

DUAL LOW-VOLTAGE POWER AMPLIFIER

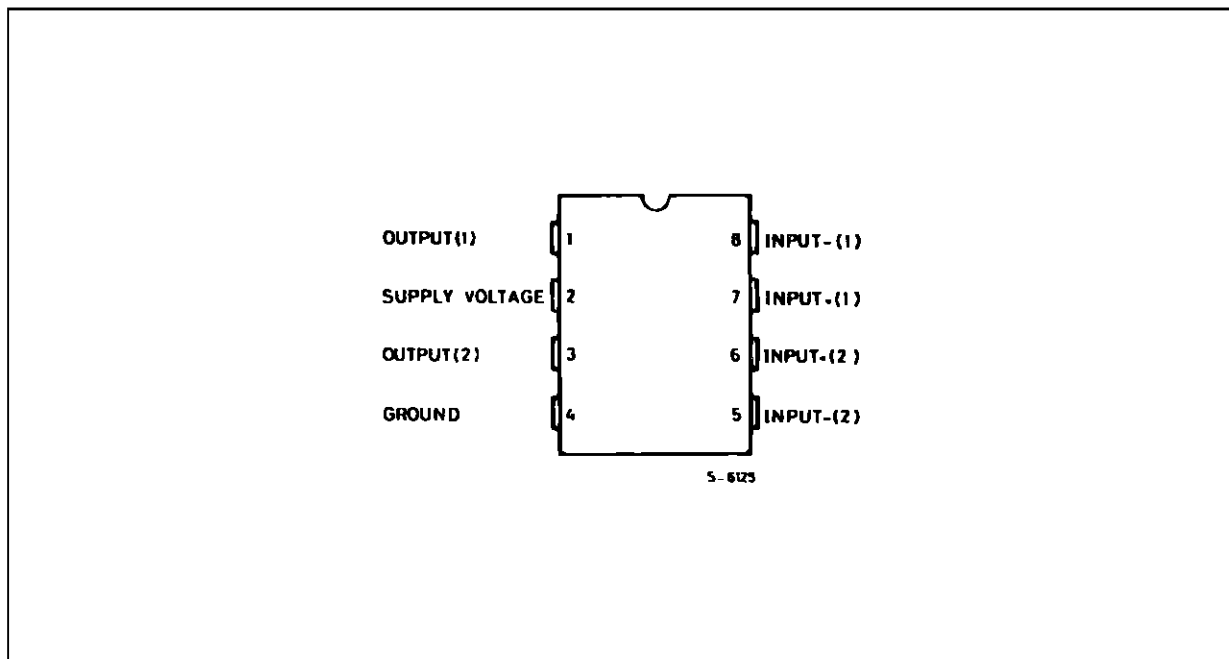
- SUPPLY VOLTAGE DOWN TO 1.8V
- LOW CROSSOVER DISTORSION
- LOW QUIESCENT CURRENT
- BRIDGE OR STEREO CONFIGURATION



DESCRIPTION

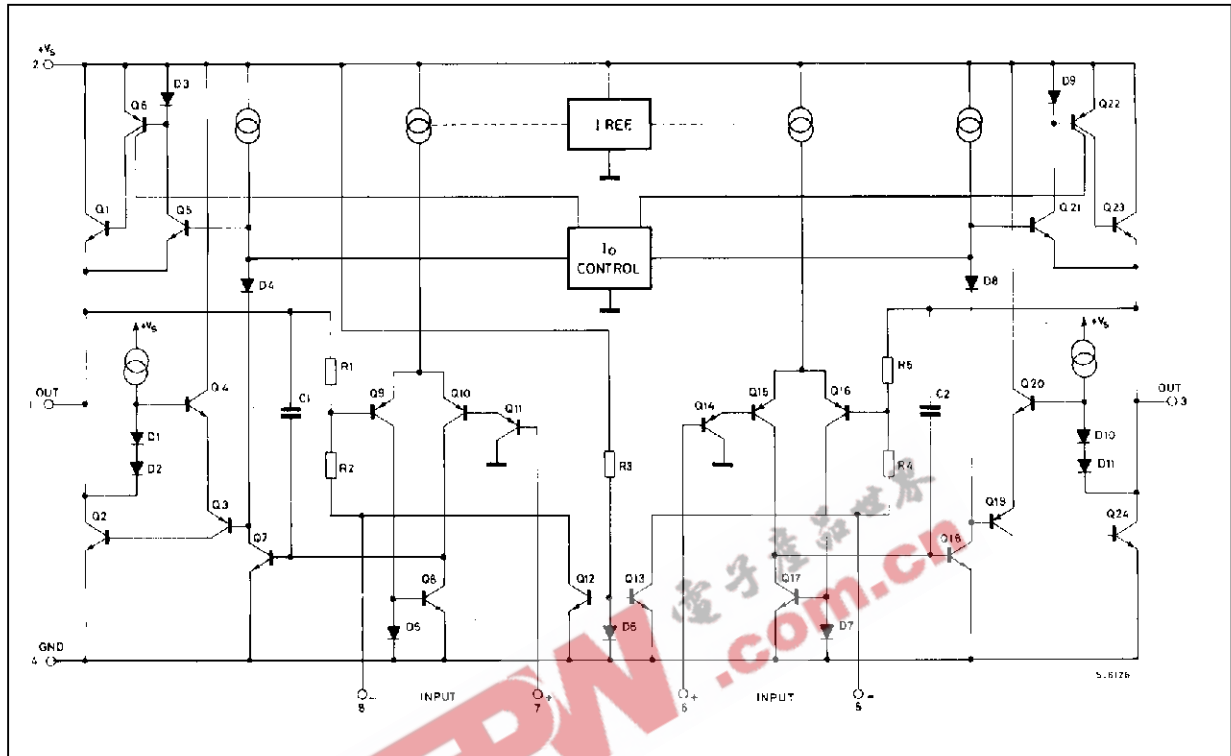
The TDA2822M is a monolithic integrated circuit in 8 lead Minidip package. It is intended for use as dual audio power amplifier in portable cassette players and radios.

