

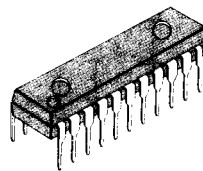
3-BAND DUAL GRAPHIC EQUALIZER AMPLIFIER

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.

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 ($V_{NO} = 7\mu V$ Typ, at Flat).
- Low distortion (THD = 0.02% Typ, at $f = 1\text{KHz}$, Flat).
- Large allowable input ($V_i = 2.3\text{V}$ Typ, at $V_{CC} = 9\text{V}$, $f = 1\text{KHz}$, Flat).
- Wide operating supply voltage range: $V_{CC} = 5\text{V} \sim 15\text{V}$

22 DIP



ORDERING INFORMATION

SCHEMATIC DIAGRAM

Device	Package	Operating Temperature
KA22233	22 DIP	$-20 \sim +70^{\circ}\text{C}$

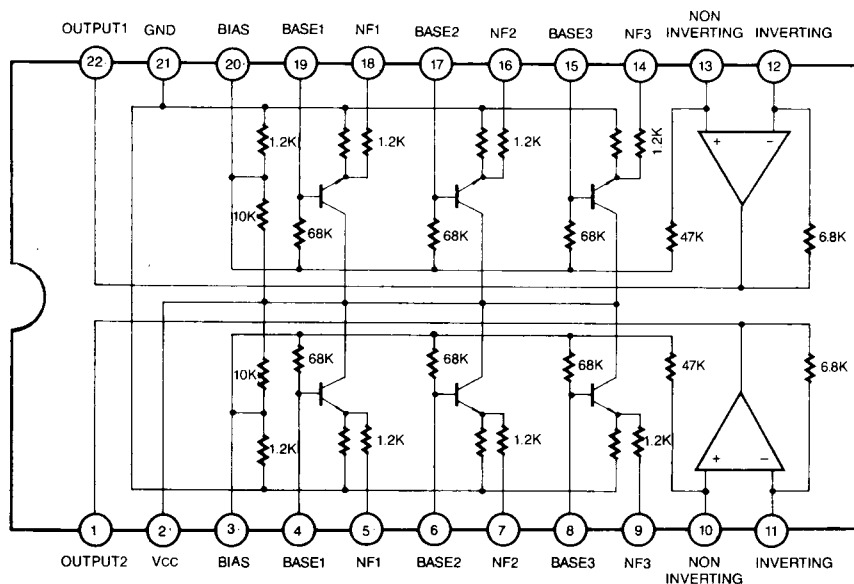


Fig. 1

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	20	V
Power Dissipation	P_D	700	mW
Operating Temperature	T_{OPR}	$-20 \sim +70$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-40 \sim +125$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

