

AN7330K

Dual Channels 3-Bands Graphic Equalizer IC

■ Description

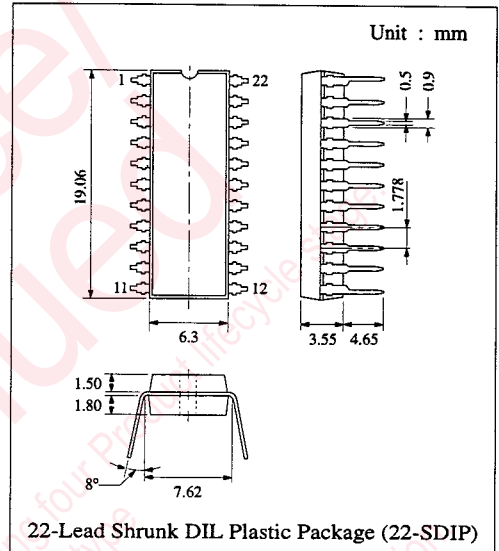
The AN7330K is a monolithic integrated circuit designed for dual channels 3-band graphic equalizer to be used in radio cassette and portable components.

■ Features

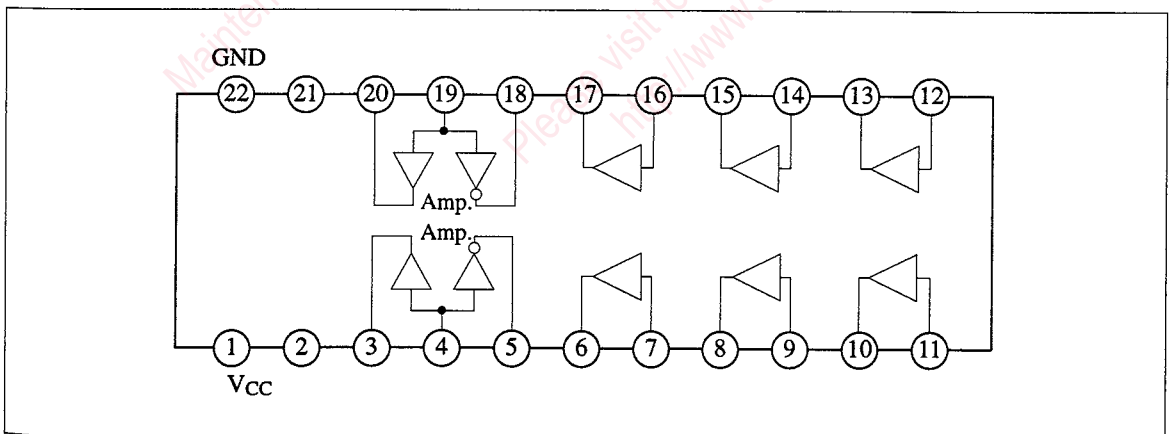
- Wide operating supply voltage range:
 $V_{CC} = 3V \sim 14.4V$
- Dual-channel IC make compact circuit design possible
- Low current consumption: 2.8mA type ($V_{CC} = 5V$)
- A 4-band graphic equalizer may be realized with one additional capacitor per channel
- Frequency boost-amount and cut-amount can be varied discretely by using variable resistors
- The resonance frequency is fixed by using suitable capacitors

$$f_0 = \frac{1}{2\pi/R_1R_2C_1C_2}$$

(where $R_1 = 330\Omega$ and $R_2 = 82k\Omega$ are internal resistors)



■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	14.4	V
Supply Current	I _{CC}	30	mA
Power Dissipation	P _D	432	mW
Operating Ambient Temperature	Topr	-20 ~ +75	°C
Storage Temperature	Tstg	-55 ~ +155	°C

Operating Supply Voltage Range: V_{CC} = 3.0V ~ 14.4V

■ Electrical Characteristics (V_{CC}=5V, R_L=10kΩ, Ta=25±2°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Voltage Gain	G _V	f = 1kHz, All flat, V _O = -20dB		-3		dB
Boost *	Boost	f = 340Hz	6.5	8.5		dB
Boost *	Boost	f = 1kHz	6.5	8.5		dB
Boost *	Boost	f = 3.4kHz	6.5	8.5		dB
Cut *	Cut	f = 340Hz	-7.5	-9.5		dB
Cut *	Cut	f = 1kHz	-7.5	-9.5		dB
Cut *	Cut	f = 3.4kHz	-7.5	-9.5		dB
Total Harmonic Distortion	THD	f = 1kHz, V _O = -20dB		0.2	0.4	%
Output Noise Voltage	V _{no}	R _g = 0Ω, All flat, DIN/AUDIO		18		μV
Crosstalk	CT	f = 1kHz, All flat, R _g = 0Ω		-64		dB
Total Circuit Current 1	I _{tot1}	V _{CC} = 5V	1.6	2.8	4.0	mA
Total Circuit Current 2	I _{tot2}	V _{CC} = 9V	2.0	3.8	5.5	mA

Note) The characteristics values obtainable from Test Circuit are based on design.

