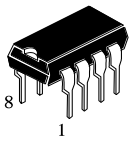
Dual Low - Voltage Power Amplifier

KL2822M

DESCRIPTION

The KL2822M is a monolithic integrated circuit in 8 lead mini DIP package. It is intended for use as dual audio power amplifier in portable cassette players and radios.



Mini DIP

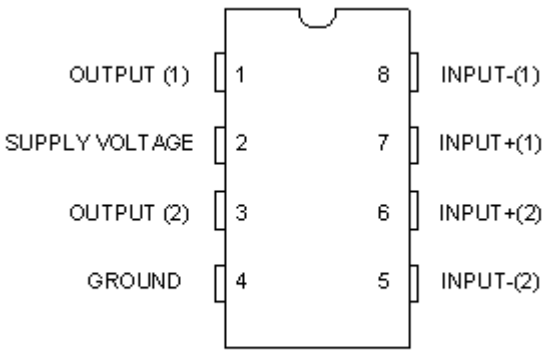
ORDERING INFORMATION

KL2822MN Plastic
T_A = 0° to 70° C

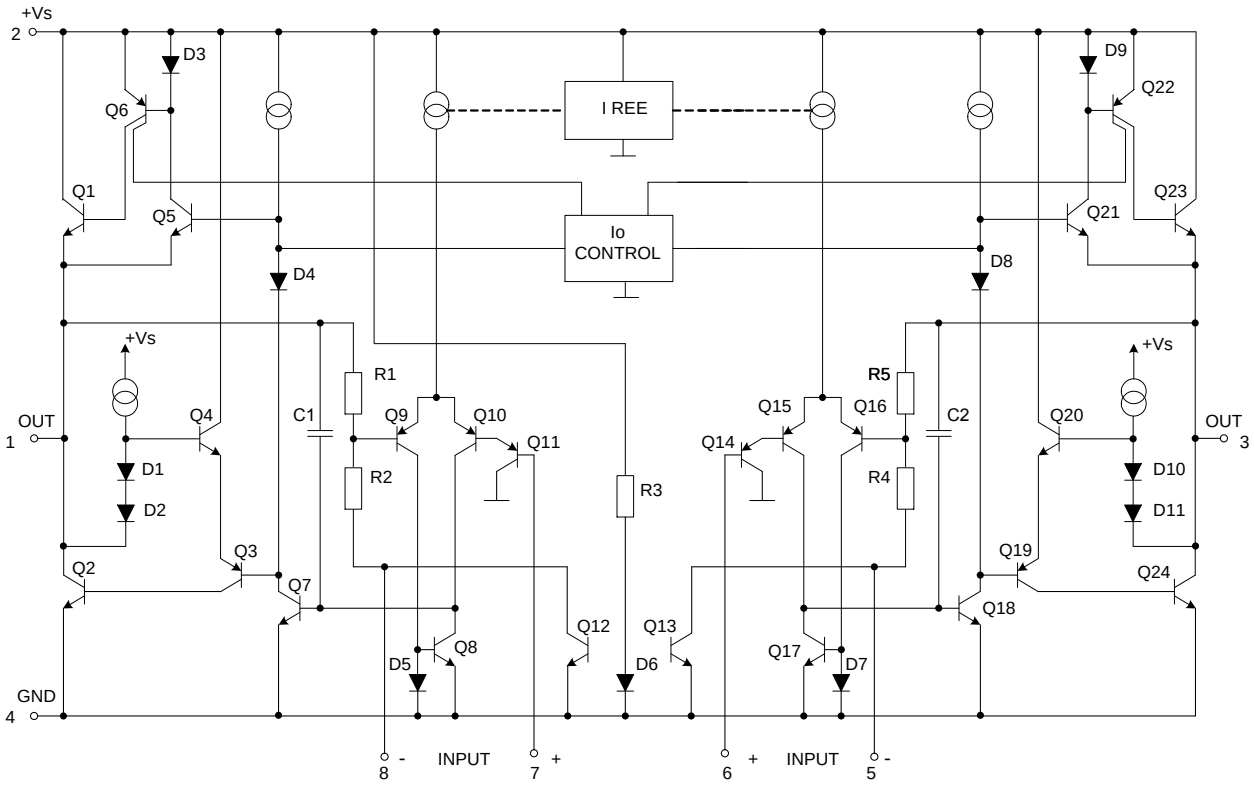
FEATURES

- Supply Voltage Down To 1.8 V
- Low Crossover Distortion
- Low Quiescent Current
- Bridge or Stereo Configuration