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

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

TEST CIRCUIT

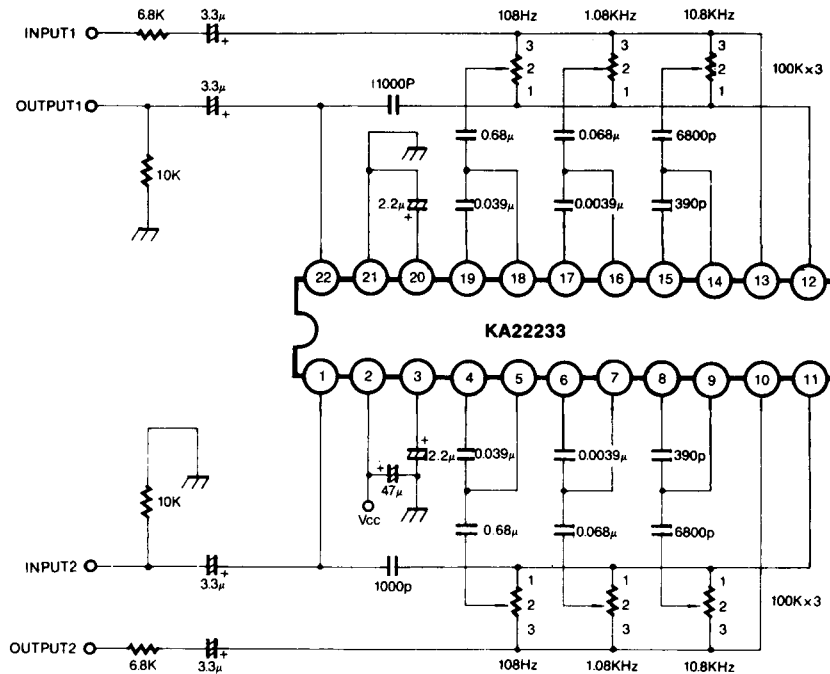
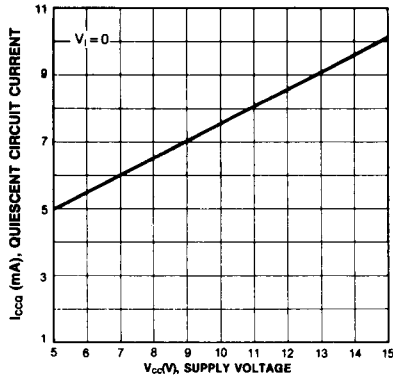


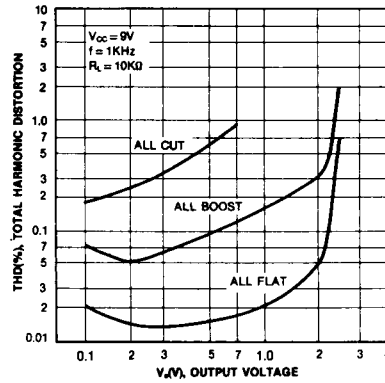
Fig. 2

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

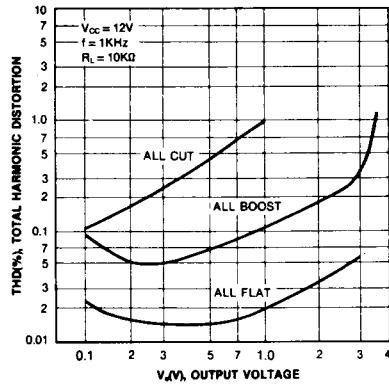
QUIESCENT CIRCUIT CURRENT-SUPPLY VOLTAGE



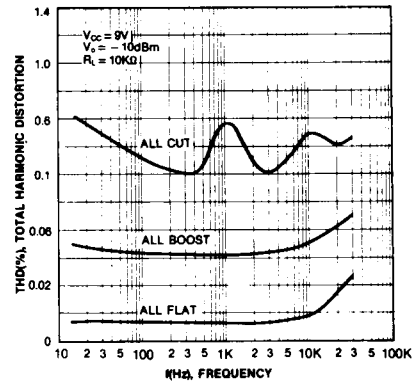
TOTAL HARMONIC DISTORTION-OUTPUT VOLTAGE



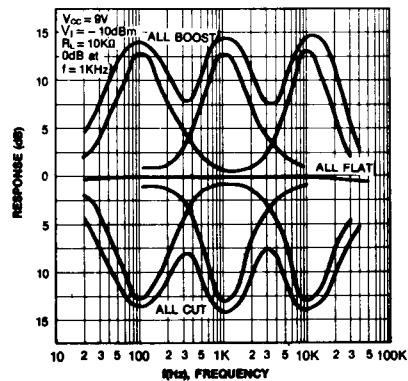
TOTAL HARMONIC DISTORTION-OUTPUT VOLTAGE



TOTAL HARMONIC DISTORTION-FREQUENCY



FREQUENCY RESPONSE

TOTAL HARMONIC DISTORTION-AMBIENT TEMPERATURE
QUIESCENT CIRCUIT CURRENT