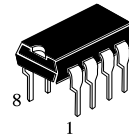


## Dual Low - Voltage Power Amplifier

**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**

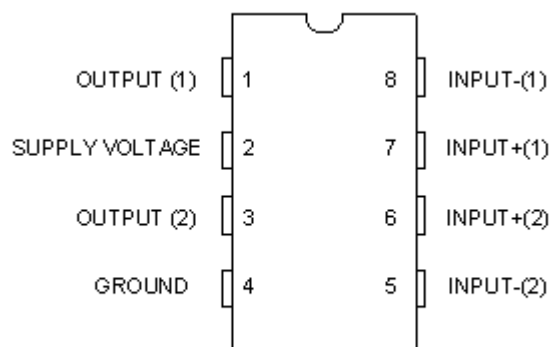
### ORDERING INFORMATION

KL2822MN Plastic  
 $T_A = 0^\circ \text{ to } 70^\circ \text{ C}$

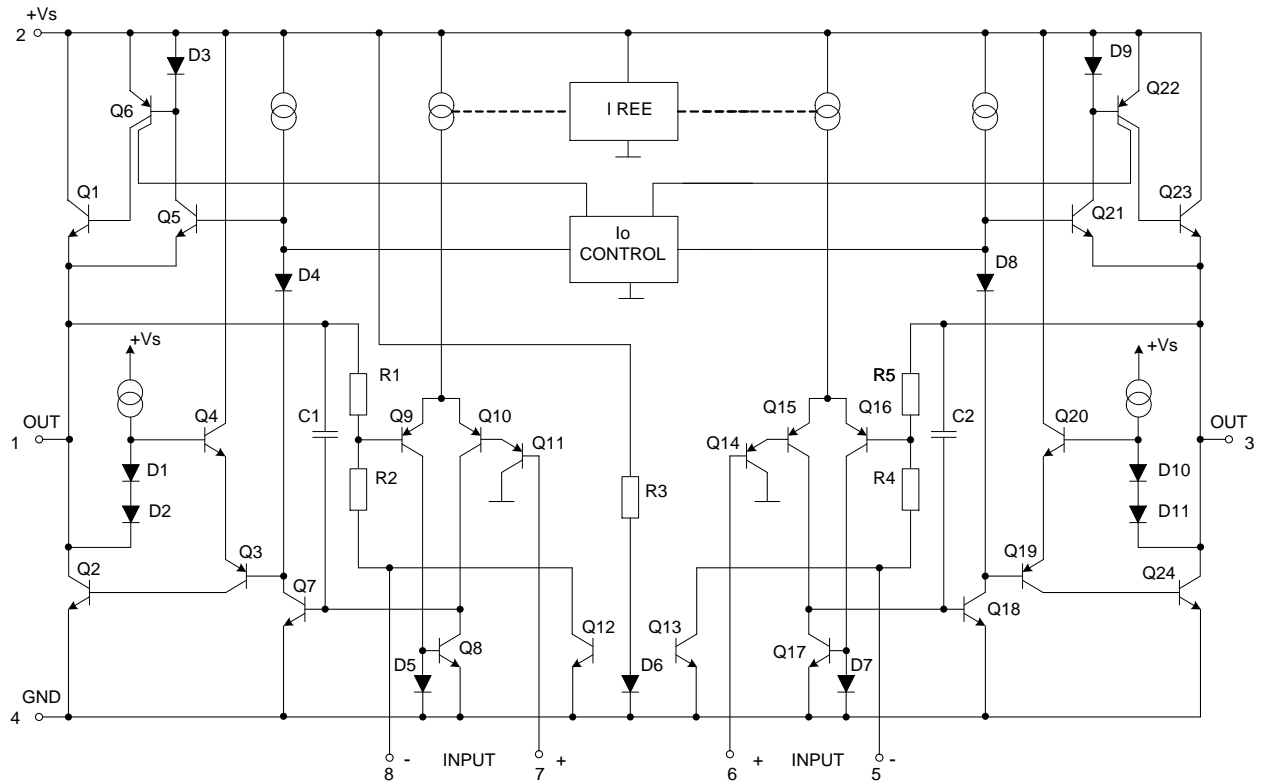
### FEATURES

- 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 <sub>tot</sub>	Total Power Dissipation at T <sub>amb</sub> = 50°C	1	W
	at T <sub>case</sub> = 50°C	1.4	W
T <sub>stg</sub> , T <sub>j</sub>	Storage and Junction Temperature	-40, +150	°C