PIN CONNECTION (Top view)



SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
Vs	Supply Voltage	15	V
Io	Peak Output Current	1	A
P_{tot}	Total Power Dissipation at T_{amb} = 50ºC at T_{case} = 50ºC	1 1.4	W W
T_{stg}, T_j	Storage and Junction Temperature	-40, +150	ºC

Electrical Characteristics (Cs =6V, Tamb = 25 ºC, unless otherwise specified)

Symbol		Test Conditions	Min	Typ	Max	Unit
STEREO (test circuit of Figure 1)						
Vs	Supply Voltage		1.8		15	V
Vo	Quiescent Output Voltage	Vs = 3V		2.7 1.2		V V
Id	Quiescent Drain Current			6	9	mA
Ib	Input Bias Current			100		nA
Po	Output Power (each channel) (f = 1kHz, d = 10%)	R_L = 32Ω Vs = 9V Vs = 6V Vs = 4.5V Vs = 3V Vs = 2V R_L = 16Ω Vs = 6V R_L = 8Ω Vs = 9V Vs = 6V R_L = 4Ω Vs = 6V Vs = 4.5V Vs = 3V	 90 15 170 300 450	300 120 60 20 5 220 1000 380 650 320 110		mW
d	Distortion (f = 1kHz)	R_L = 32Ω Po = 40mW R_L = 16Ω Po = 75mW R_L = 8Ω Po = 150mW		0.2 0.2 0.2		% % %
Gv	Closed Loop Voltage Gain	f = 1kHz	36	39	41	dB
ΔGv	Channel Balance				±1	dB
Ri	Input Resistance	f = 1kHz	100			kΩ
e_N	Total Input Noise	R_S = 10kΩ 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 (test circuit of Figure 2)						
Vs	Supply Voltage		1.8		15	V
Id	Quiescent Drain Current	R_L = ∞		6	9	mA
Vos	Output Offset Voltage (between the outputs)	R_L = 8Ω			±50	mV
Ib	Input Bias Current			100		nA
Po	Output Power (f = 1kHz, d = 10%)	R_L = 32Ω Vs = 9V Vs = 6V Vs = 4.5V Vs = 3V Vs = 2V R_L = 16Ω Vs = 9V Vs = 6V Vs = 3V R_L = 8Ω Vs = 6V Vs = 4.5V Vs = 3V R_L = 4Ω Vs = 4.5V Vs = 3V Vs = 2V	 320 50 900 200 	1000 400 200 65 8 2000 800 120 1350 700 220 1000 350 80		mW
d	Distortion (f = 1kHz)	R_L = 8Ω, Po = 0.5W, f = 1kHz		0.2		%
Gv	Closed Loop Voltage Gain	f = 1kHz		39		dB
Ri	Input Resistance	f = 1kHz	100			kΩ
e_N	Total Input Noise	R_S = 10kΩ 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 = 8Ω, Po = 1W		120		kHz

Figure 1 : Test Circuit (Stereo)