PIN CONNECTION (Top view)



TDA2822M

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	15	V
I_o	Peak Output Current	1	A
P_{tot}	Total Power Dissipation at $T_{amb} = 50\text{ }^\circ\text{C}$ at $T_{case} = 50\text{ }^\circ\text{C}$	1 1.4	W W
T_{stg}, T_j	Storage and Junction Temperature	- 40, + 150	$^\circ\text{C}$

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient Max.	100	$^\circ\text{C}/\text{W}$
$R_{th\ j-case}$	Thermal Resistance Junction-pin (4) Max.	70	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STEREO (test circuit of Figure 1)						
V_S	Supply Voltage		1.8		15	V
V_o	Quiescent Output Voltage	$V_S = 3V$		2.7 1.2		V V
I_d	Quiescent Drain Current			6	9	mA
I_b	Input Bias Current			100		nA
P_o	Output Power (each channel) ($f = 1kHz$, $d = 10\%$)	$R_L = 32\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$ $R_L = 16\Omega$ $V_S = 6V$ $R_L = 8\Omega$ $V_S = 9V$ $V_S = 6V$ $R_L = 4\Omega$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$	90 15 170 300 450	300 120 60 20 5 220 1000 380 650 320 110		mW
d	Distortion ($f = 1kHz$)	$R_L = 32\Omega$ $P_o = 40mW$ $R_L = 16\Omega$ $P_o = 75mW$ $R_L = 8\Omega$ $P_o = 150mW$		0.2 0.2 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			k Ω
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	$f = 100Hz$, $C_1 = C_2 = 100\mu F$	24	30		dB
C_s	Channel Separation	$f = 1kHz$		50		dB
BRIDGE (test circuit of Figure 2)						
V_S	Supply Voltage		1.8		15	V
I_d	Quiescent Drain Current	$R_L = \infty$		6	9	mA
V_{os}	Output Offset Voltage (between the outputs)	$R_L = 8\Omega$			± 50	mV
I_b	Input Bias Current			100		nA
P_o	Output Power ($f = 1kHz$, $d = 10\%$)	$R_L = 32\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$ $R_L = 16\Omega$ $V_S = 9V$ $V_S = 6V$ $V_S = 3V$ $R_L = 8\Omega$ $V_S = 6V$ $V_S = 4.5V$ $V_S = 3V$ $R_L = 4\Omega$ $V_S = 4.5V$ $V_S = 3V$ $V_S = 2V$	320 50 900 200	1000 400 200 65 8 2000 800 120 1350 700 220 1000 350 80		mW
d	Distortion	$P_o = 0.5W$, $R_L = 8\Omega$, $f = 1kHz$		0.2		%
G_v	Closed Loop Voltage Gain	$f = 1kHz$		39		dB
R_i	Input Resistance	$f = 1kHz$	100			k Ω
e_N	Total Input Noise	$R_S = 10k\Omega$ B = Curve A B = 22Hz to 22kHz		2.5 3		μV μV
SVR	Supply Voltage Rejection	$f = 100Hz$		40		dB
B	Power Bandwidth (-3dB)	$R_L = 8\Omega$, $P_o = 1W$		120		kHz

Figure 1 : Test Circuit (Stereo)