**Electrical Characteristics** (Cs =6V, Tamb = 25 °C, unless otherwise specified)

Symbol	Test Conditions	Min	Typ	Max	Unit	
<b>STEREO</b> (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%)	RL = 32Ω Vs = 9V Vs = 6V Vs = 4.5V Vs = 3V Vs = 2V RL = 16Ω Vs = 6V RL = 8Ω Vs = 9V Vs = 6V RL = 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)	RL = 32Ω RL = 16Ω RL = 8Ω	Po = 40mW Po = 75mW 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	
eN	Total Input Noise	Rs = 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	RL = ∞		6	9	mA
Vos	Output Offset Voltage (between the outputs)	RL = 8Ω			±50	mV
Ib	Input Bias Current			100		nA
Po	Output Power (f = 1kHz, d = 10%)	RL = 32Ω Vs = 9V Vs = 6V Vs = 4.5V Vs = 3V Vs = 2V RL = 16Ω Vs = 9V Vs = 6V Vs = 3V RL = 8Ω Vs = 6V Vs = 4.5V Vs = 3V RL = 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)	RL = 8Ω, Po = 0.5W, f = 1kHz		0.2		%
Gv	Closed Loop Voltage Gain	f = 1kHz		39		dB
Ri	Input Resistance	f = 1kHz	100			kΩ
eN	Total Input Noise	Rs = 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)	RL = 8Ω, Po = 1W		120		kHz

Figure 1 : Test Circuit (Stereo)

