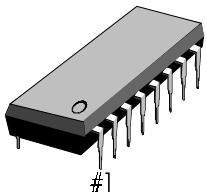
INTRODUCTION

The KA2223 is a monolithic integrated Circuit consisting of an operational amplifier with five resonant circuits and an active filter. It is suitable for radio-cassette tape recorders, car stereos and audio systems.

16–DIP–300A



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 a resonant circuit or using two KA2223 in a series
- Low noise (V_{NO} = 7μV: Typ. Flat)
- Low distortion (THD = 0.02% Typ. f = 1kHz Flat)
- Large input allowance (V_I = 2.3V: Typ, V_{CC} = 9V, f = 1kHz Flat)
- Operating Supply voltage range: V_{CC} = 5V ~ 13V

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2223	16–DIP–300A	–20°C ~ +70°C

BLOCK DIAGRAM

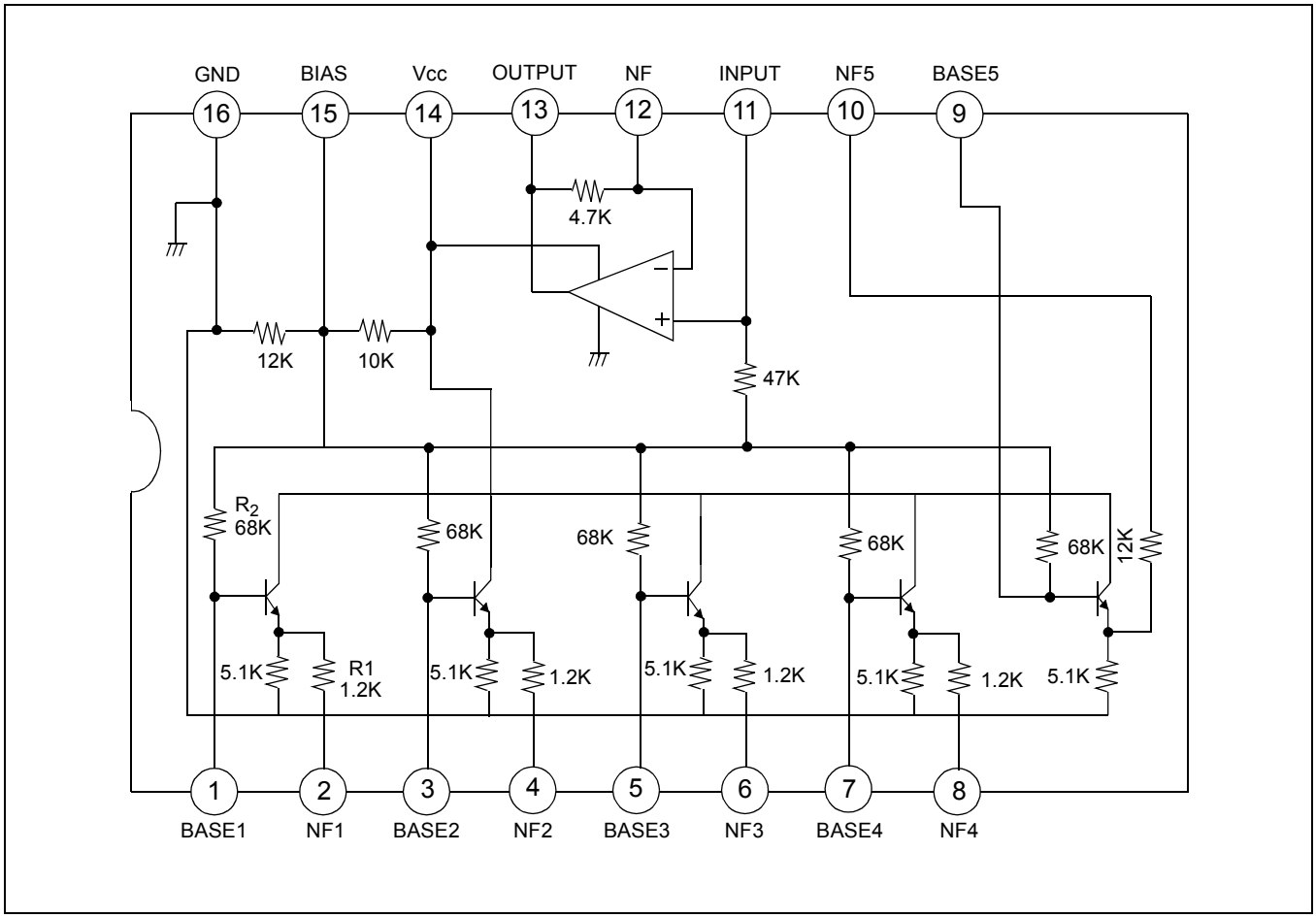


Figure 1.