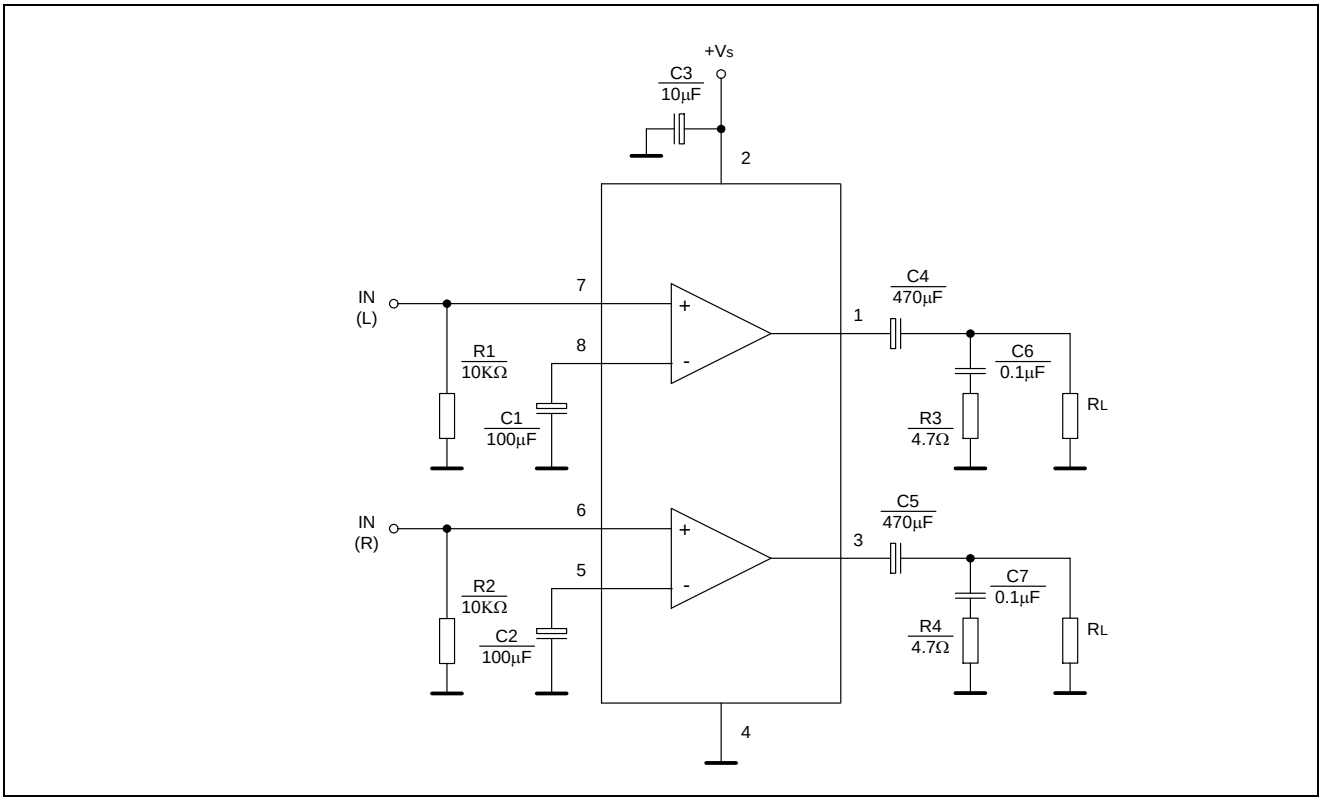


Figure 2 : Test Circuit (Bridge)

