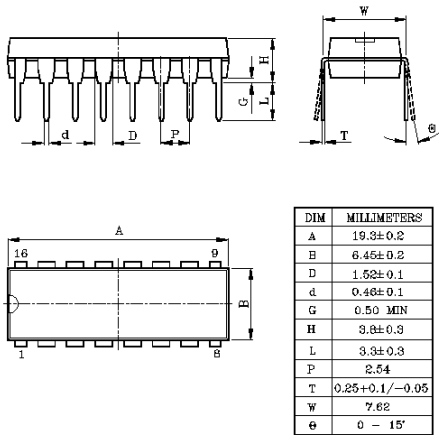
5 BAND GRAPHIC EQUALIZER

KIA6900P/Z are 5-Band graphic equalizer ICs, which have 5 resonance circuits and an output buffer amplifier.
5 band graphic equalizer for one channel can be formed easily by externally connecting capacitors and variable resistors which fix fo (resonance frequency).



DIM	MILLIMETERS
A	19.3±0.2
B	6.45±0.2
D	1.52±0.1
d	0.46±0.1
G	0.50 MIN
H	3.8±0.3
L	3.3±0.3
P	2.54
T	0.25+0.1/−0.05
W	7.62
θ	0 ~ 15°

DIP-16

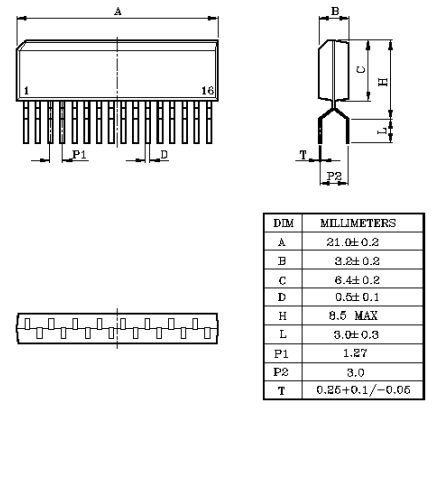
FEATURES

- Wide Operating Supply Voltage Range : V_{CC}=3.0~16V
- Few External Parts.
- Low Noise : V_{NO}=2.0μV_{rms}(Typ.) (Rg=0Ω, V_{IN}=0 FLAT BW=20Hz~20kHz).
- Low Distortion : THD=0.03%(Typ.) (Vo=1V_{rms}, f=1kHz BW=20Hz~20kHz, FLAT).

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	16	V
Power Dissipation (Note)	P_D	750	mW
Operating Temperature	T_{opr}	-30~75	℃
Storage Temperature	T_{stg}	-55~150	℃

Note : Derated above Ta=25℃ in the proportion of 6mW/℃ for KIA6900P/Z



DIM	MILLIMETERS
A	21.0±0.2
B	3.2±0.2
C	6.4±0.2
D	0.5±0.1
H	8.5 MAX
L	3.0±0.3
P1	1.27
P2	3.0
T	0.25+0.1/−0.05

ZIP-16

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{CC}=8V, f=1.0kHz, R_L=10kΩ, Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	-	V_{IN}=0	3.0	5.0	8.0	mA
Voltage Gain	$G_{V(FLAT)}$	-	V_{OUT}=0dBm	-3.8	0.8	2.2	dB
	G_V (BOOST)	-	V_{OUT}=0dBm, f=100Hz	8.0	10.0	12.0	
		-	V_{OUT}=0dBm, f=340Hz	8.0	10.0	12.0	
		-	V_{OUT}=0dBm, f=1.0kHz	8.0	10.0	12.0	
		-	V_{OUT}=0dBm, f=3.4kHz	8.0	10.0	12.0	
		-	V_{OUT}=0dBm, f=10kHz	8.0	10.0	12.0	
	G_V (CUT)	-	V_{OUT}=0dBm, f=100Hz	-12.0	-10.0	-8.0	dB
		-	V_{OUT}=0dBm, f=340Hz	-12.0	-10.0	-8.0	
		-	V_{OUT}=0dBm, f=1.0kHz	-12.0	-10.0	-8.0	
		-	V_{OUT}=0dBm, f=3.4kHz	-12.0	-10.0	-8.0	
		-	V_{OUT}=0dBm, f=10kHz	-12.0	-10.0	-8.0	
Total Harmonic Distortion	THD(FLAT)	-	V_{OUT}=1Vrms, f=1kHz	-	0.03	0.10	%
Output Noise Voltage	V_{NO}(FLAT)	-	Rg=0, BW=20Hz~20kHz	-	2.0	8.0	μV_{rms}

TYPICAL DC VOLTAGE OF EACH TERMINAL

KIA6900P (V_{CC}=8V, Ta=25℃)