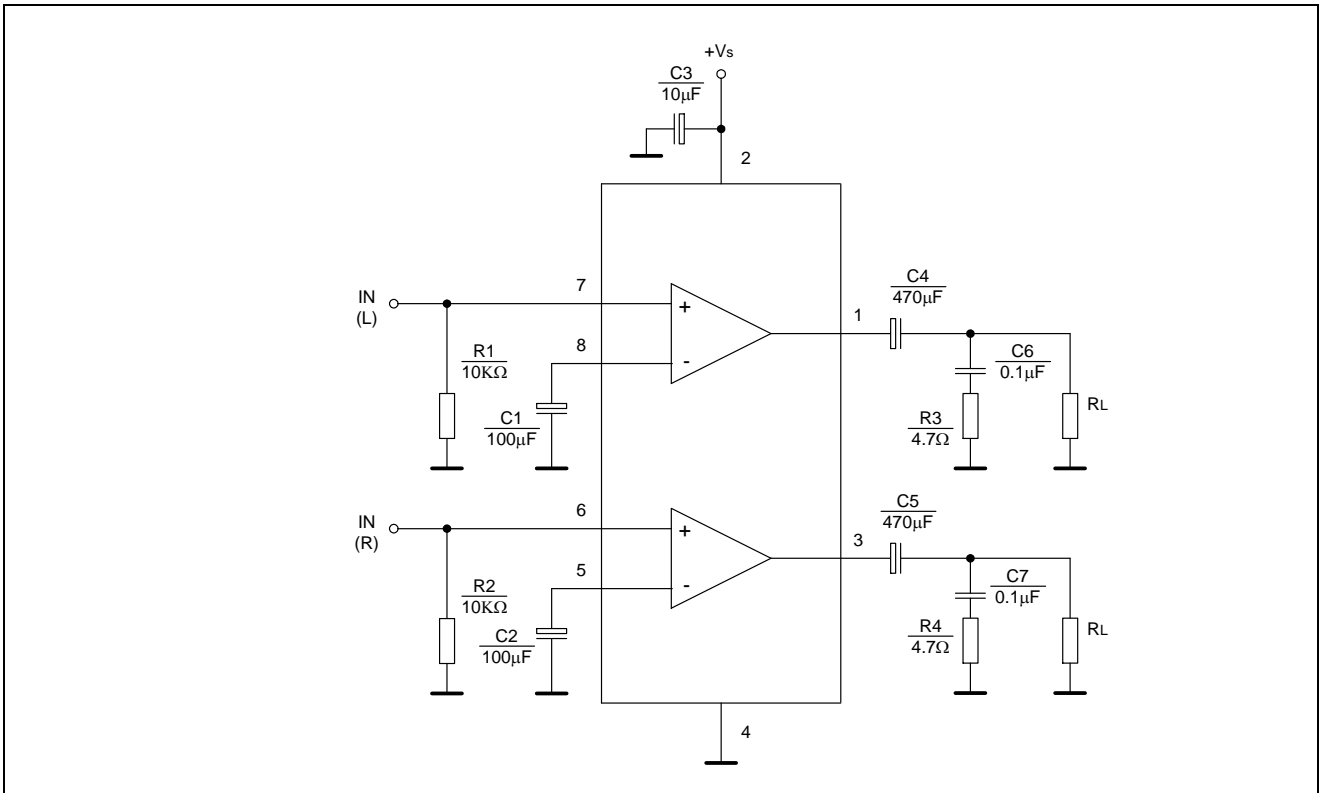
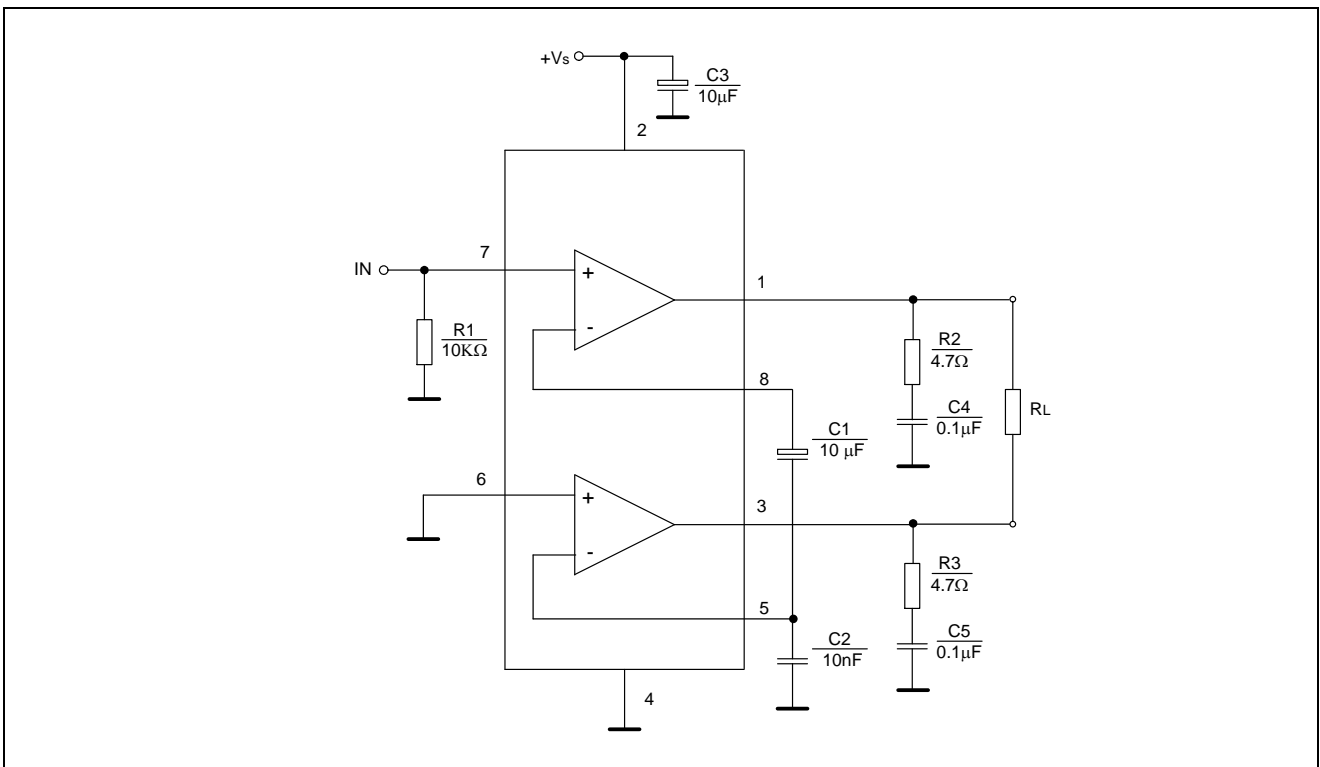
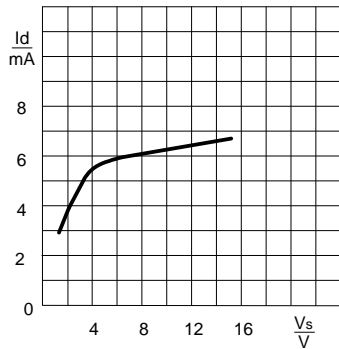


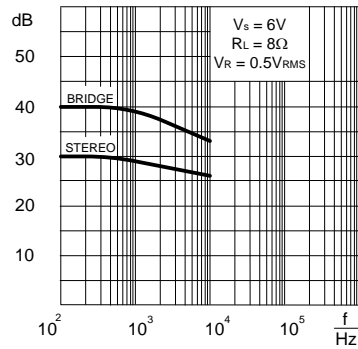
Figure 2 : Test Circuit (Bridge)