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

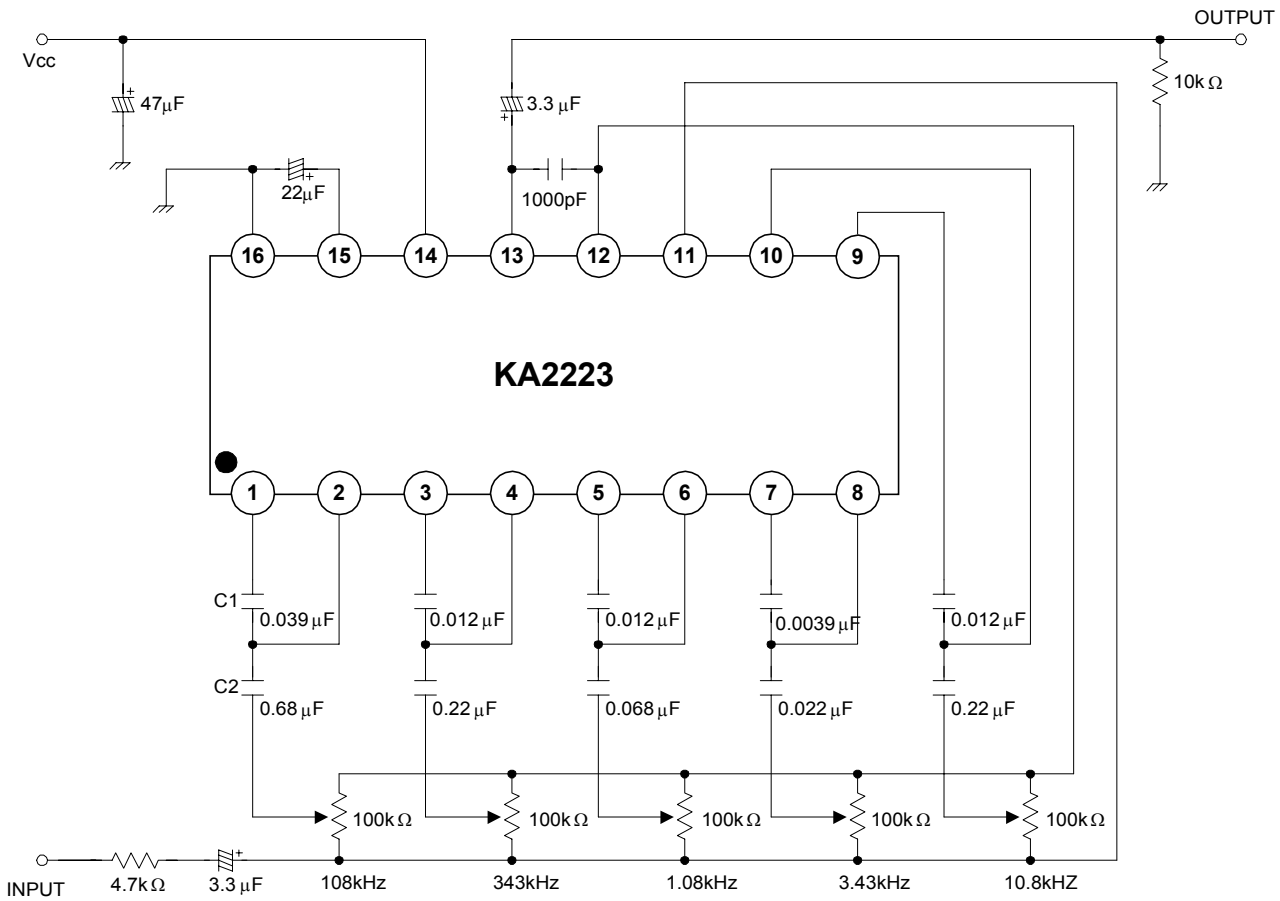
Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	20	V
Power Dissipation	P_D	700	mW
Operating Temperature	T_{OPR}	−20 ~ +70	°C
Storage Temperature	T_{STG}	−55 ~ + 125	°C

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, V_{CC} = 9V unless otherwise specified)

