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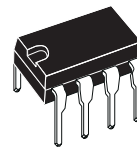




TDA2822M

DUAL LOW-VOLTAGE POWER AMPLIFIER

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



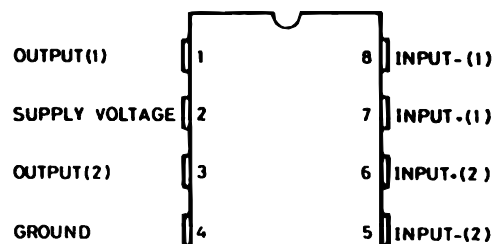
MINIDIP

ORDERING NUMBER : TDA2822M

DESCRIPTION

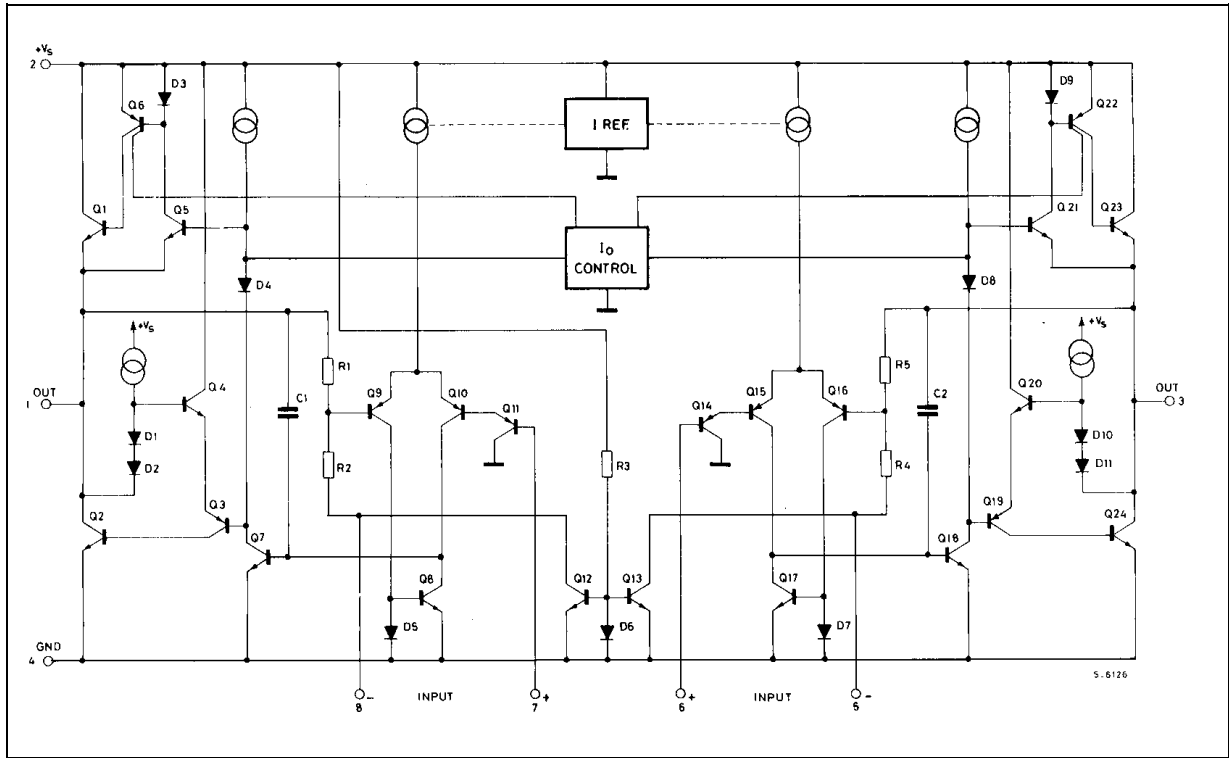
The TDA2822M is a monolithic integrated circuit in 8 lead Minidip package. It is intended for use as dual audio power amplifier in portable cassette players and radios.