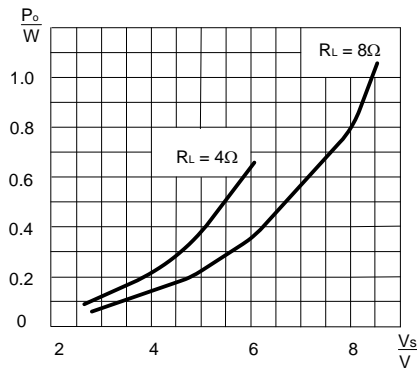
**Figure 3 :** Quiescent Current versus Supply Voltage



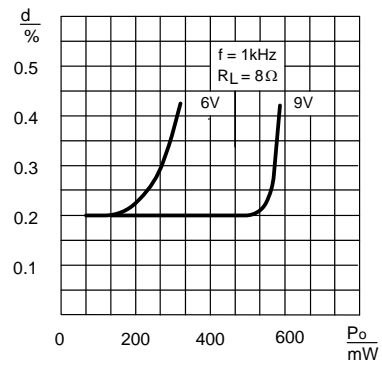
**Figure 4 :** Supply Voltage Rejection versus Frequency



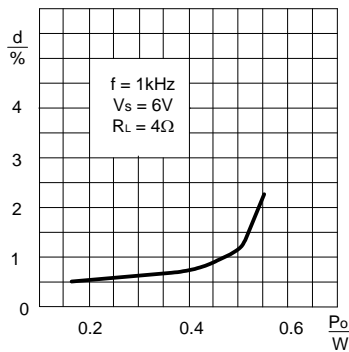
**Figure 5 :** Output Power versus Supply Voltage (THD = 10%,  $f = 1\text{kHz}$  Stereo)



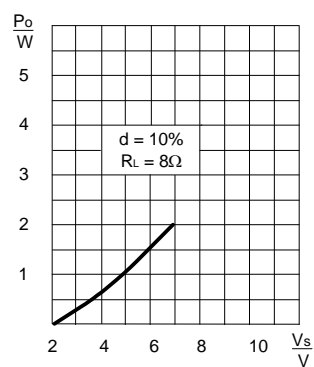
**Figure 6 :** Distorsion versus Output Power (Stereo)



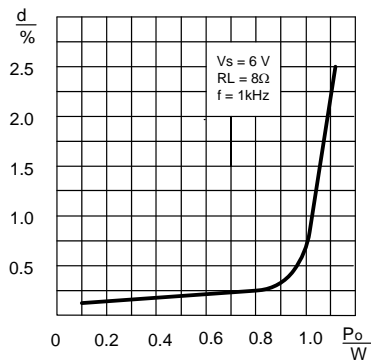
**Figure 7 :** Distorsion versus Output Power (Stereo)



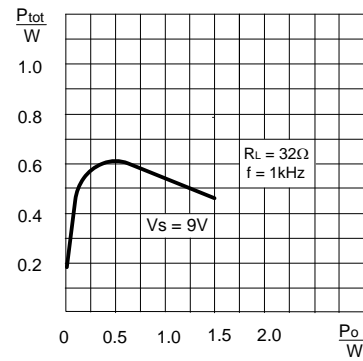
**Figure 8 :** Output Power versus Supply Voltage (Bridge)



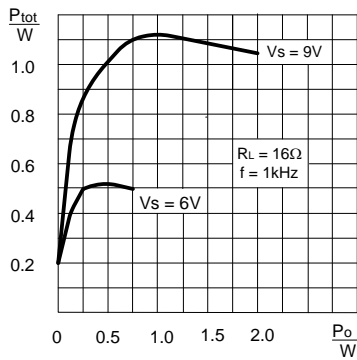
**Figure 9 : Distorsion versus Output Power (Bridge)**



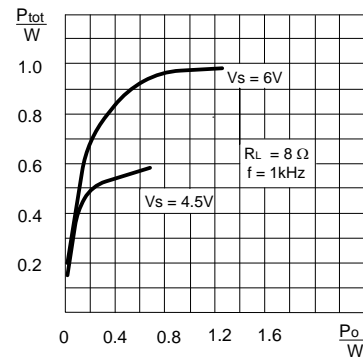
**Figure 10 : Total Power Dissipation versus Output Power (Bridge)**



