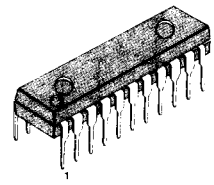
3-BAND DUAL GRAPHIC EQUALIZER AMPLIFIER

The KA22233 is a monolithic integrated circuit consisting of an operational amplifier, three resonant circuits with an active filter, and it is suitable for radio cassette recorders, car stereos or music centers and audio systems.

22 DIP



FEATURES

- **Tone control with independent adjustment of each band through an external capacitor.**
- **Gain control through an external variable resistor.**
- **Increasing the bands by adding resonant circuit or using two KA22233 in series.**
- **Low noise (V_{NO} =7μV Typ, at Flat).**
- **Low distortion (THD=0.02% Typ, at f=1KHz, Flat).**
- **Large allowable input (V_i =2.3V Typ, at V_{CC} =9V, f=1KHz, Flat).**
- **Wide operating supply voltage range: V_{CC} =5V ~ 15V**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA22233	22 DIP	−20 ~ +70°C

SCHEMATIC DIAGRAM

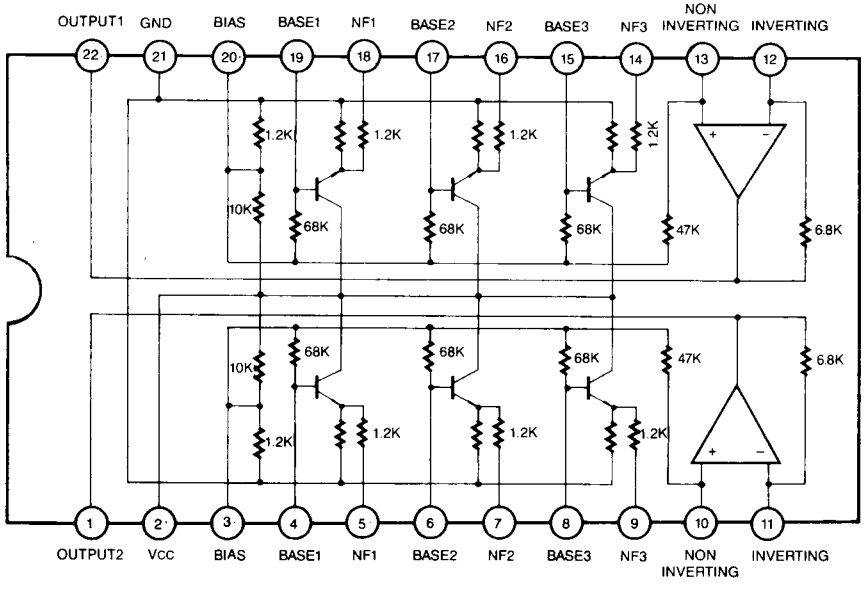


Fig. 1

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	20	V
Power Dissipation	P_D	700	mW
Operating Temperature	T_{OPR}	−20 ~ +70	°C
Storage Temperature	T_{STG}	−40 ~ +125	°C

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, V_{CC} = 9V, R_G = 600Ω, R_L = 10KΩ, unless otherwise specified)

Characteristic		Symbol	Test f (Hz)	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current		I_{CCQ}		V_I = 0	5.0	7.2	10.0	mA
Voltage Gain	Flat	G_V (Flat)	1K	V_I = −10dBm	−2.5	−0.5	+1.5	dB
	Boost	G_V (Boost)	108	V_I = −10dBm	10.5	12.5	14.5	dB
			1.08K					
			10.8K					
	Cut	G_V (Cut)	108	V_I = −10dBm	−14.5	−12.5	−10.5	dB
			1.08K					
			10.8K					
Total Harmonic Distortion		THD	1K	V_I = 1V		0.02	0.1	%
Output Noise Voltage		V_{NO}	Flat, Input Short BW(−3dB) = 10Hz ~ 30KHz			7.0	30	μV
Channel Balance		CB	1K	V_I = 1V	−2.0	0	+2.0	dB
Cross Talk		CT	1K	V_I = 1V		70		dB

