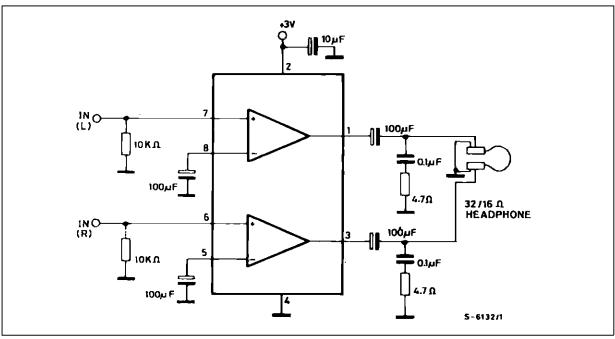


Figure 17: Application in Portable Radio Receivers

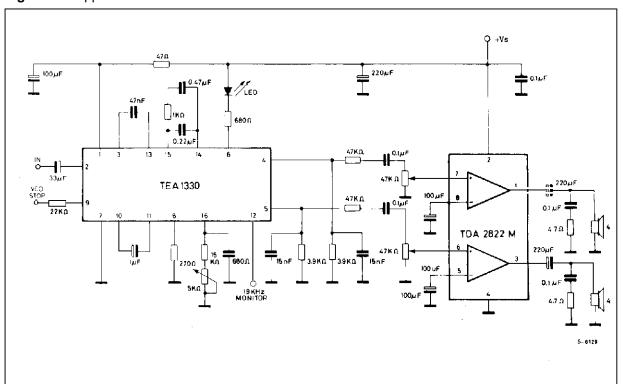


Figure 18: Portable Radio Cassette Players

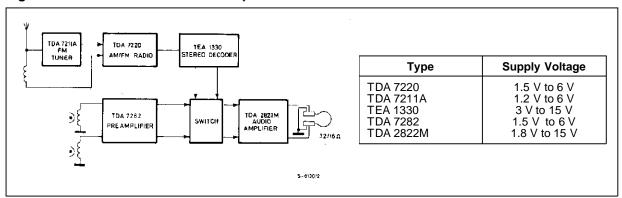


Figure 19: Portable Stereo Radios

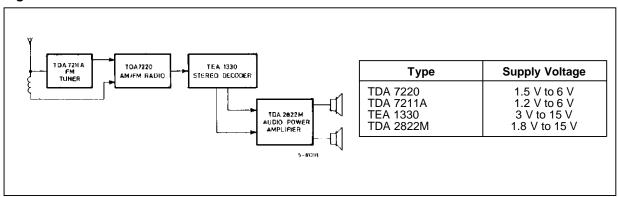
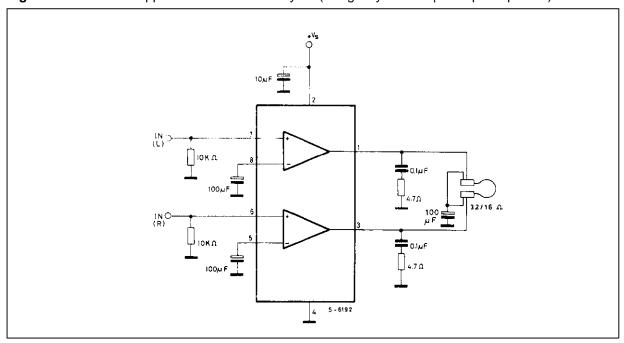


Figure 20: Low Cost Application in Portable Players (using only one 100μF output capacitor)



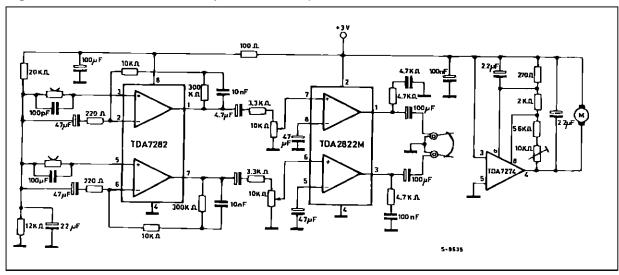
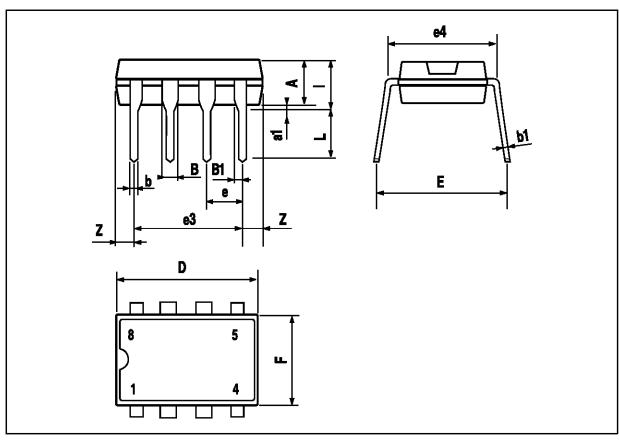


Figure 21: 3V Stereo Cassette Player with Motot Speed Control

TDA2822M

MINIDIP PACKAGE MECHANICAL DATA

DIM.		mm		inch		
Diwi.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
Α		3.32			0.131	
a1	0.51			0.020		
В	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
Е	7.95		9.75	0.313		0.384
е		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0.260
I			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060



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