**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)**

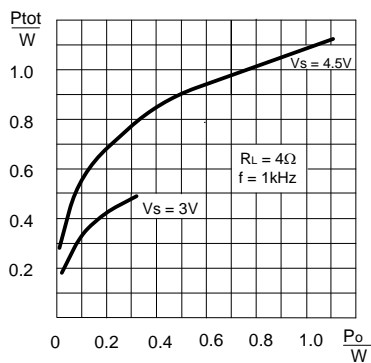


Figure 14 : Typical Application in Portable Players

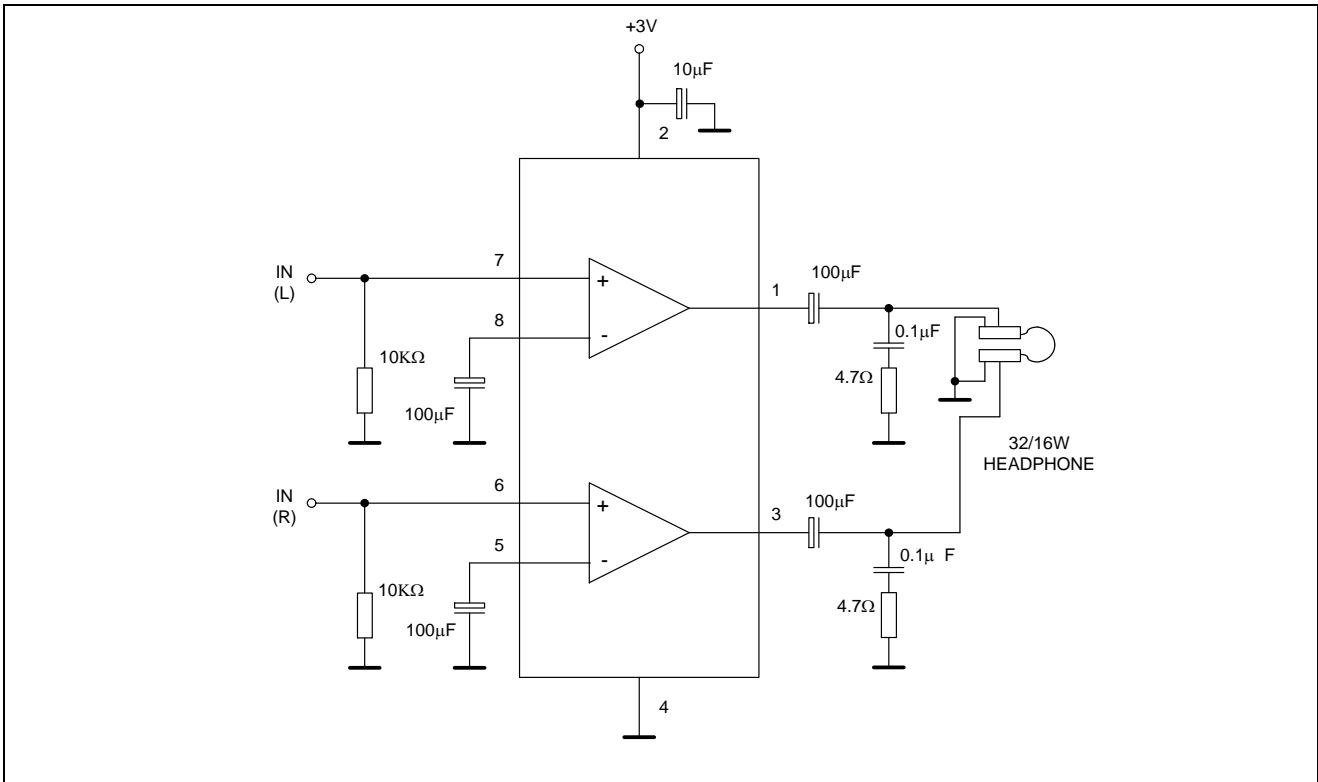


Figure 15 : Application in Portable Radio Receivers

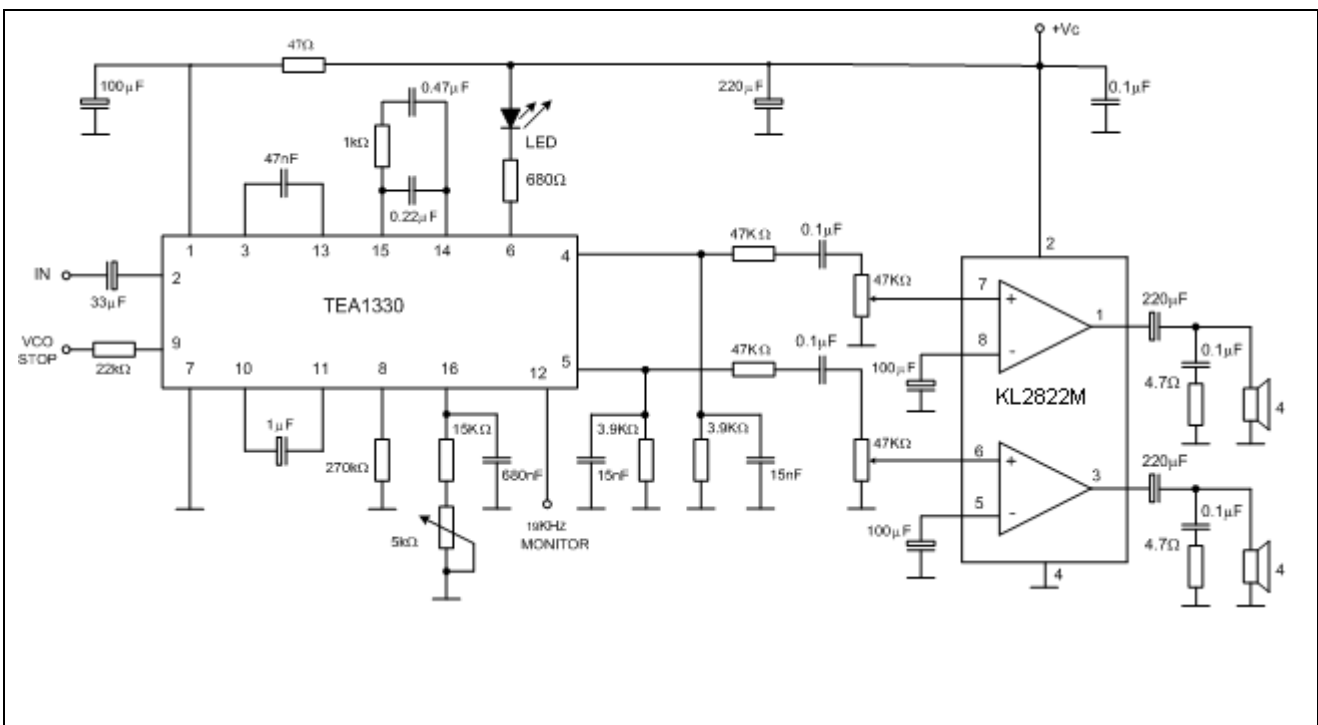