Characteristic		Symbol	Test		Min.	Typ.	Max.	Unit
			f (Hz)	Conditions				
Quiescent circuit current		I_{CCQ}	–	V_I = 0	3.0	5.2	8.0	mA
Voltage Gain	Flat	G_V (Flat)	1K	V_I = –10dBm	–3.8	–0.8	2.2	dB
	Boost	G_V (Boost)	108	V_I = – 10dBm	8	10.5	12	dB
			343					
			1.08K					
			3.43K					
			10.8K					
	Cut	G_V (Cut)	108	V_I = – 10dBm	–12	–10.5	–8	dB
			343					
			1.08K					
			3.43K					
			10.8K					
Total Harmonic distortion		THD	1K	V_I = 1V	–	0.02	0.1	%
Output Noise Voltage		V_{NO}	Flat, Input Short BW(-3 dB) = 10Hz ~ 30kHz		–	7.0	30	μV

TEST CIRCUIT



$$\text{Resonant frequency } f_0 = \frac{1}{2\pi\sqrt{R_1 R_2 R_1 R_2}}$$

(R_1 = 1.2K, R_2 = 68K on-chip resistor)

Figure 2.

APPLICATION CIRCUIT

1. 7 BAND

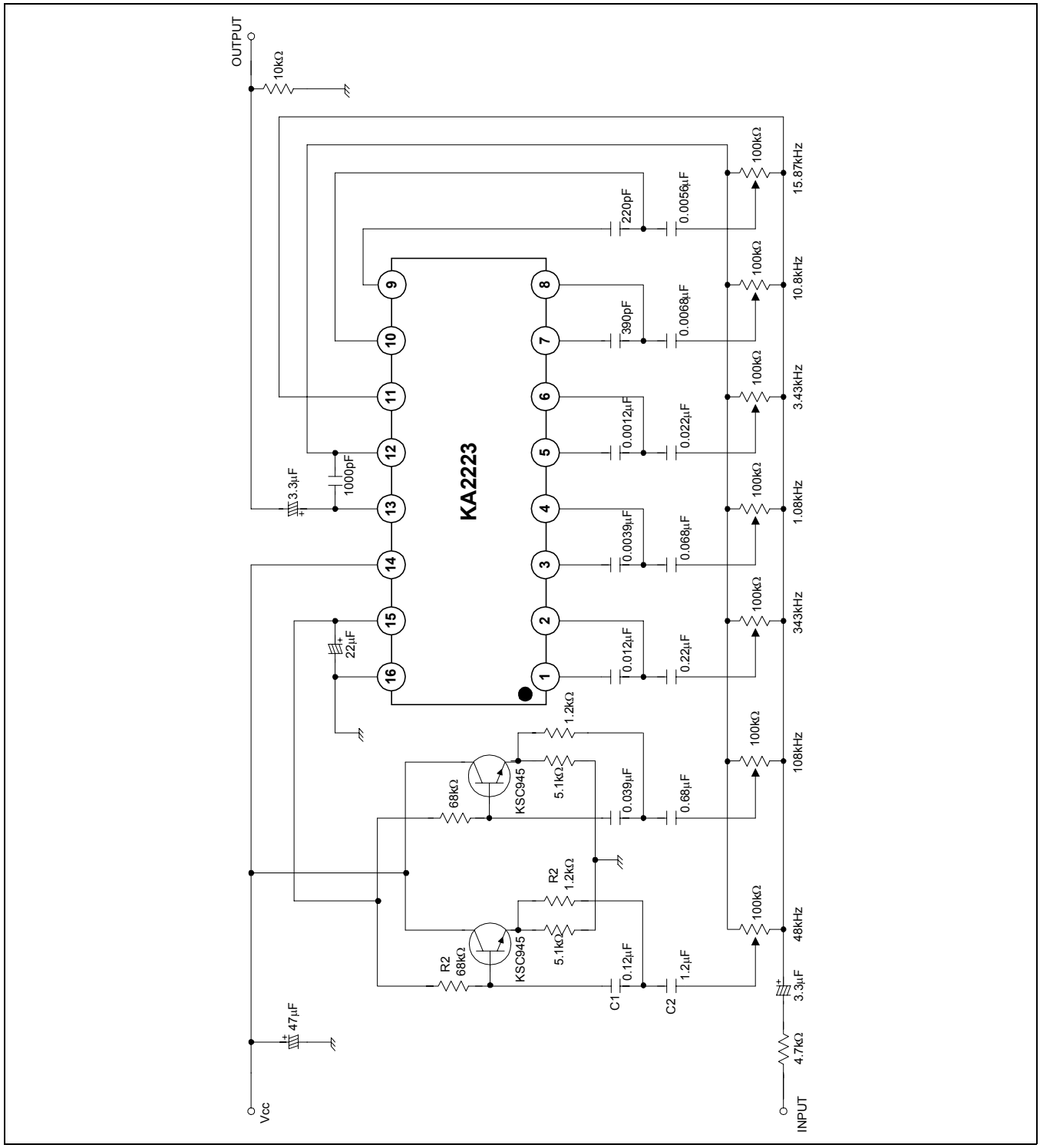


Figure 3.