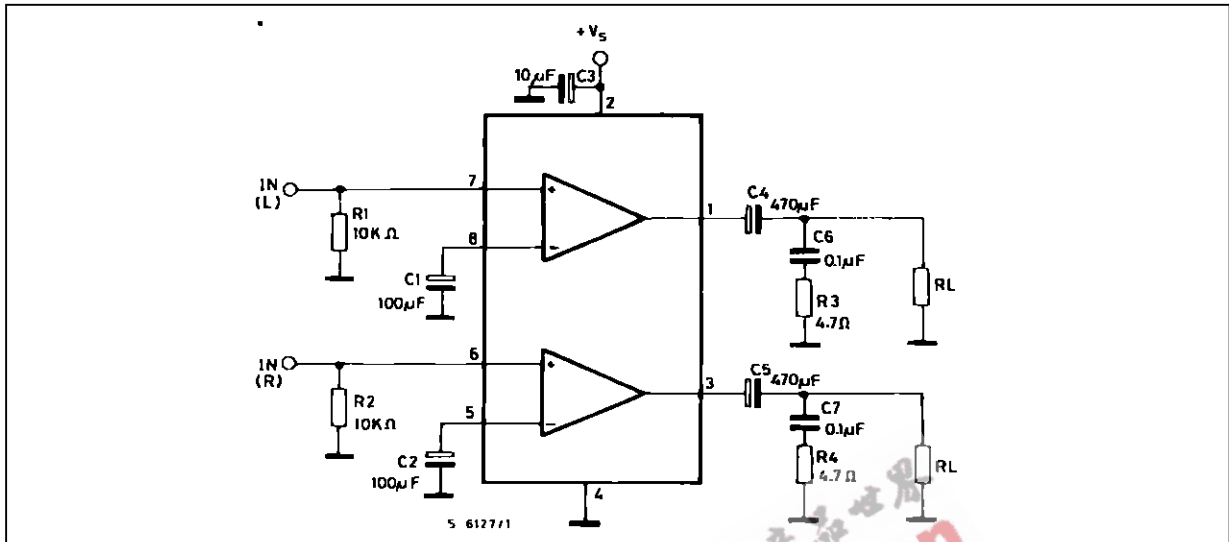


Figure 2 : Test Circuit (Bridge)