PIN CONNECTION (Top view)



S-6125

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	$^\circ\text{C/W}$
$R_{th\ j-case}$	Thermal Resistance Junction-pin (4)	Max. 70	$^\circ\text{C/W}$

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	$f = 100Hz$, $C1 = C2 = 100\mu F$	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

Figure 1 : Test Circuit (Stereo)

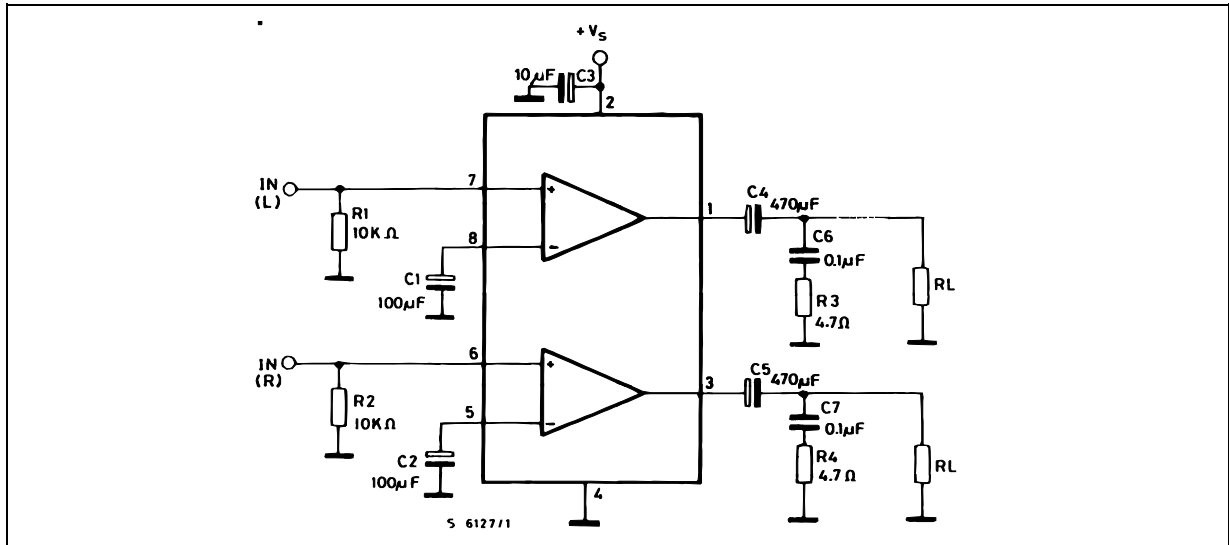


Figure 2 : Test Circuit (Bridge)