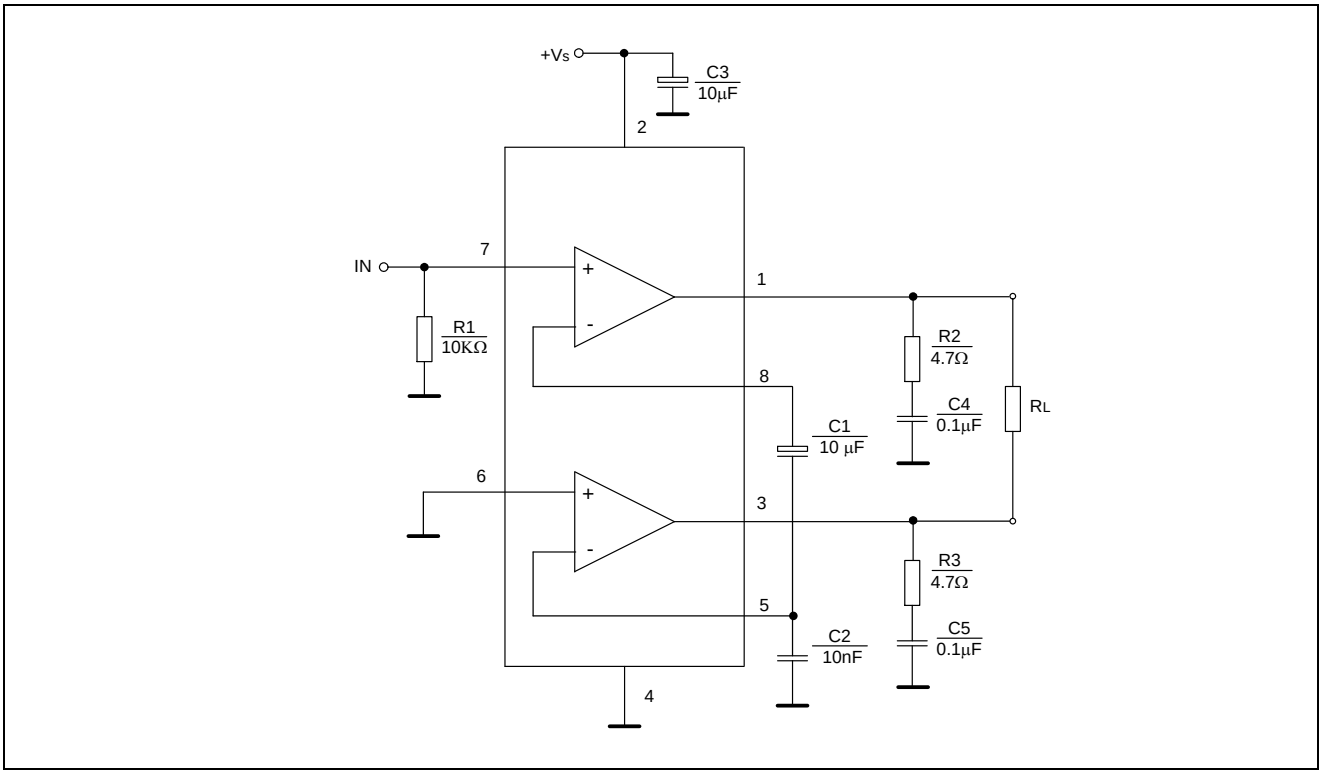


Figure 3 : Quiescent Current versus Supply Voltage

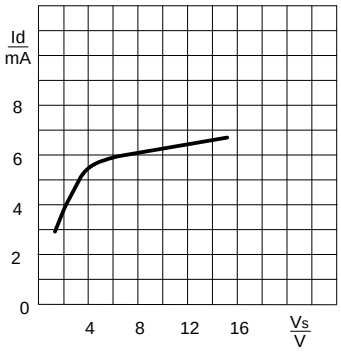


Figure 4 : Supply Voltage Rejection versus Frequency

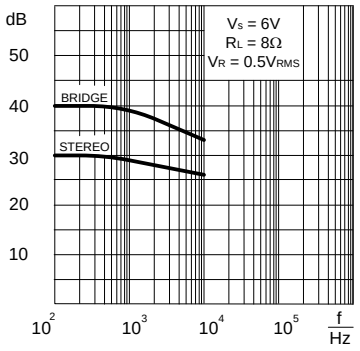


Figure 5 : Output Power versus Supply Voltage (THD = 10%, f = 1kHz Stereo)

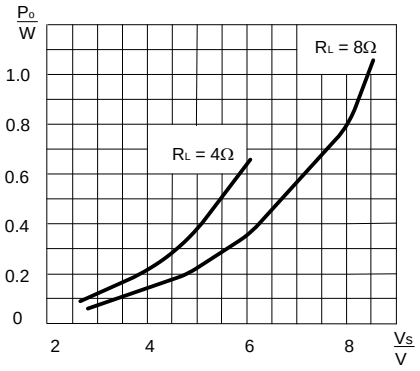


Figure 6 : Distorsion versus Output Power (Stereo)

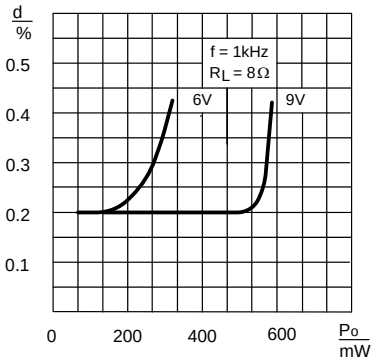


Figure 7 : Distorsion versus Output Power (Stereo)

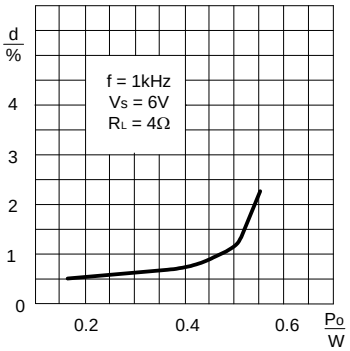


Figure 8 : Output Power versus Supply Voltage (Bridge)

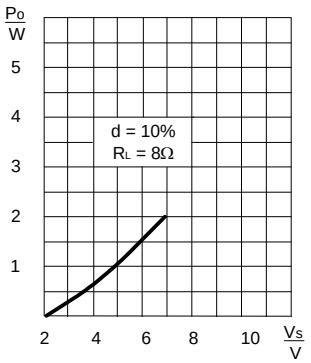


Figure 9 : Distorsion versus Output Power (Bridge)