2. 10 BAND

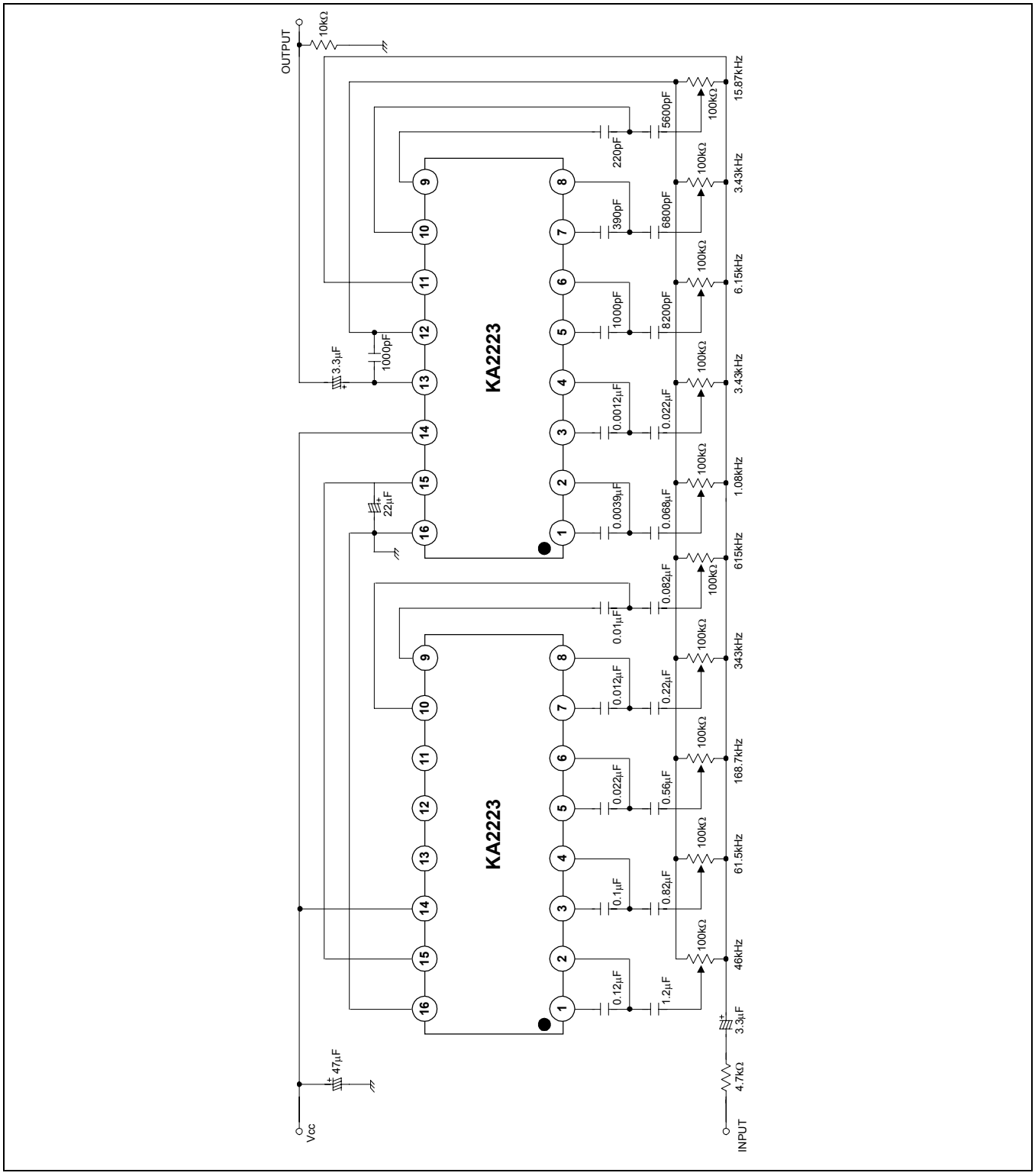


Figure 4.