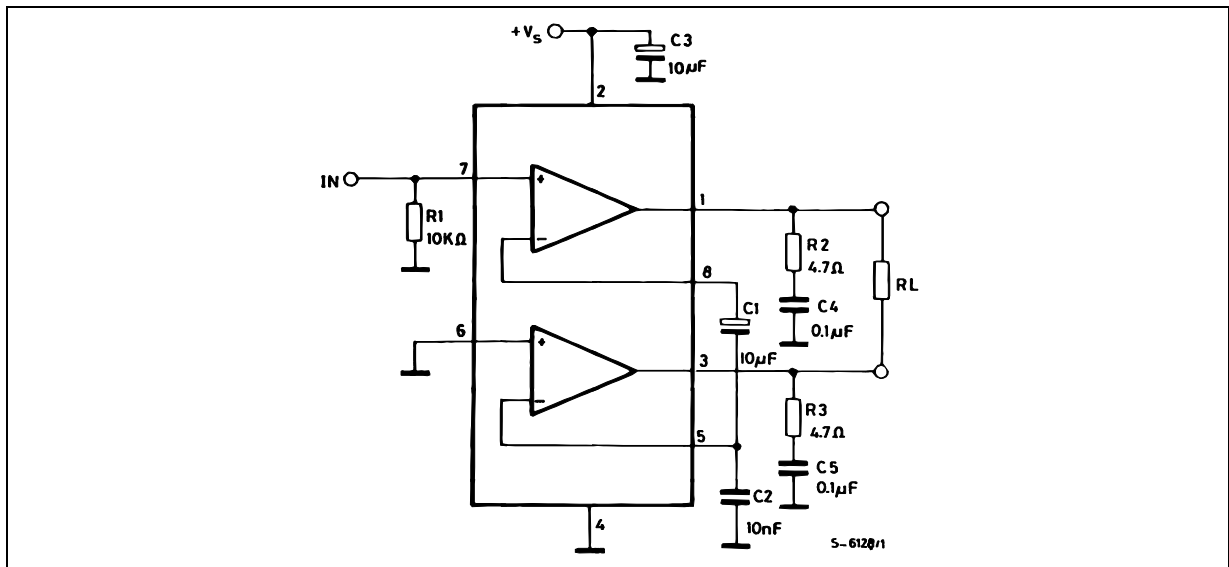


Figure 3 : P.C. Board and Components Layout of the Circuit of Figure 1

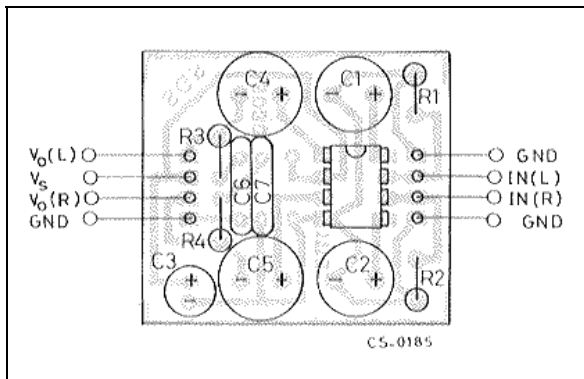


Figure 4 : P.C. Board and Components Layout of the Circuit of Figure 2

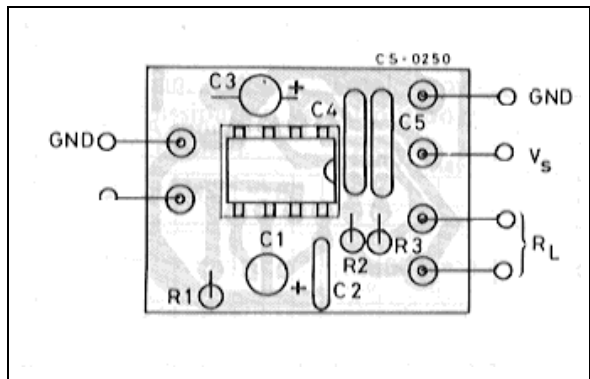


Figure 5 : Quiescent Current versus Supply Voltage

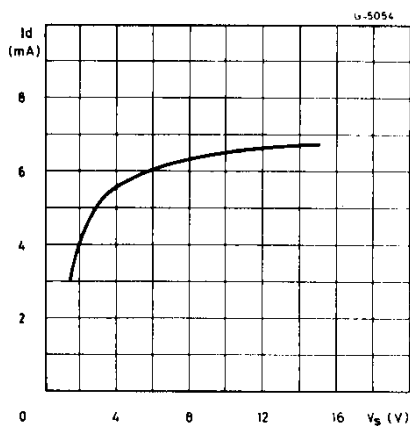


Figure 6 : Supply Voltage Rejection versus Frequency

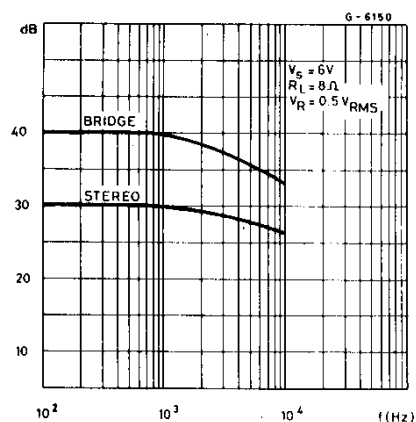


Figure 7 : Output Power versus Supply Voltage (THD = 10%, $f = 1\text{kHz}$ Stereo)

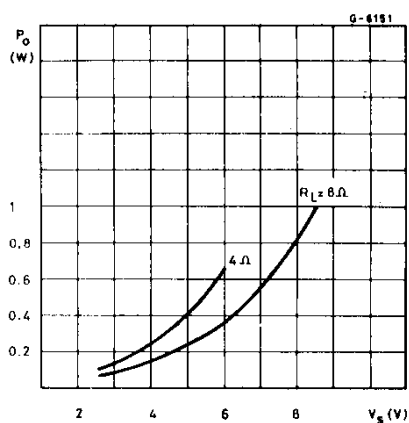


Figure 8 : Distorsion versus Output Power (Stereo)

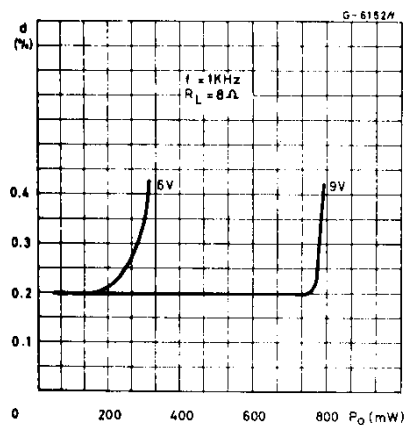


Figure 9 : Distorsion versus Output Power (Stereo)