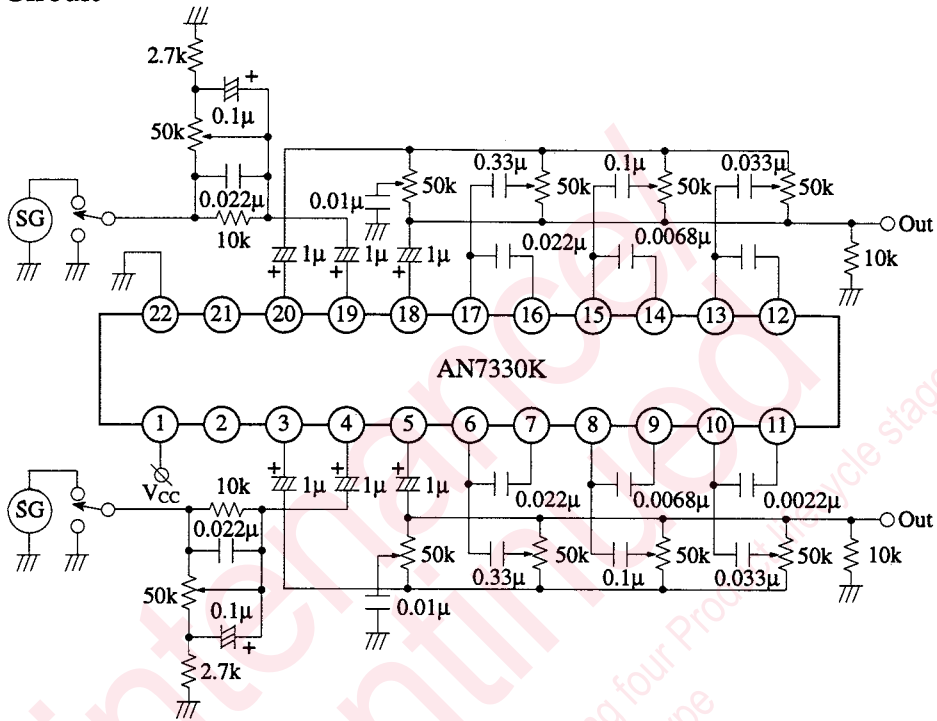
Boost and Cut values are operated by individual elements.

* V_O (= -20dB) = 0dB reference at "All flat" equalizer setting.

■ Pin

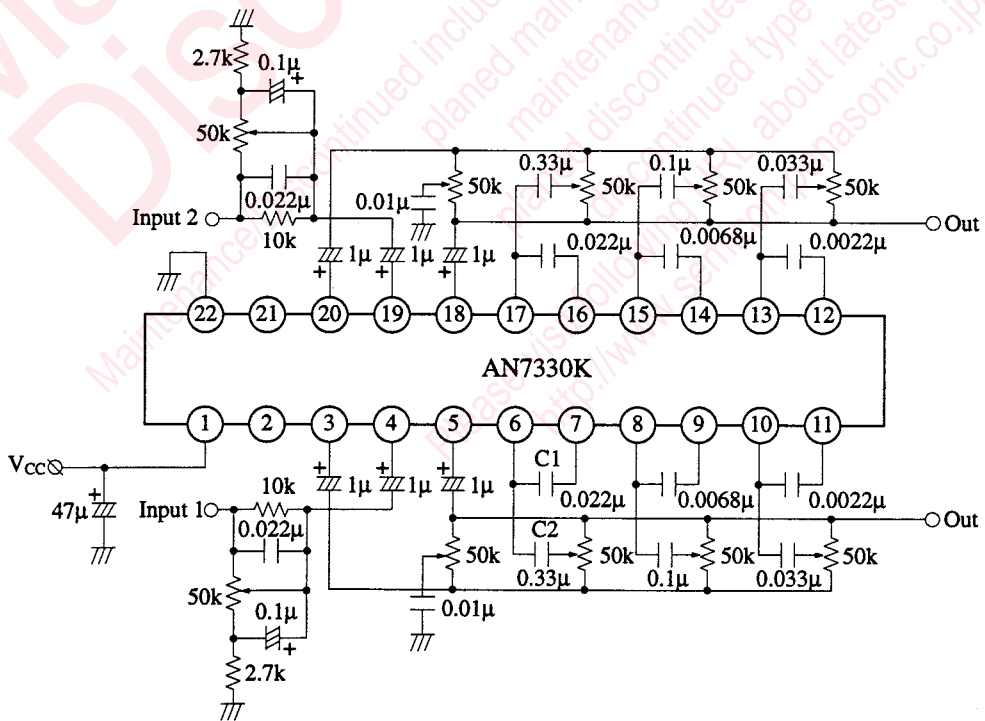
Pin No	Pin Name	Pin No	Pin Name
1	V _{CC}	12	Ch. 2 Base 3
2	N.C.	13	Ch. 2 Negative Feedback 3
3	Ch. 1 Non-Inverse Output	14	Ch. 2 Base 2
4	Ch. 1 Input	15	Ch. 2 Negative Feedback 2
5	Ch. 1 Inverse Output	16	Ch. 2 Base 1
6	Ch. 1 Negative Feedback 1	17	Ch. 2 Negative Feedback 1
7	Ch. 1 Base 1	18	Ch. 2 Inverse Output
8	Ch. 1 Negative Feedback 2	19	Ch. 2 Input
9	Ch. 1 Base 2	20	Ch. 2 Non-Inverse Output
10	Ch. 1 Negative Feedback 3	21	N.C.
11	Ch. 1 Base 3	22	GND