Figure 16 : Portable Radio Cassette Players

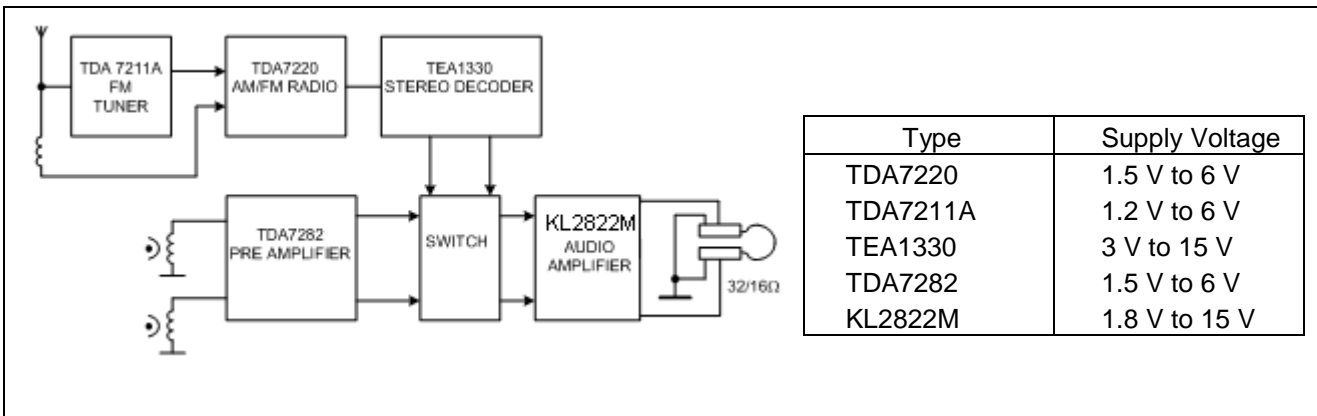


Figure 17 : Portable Stereo Radios

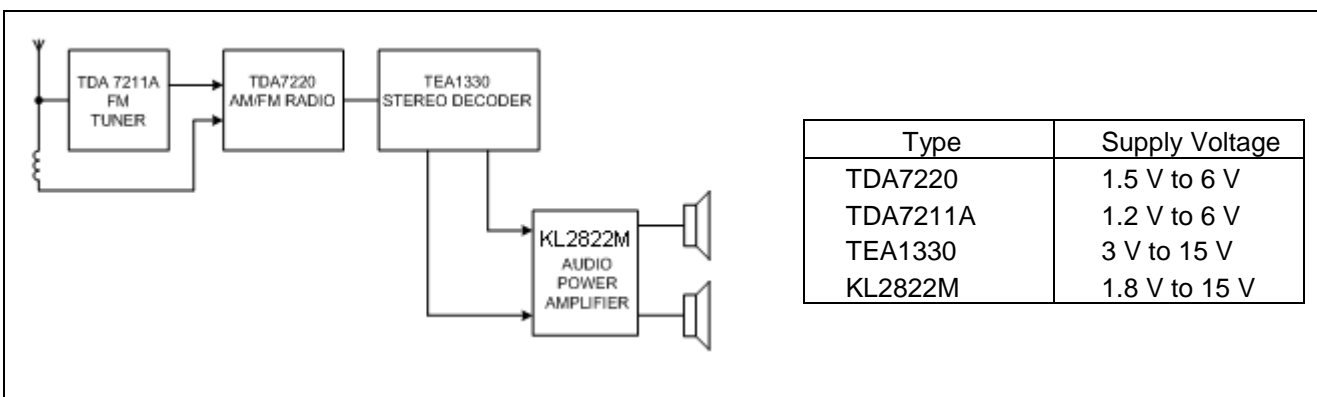


Figure 18 : Low Cost Application in Portable Players (using only one 100mF output capacitor)