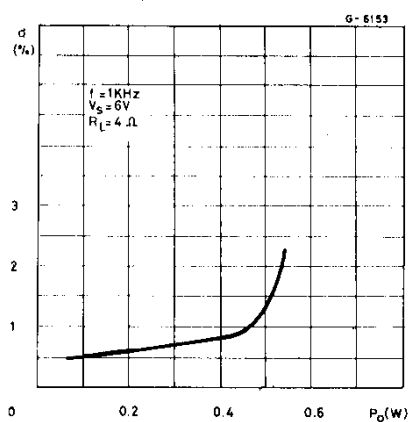


Figure 10 : Output Power versus Supply Voltage (Bridge)

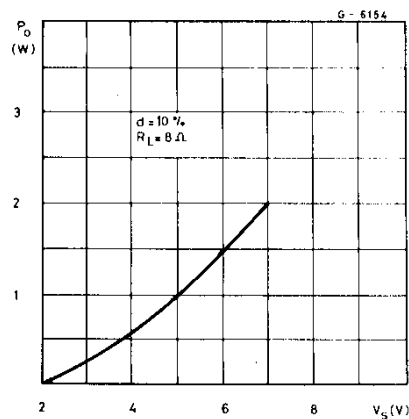


Figure 11 : Distorsion versus Output Power (Bridge)

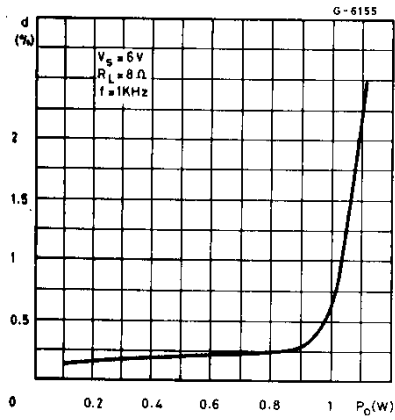


Figure 12 : Total Power Dissipation versus Output Power (Bridge)

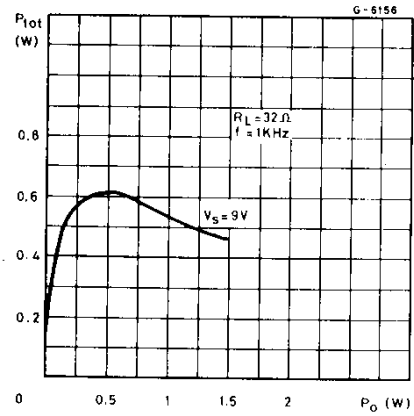


Figure 13 : Total Power Dissipation versus Output Power (Bridge)

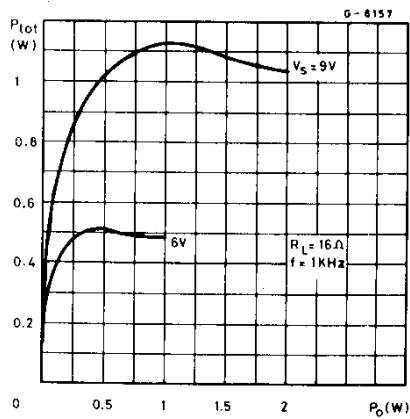


Figure 14 : Total Power Dissipation versus Output Power (Bridge)

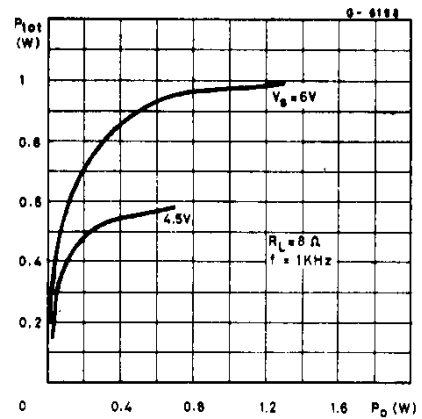


Figure 15 : Total Power Dissipation versus Output Power (Bridge)