Test Circuit



■ Application Circuit

● Dual-Modified 5-Band

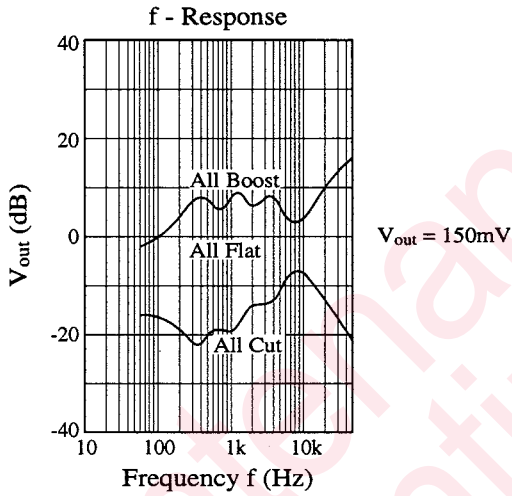


■ Characteristics Curve

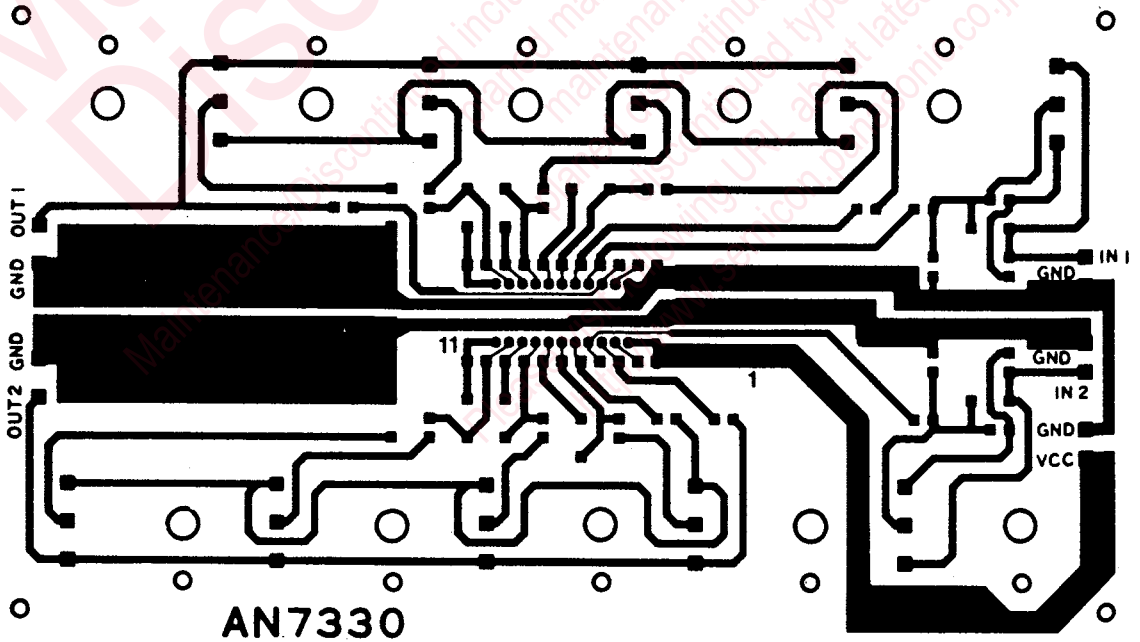
f_0 (resonance frequency)

$f_0 = 100\text{Hz}, 340\text{Hz}, 1\text{kHz}, 3.4\text{kHz}, 10\text{kHz}$

$$f_0 = \frac{1}{2\pi / C_1 C_2 R_1 R_2}$$



■ Printed Circuit Board Layout (Scale: 1:1)



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