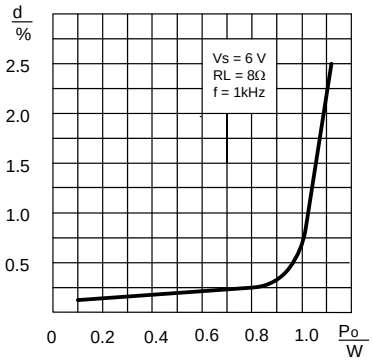


Figure 10 : Total Power Dissipation versus Output Power (Bridge)

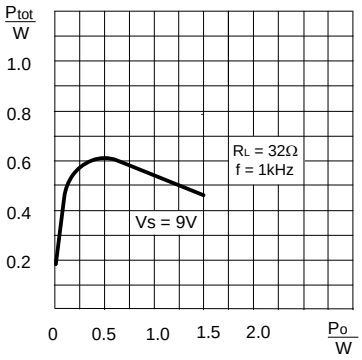


Figure 11 : Total Power Dissipation versus Output Power (Bridge)

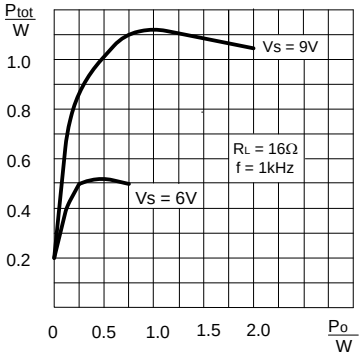


Figure 12 : Total Power Dissipation versus Output Power (Bridge)

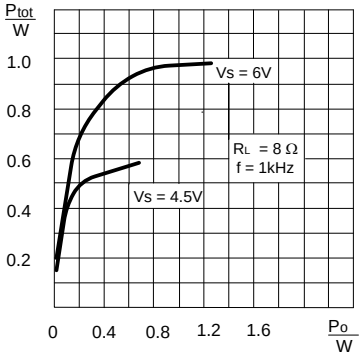


Figure 13 : Total Power Dissipation versus Output Power (Bridge)