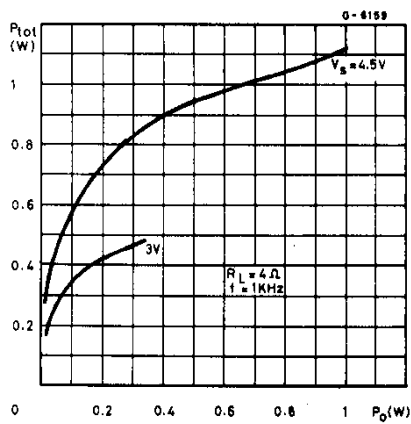


Figure 16 : Typical Application in Portable Players

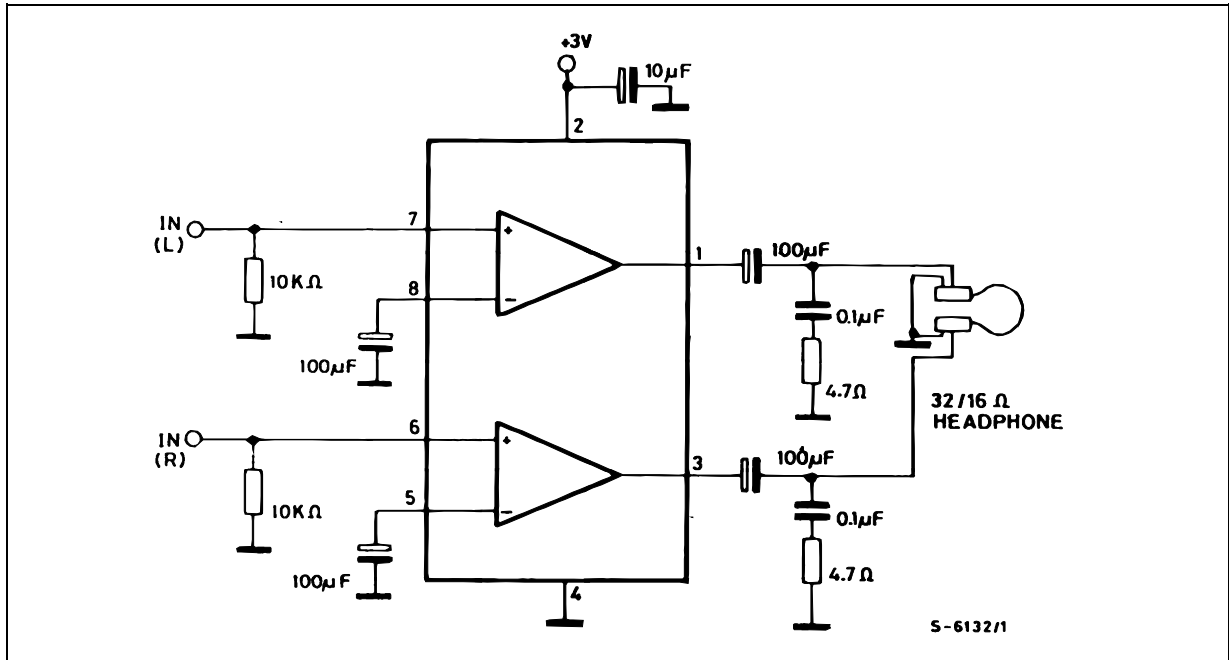
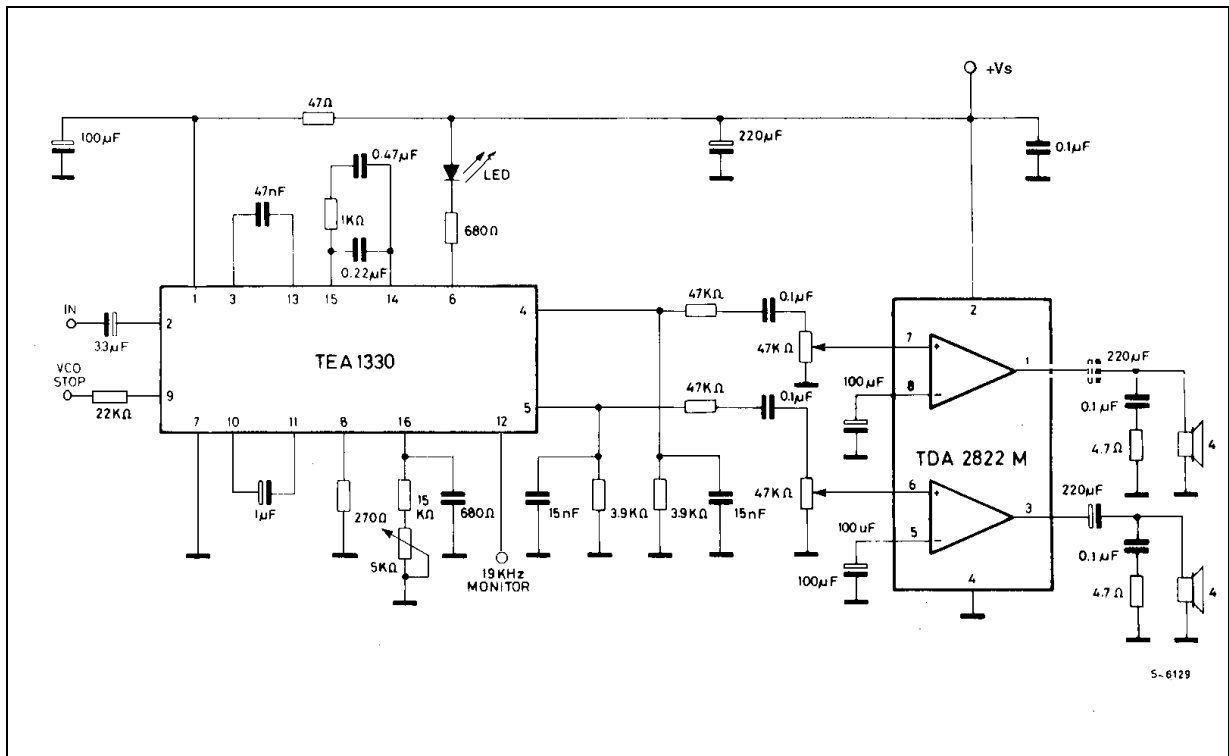