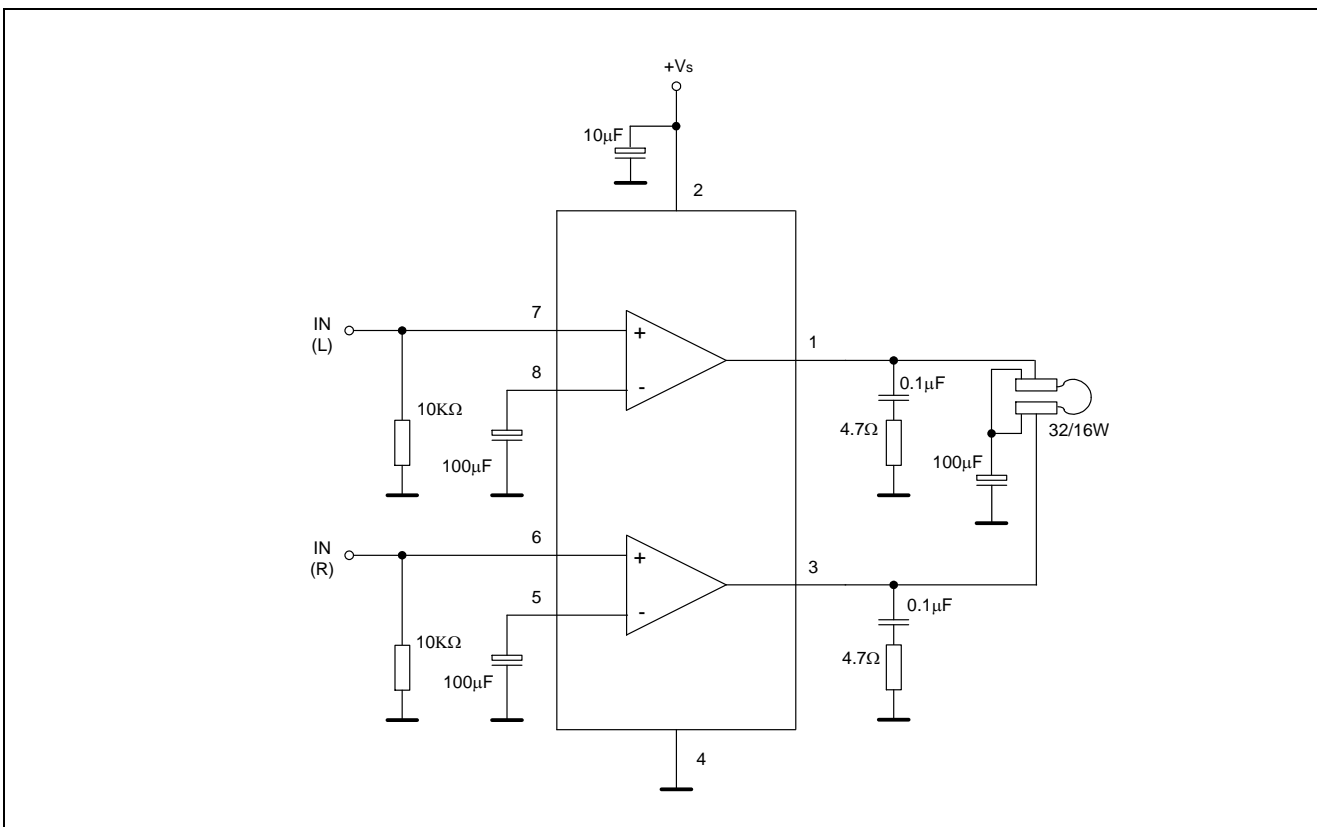
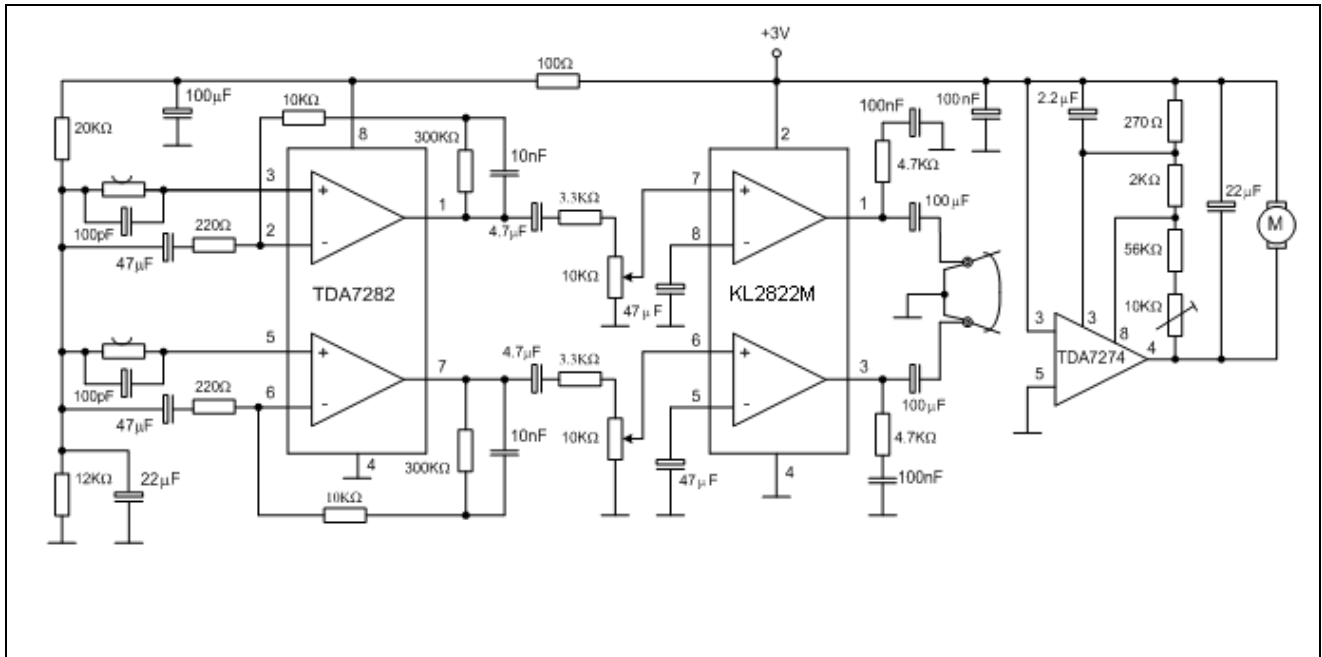


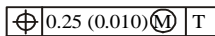
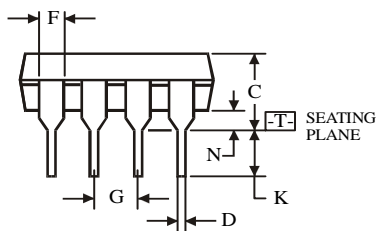
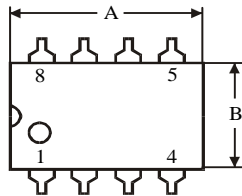
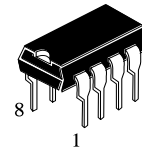


Figure 19 : 3V Stereo Cassette Player with Motor Speed Control



PACKAGE DIMENSION

N SUFFIX PLASTIC DIP  
(MS – 001BA)



Symbol	Dimension, mm	
	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:

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