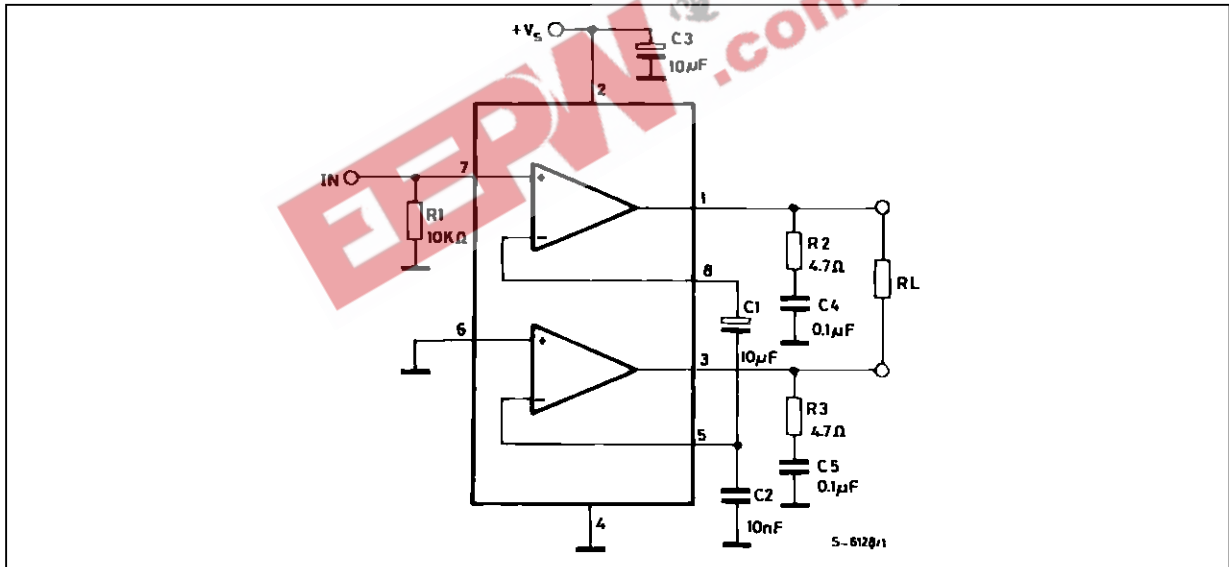


Figure 3 : P.C. Board and Components Layout of the Circuit of Figure 1

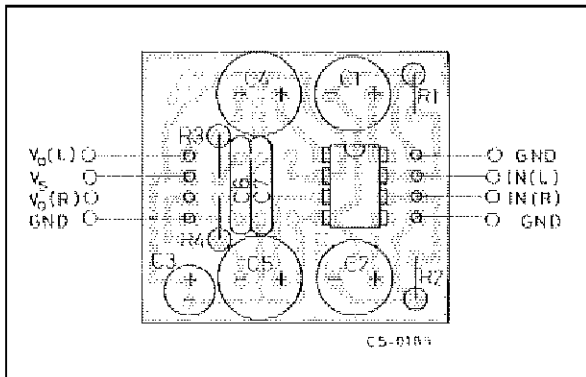


Figure 4 : P.C. Board and Components Layout of the Circuit of Figure 2

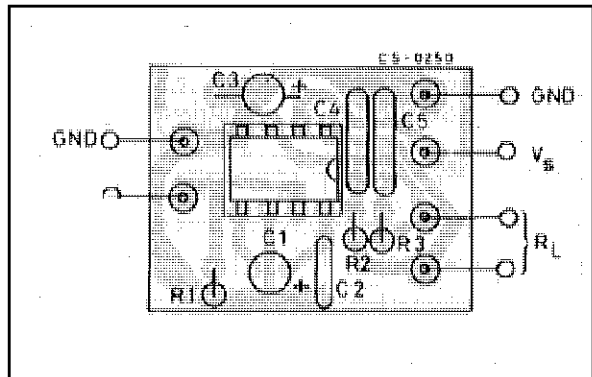


Figure 5 : Quiescent Current versus Supply Voltage

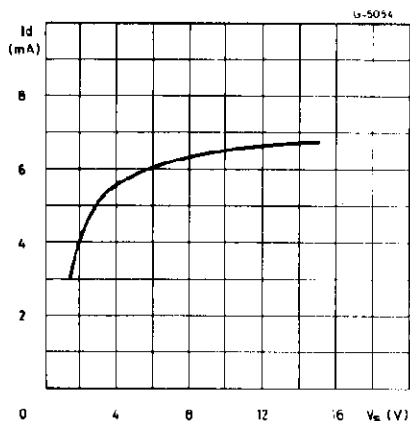


Figure 6 : Supply Voltage Rejection versus Frequency

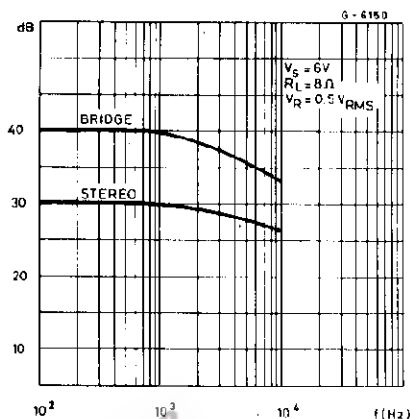


Figure 7 : Output Power versus Supply Voltage (THD = 10%, f = 1kHz Stereo)

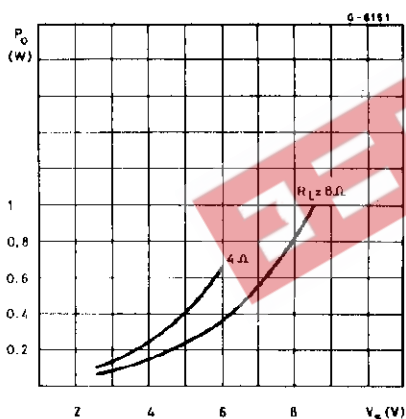


Figure 8 : Distorsion versus Output Power (Stereo)

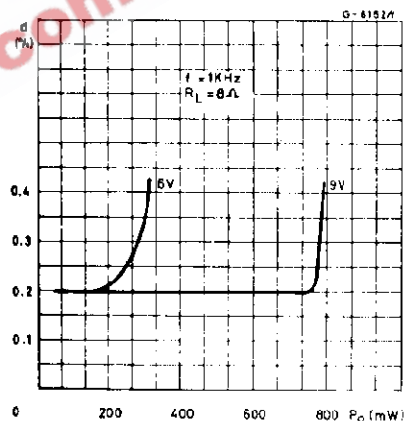


Figure 9 : Distorsion versus Output Power (Stereo)

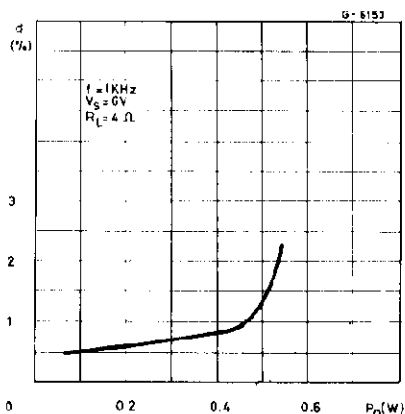


Figure 10 : Output Power versus Supply Voltage (Bridge)

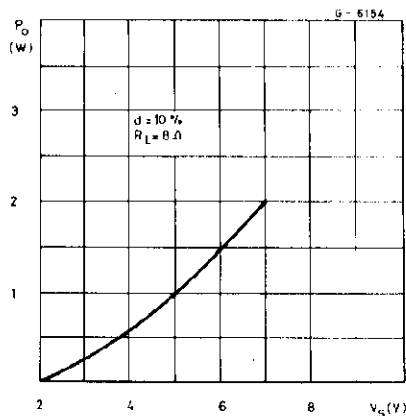


Figure 11 : Distorsion versus Output Power (Bridge)

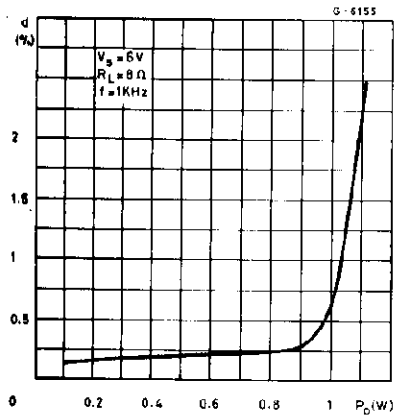


Figure 12 : Total Power Dissipation versus Output Power (Bridge)