Figure 17 : Application in Portable Radio Receivers



TDA2822M

Figure 18 : Portable Radio Cassette Players

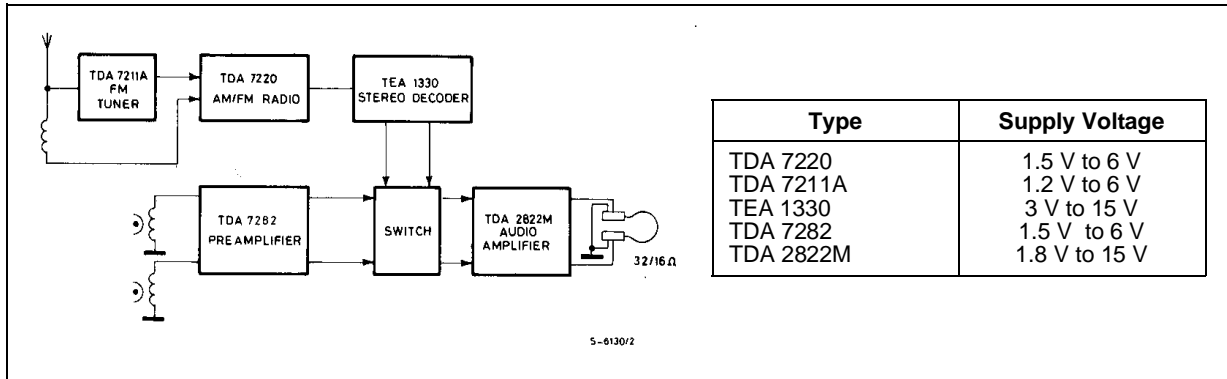


Figure 19 : Portable Stereo Radios

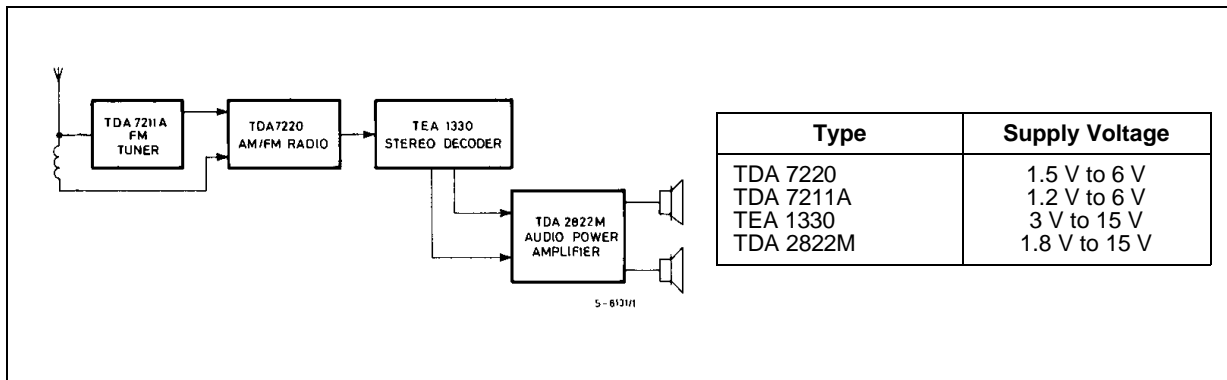


Figure 20 : Low Cost Application in Portable Players (using only one 100µF output capacitor)