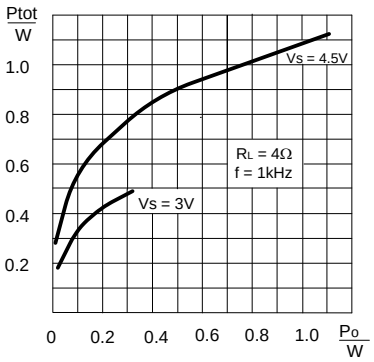


Figure 14 : Typical Application in Portable Players

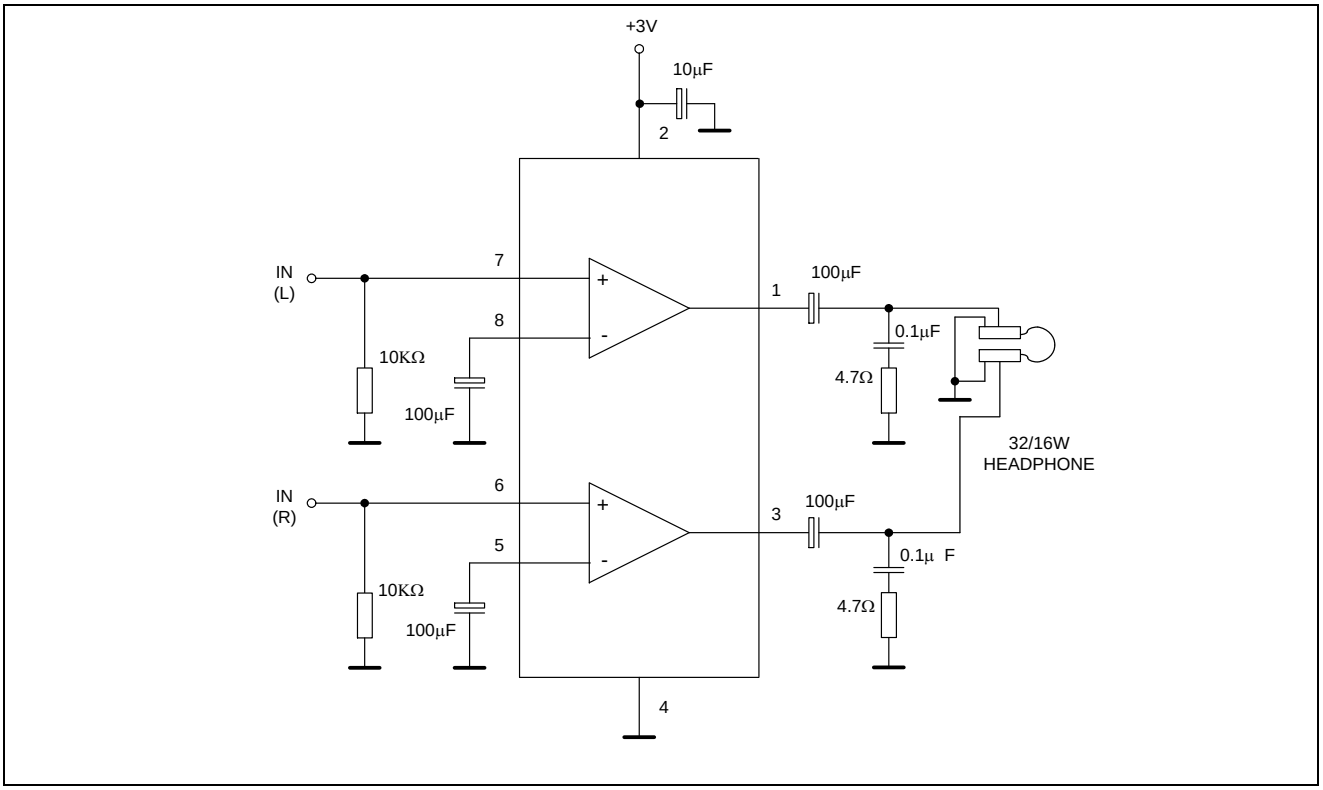