TEST CIRCUIT

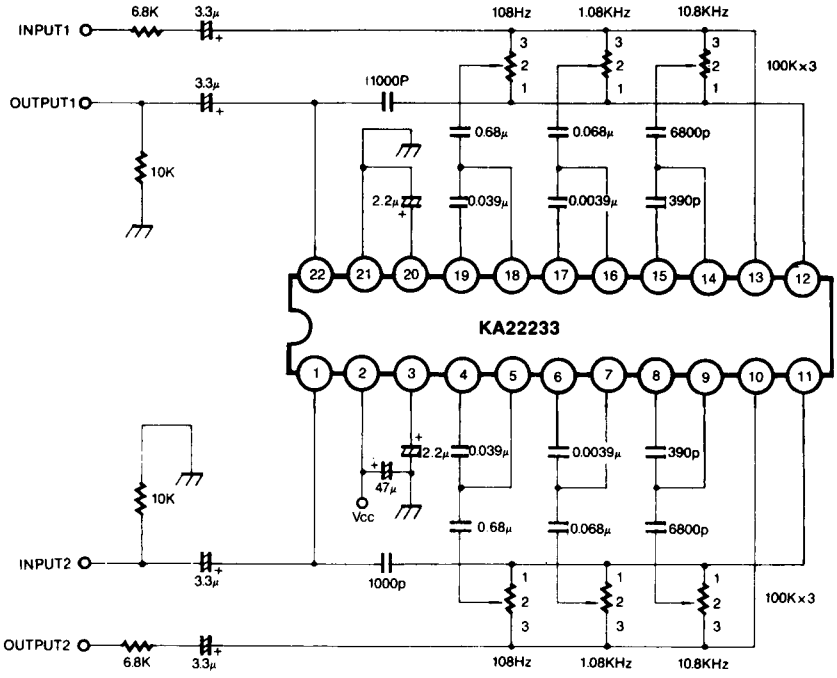
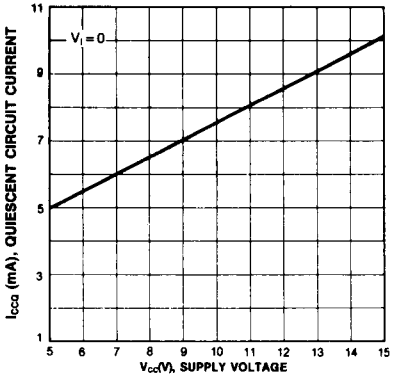


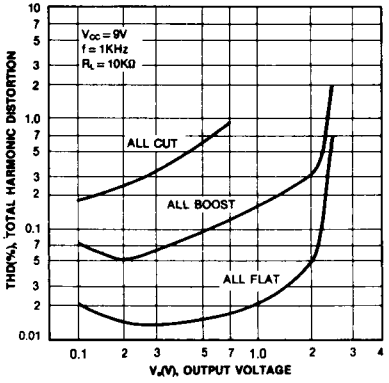
Fig. 2

Note: Volume Function
Position 1: Boost
Position 2: Flat
Position 3: Cut

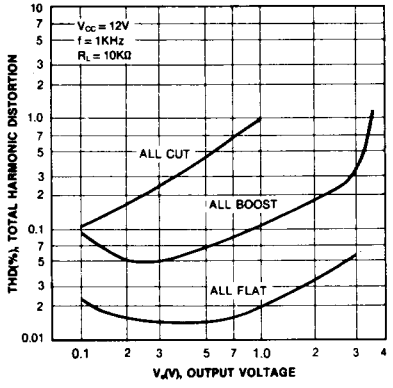
QUIESCENT CIRCUIT CURRENT-SUPPLY VOLTAGE



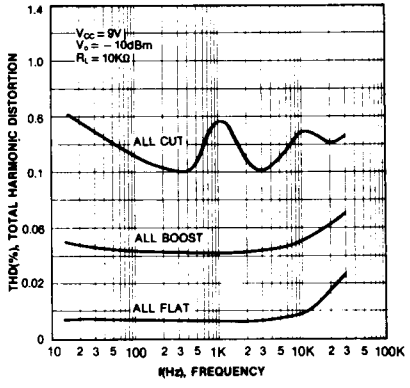
TOTAL HARMONIC DISTORTION-OUTPUT VOLTAGE



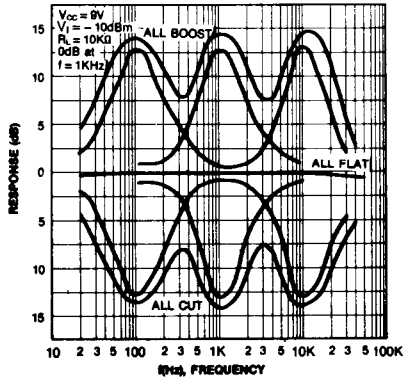
TOTAL HARMONIC DISTORTION-OUTPUT VOLTAGE



TOTAL HARMONIC DISTORTION-FREQUENCY



FREQUENCY RESPONSE



TOTAL HARMONIC DISTORTION, AMBIENT TEMPERATURE QUIESCENT CIRCUIT CURRENT