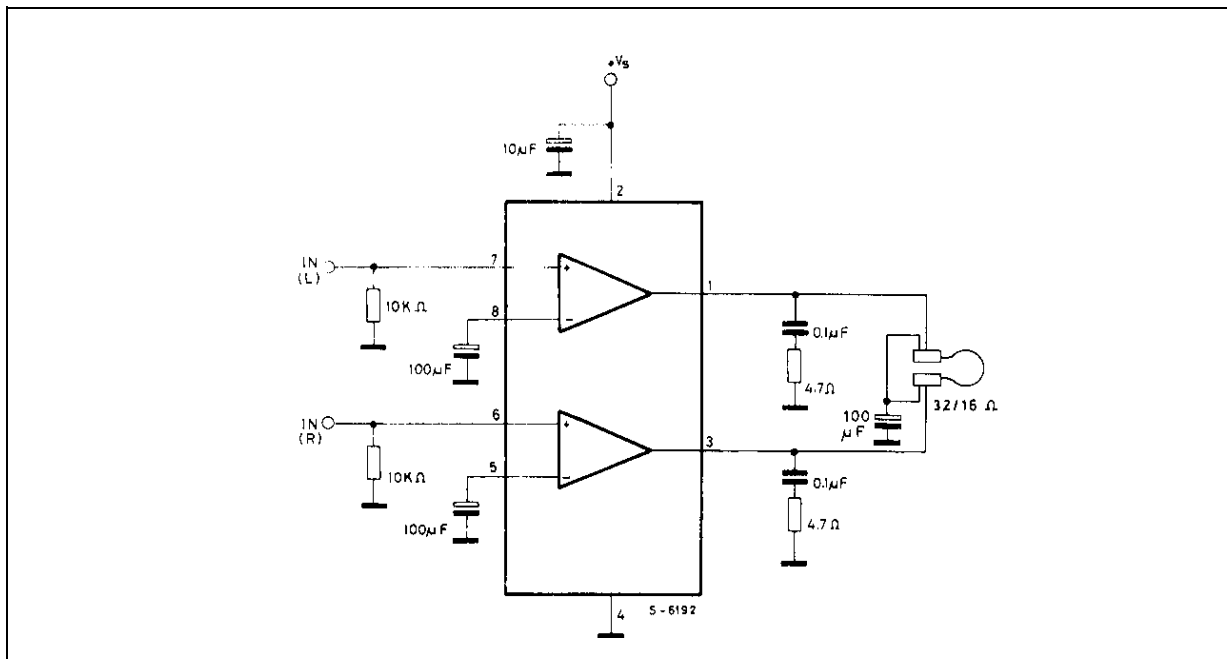
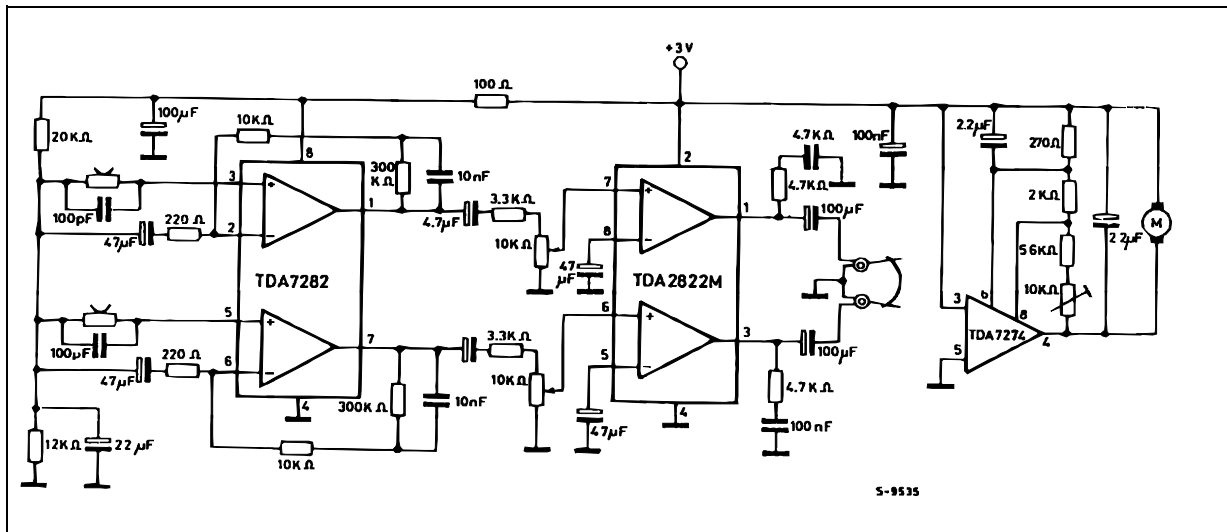
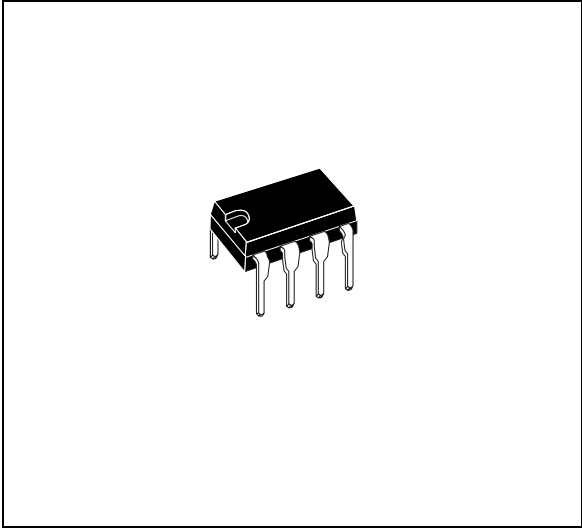