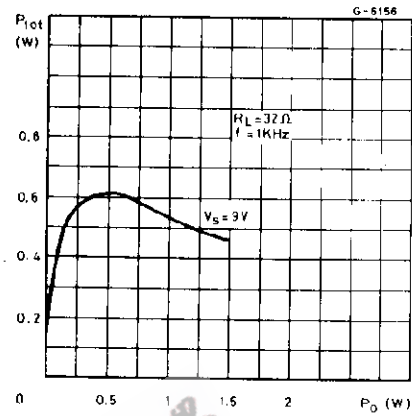


Figure 13 : Total Power Dissipation versus Output Power (Bridge)

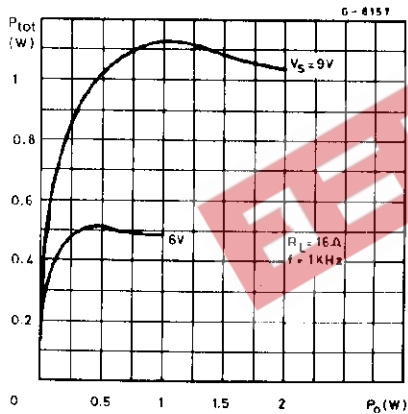


Figure 14 : Total Power Dissipation versus Output Power (Bridge)

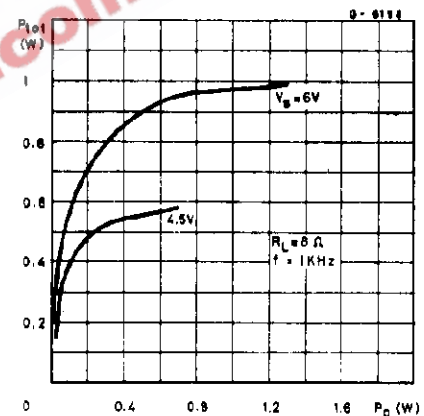


Figure 15 : Total Power Dissipation versus Output Power (Bridge)