Figure 15 : Application in Portable Radio Receivers

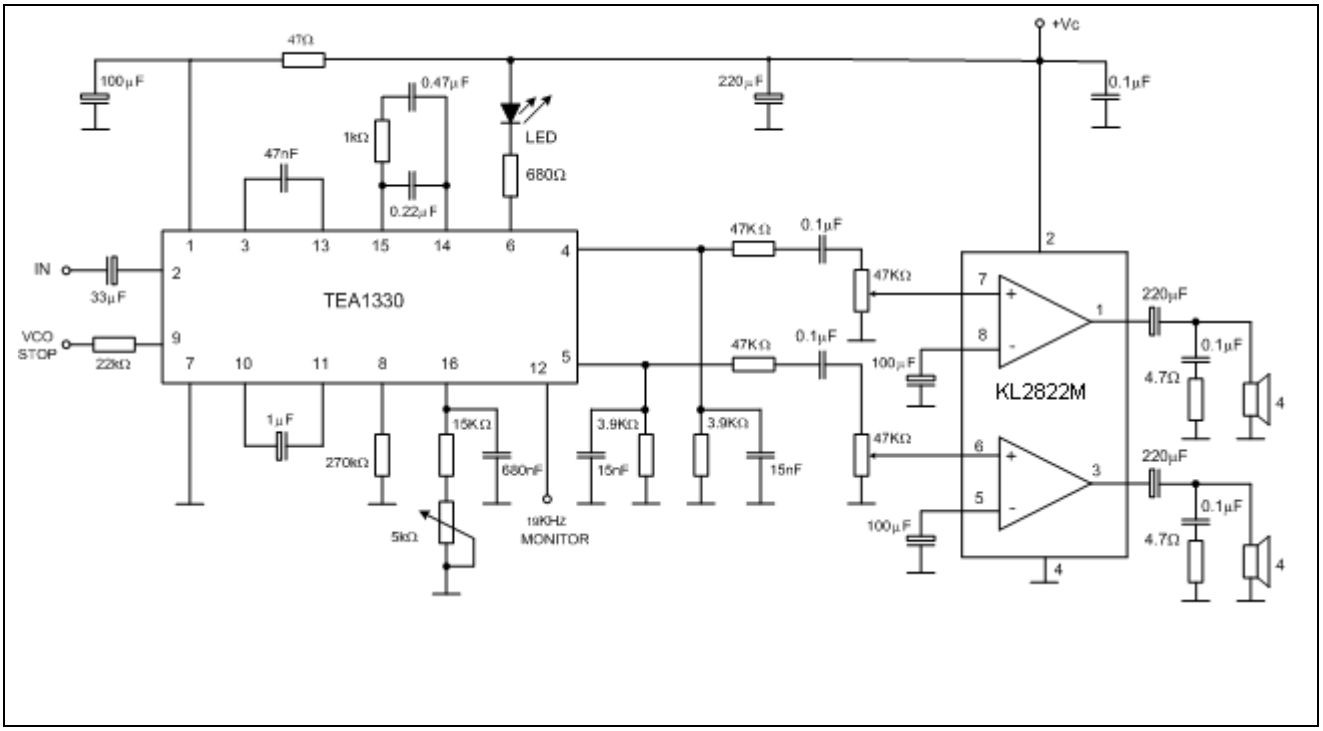
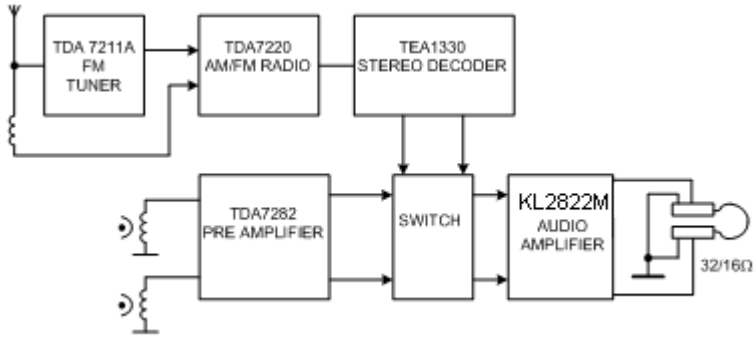
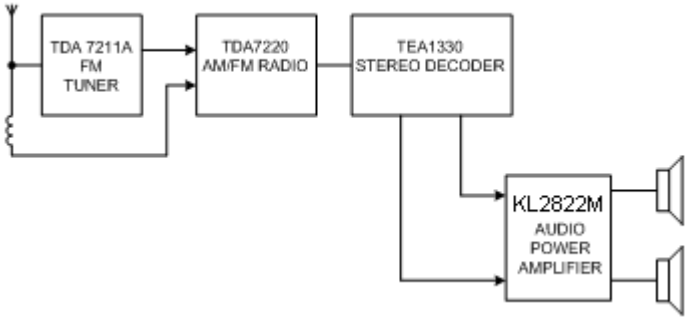