Figure 21 : 3V Stereo Cassette Player with Motot Speed Control

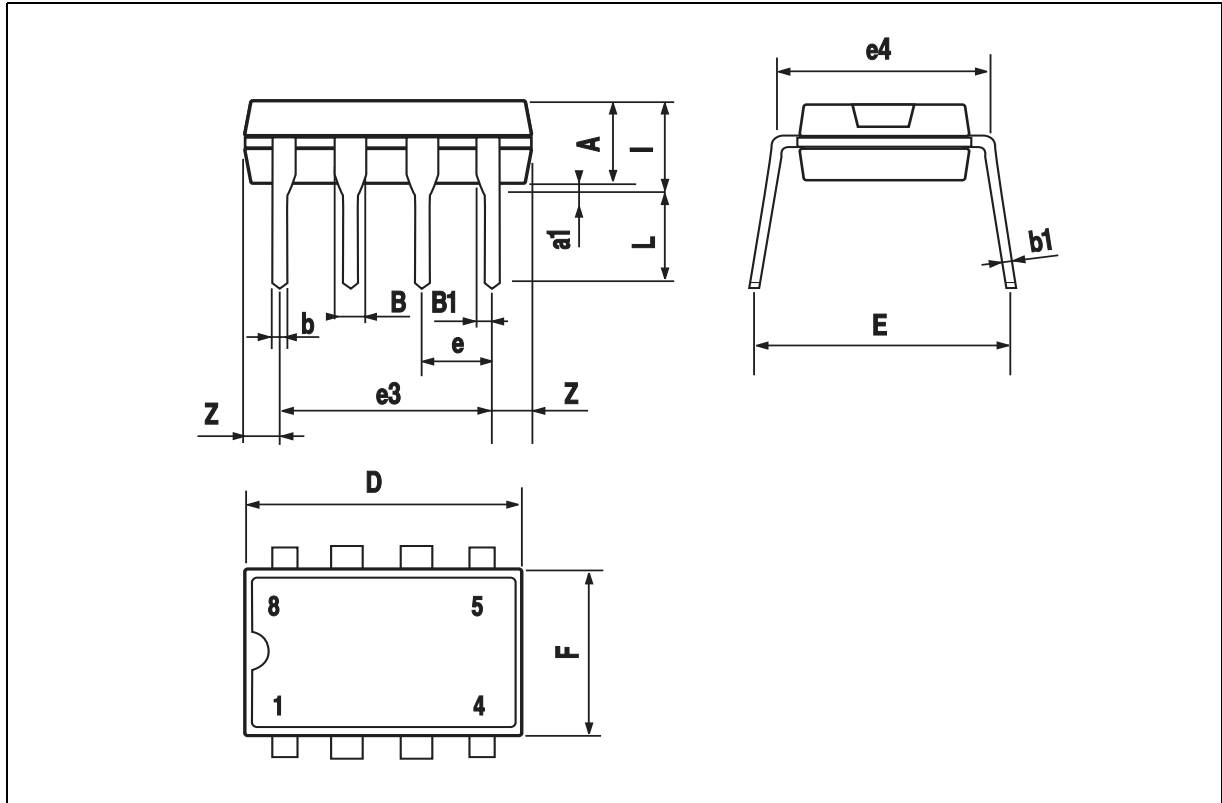


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0.260
I			5.08			0.200
L	3.18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

OUTLINE AND MECHANICAL DATA



Minidip



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