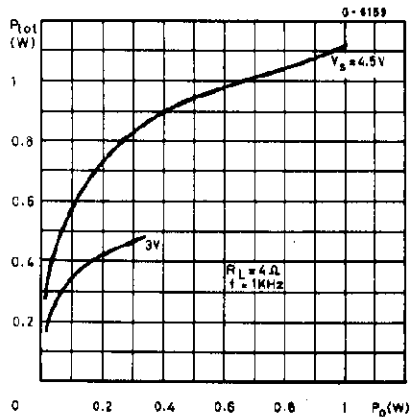


Figure 16 : Typical Application in Portable Players

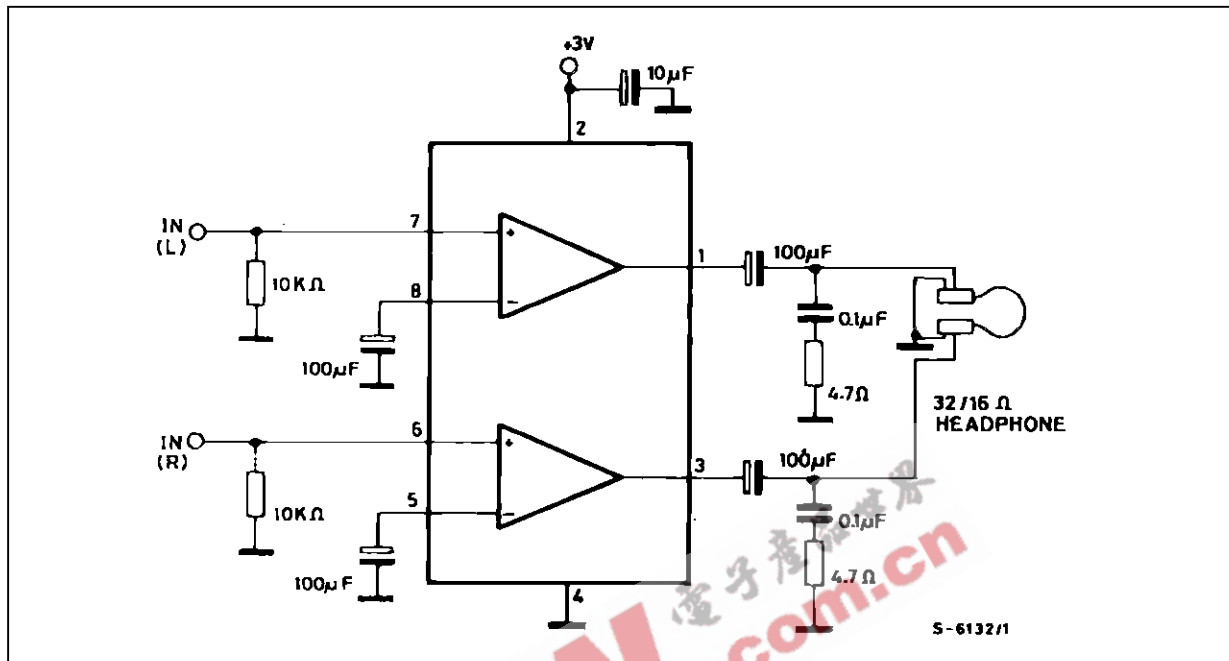
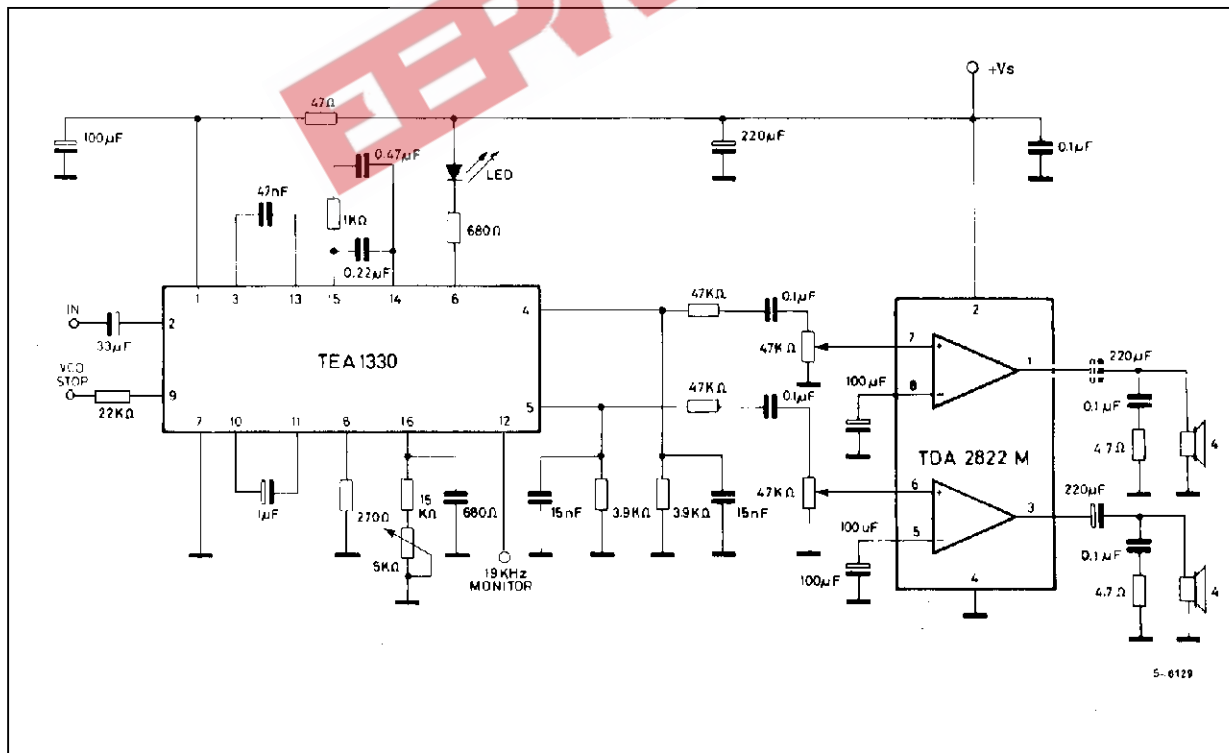


Figure 17 : Application in Portable Radio Receivers



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Figure 18 : Portable Radio Cassette Players