Figure 16 : Portable Radio Cassette Players



Type	Supply Voltage
TDA7220	1.5 V to 6 V
TDA7211A	1.2 V to 6 V
TEA1330	3 V to 15 V
TDA7282	1.5 V to 6 V
KL2822M	1.8 V to 15 V

Figure 17 : Portable Stereo Radios



Type	Supply Voltage
TDA7220	1.5 V to 6 V
TDA7211A	1.2 V to 6 V
TEA1330	3 V to 15 V
KL2822M	1.8 V to 15 V

Figure 18 : Low Cost Application in Portable Players (using only one 100mF output capacitor)

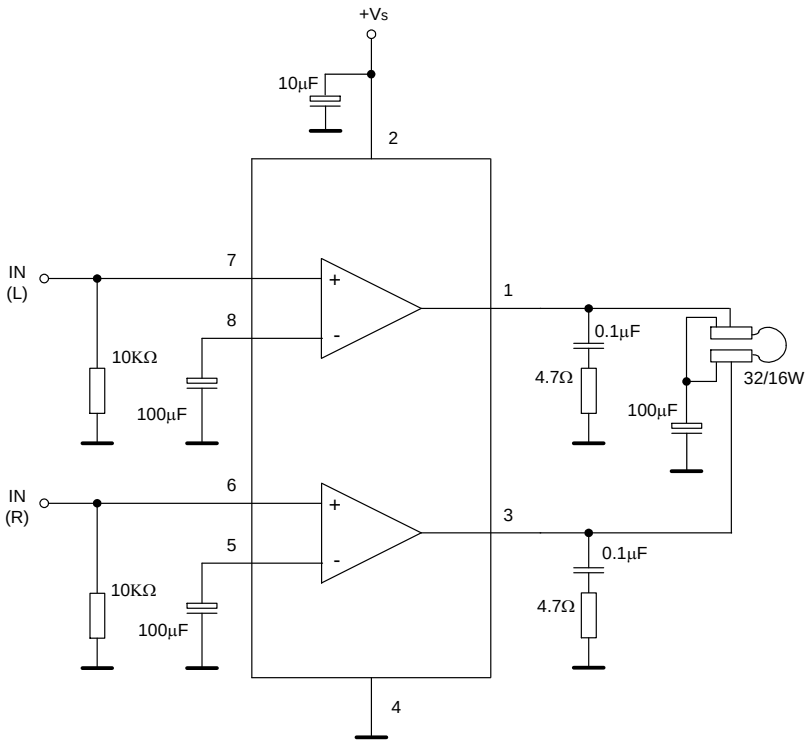
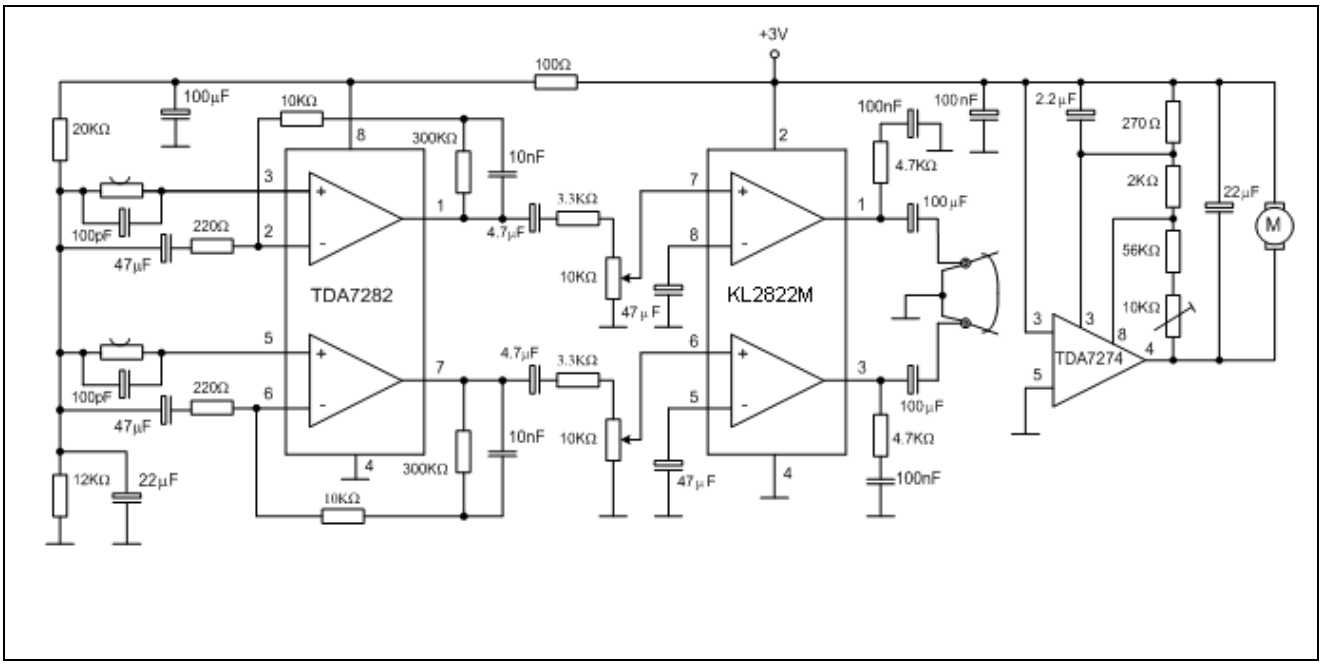
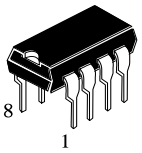


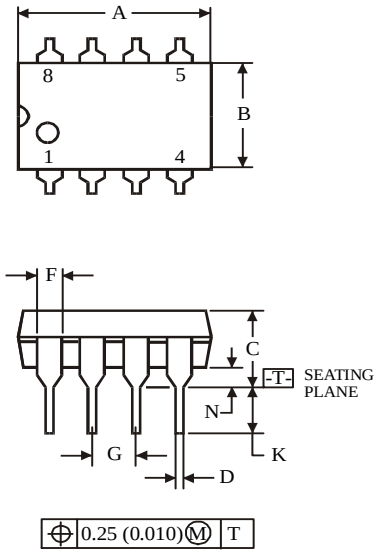
Figure 19 : 3V Stereo Cassette Player with Motor Speed Control



PACKAGE DIMENSION

N SUFFIX PLASTIC DIP
(MS – 001BA)





	Dimension, mm	
Symbol	**MIN**	**MAX**
A	8.51	10.16
B	6.1	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G	2.54	
H	7.62	
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.2	0.36
N	0.38	

NOTES:

1. Dimensions “A”, “B” do not include mold flash or protrusions.
   Maximum mold flash or protrusions 0.25 mm (0.010) per side.