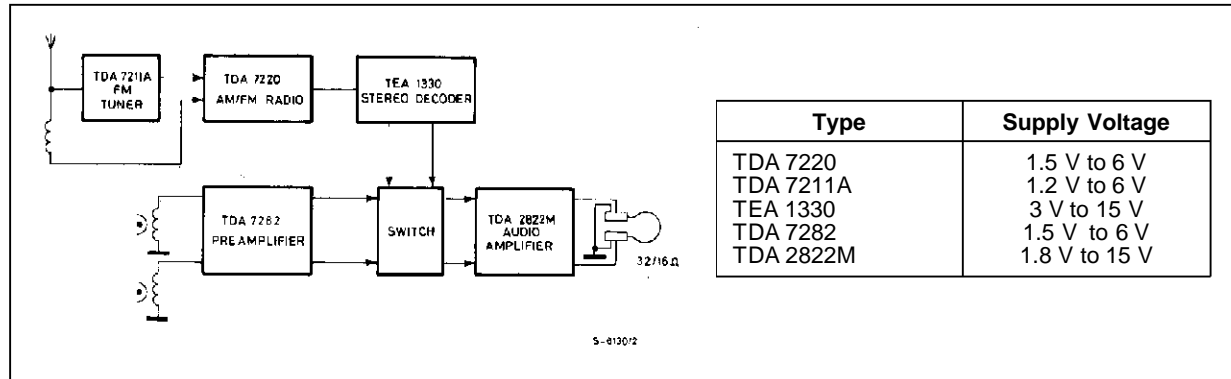


Figure 19 : Portable Stereo Radios

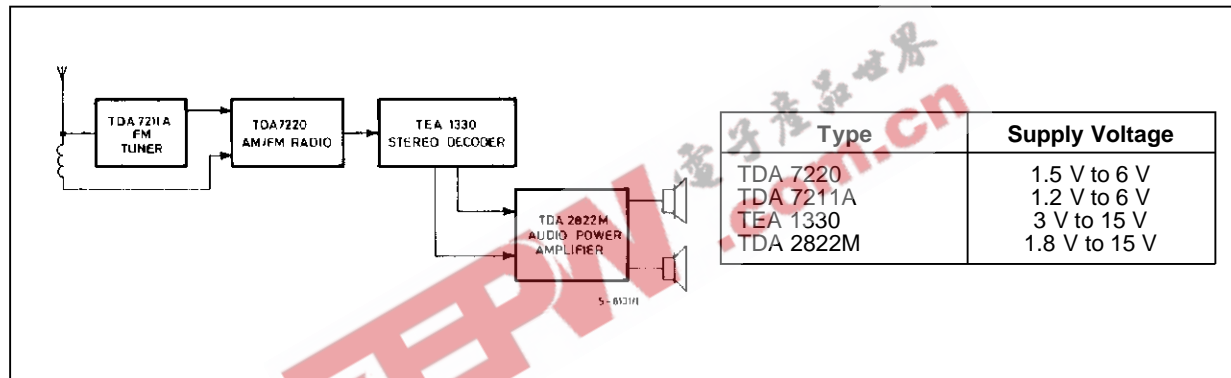


Figure 20 : Low Cost Application in Portable Players (using only one 100μF output capacitor)

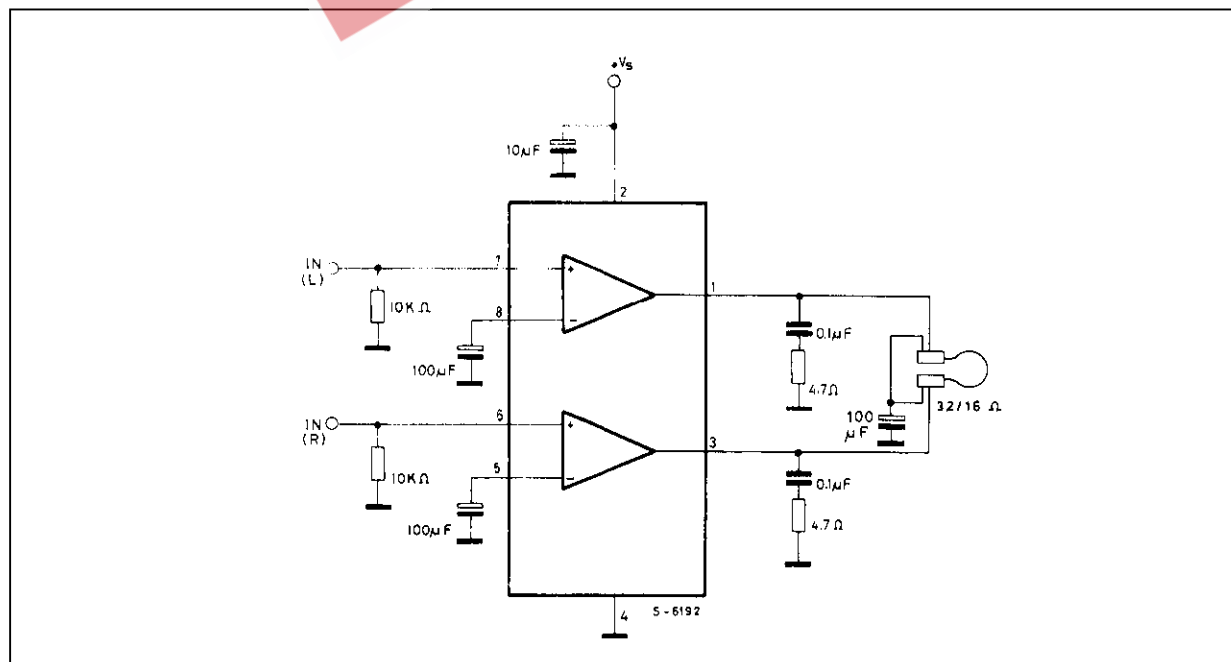
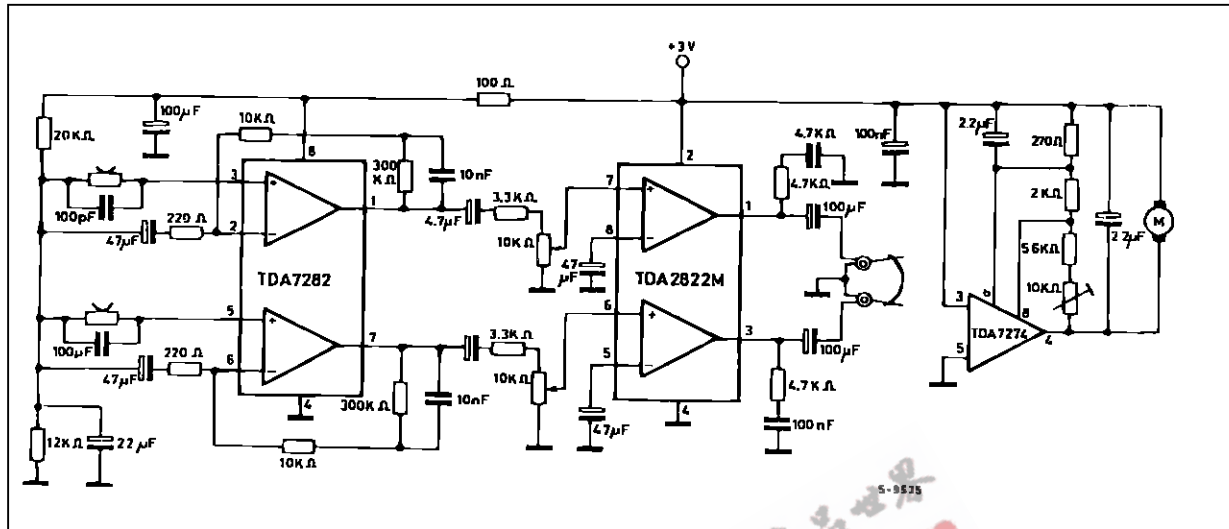


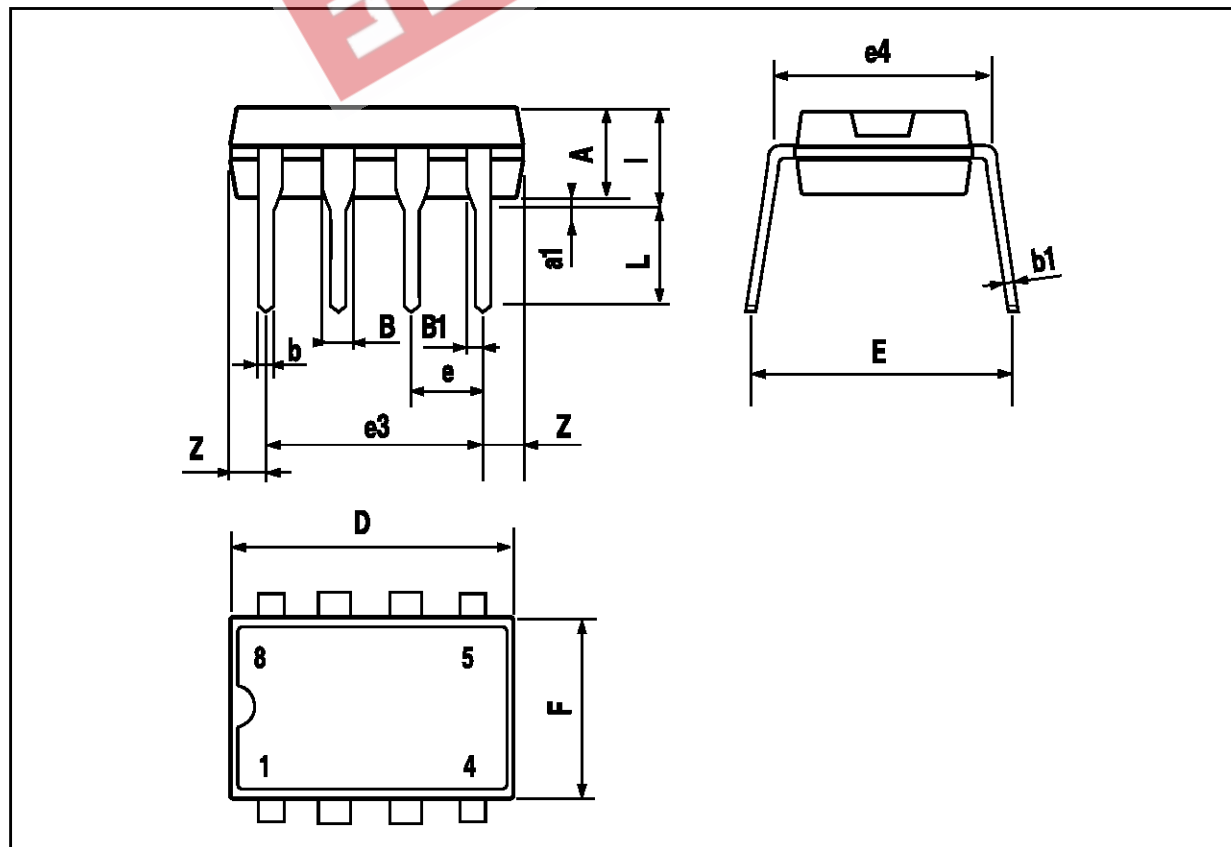
Figure 21 : 3V Stereo Cassette Player with Motot Speed Control



TDA2822M

MINIDIP PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		3.32			0.131	
a1	0.51			0.020		
B	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
E	7.95		9.75	0.313		0.384
e		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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