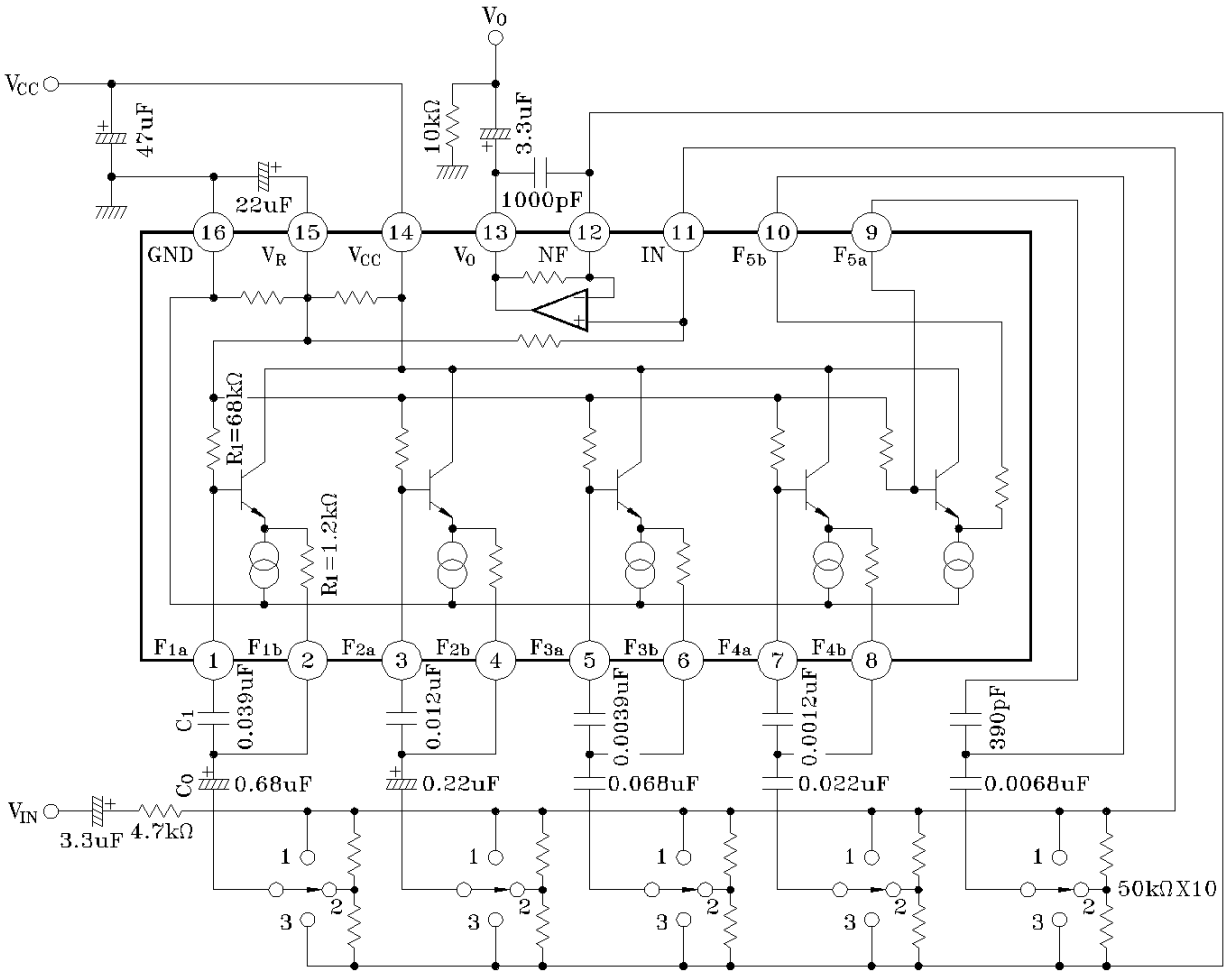
TERMINAL NO.	1	2	3	4	5	6	7	8
DC-VOLTAGE (V)	4.70	3.35	4.70	3.35	4.70	3.35	4.70	3.35
TERMINAL NO.	9	10	11	12	13	14	15	16
DC-VOLTAGE (V)	4.70	3.35	4.00	4.00	4.00	8.00	4.70	0

KIA6900Z (V_{CC}=8V, Ta=25℃)

TERMINAL NO.	1	2	3	4	5	6	7	8
DC-VOLTAGE (V)	4.70	3.35	4.00	4.00	4.00	8.00	4.70	0
TERMINAL NO.	9	10	11	12	13	14	15	16
DC-VOLTAGE (V)	4.70	3.35	4.70	3.35	4.70	3.35	4.70	3.35

BLOCK DIAGRAM / TEST CIRCUIT

KIA6900P



1 : CUT, 2 : FLAT, 3 : BOOST

f_O (Resonance frequency)

$$f_O = \frac{1}{2\pi\sqrt{C_O \cdot C_1 \cdot R_1 \cdot R_2}}$$ (R_1=1.2kΩ, R_2=68kΩ on chip resistor)

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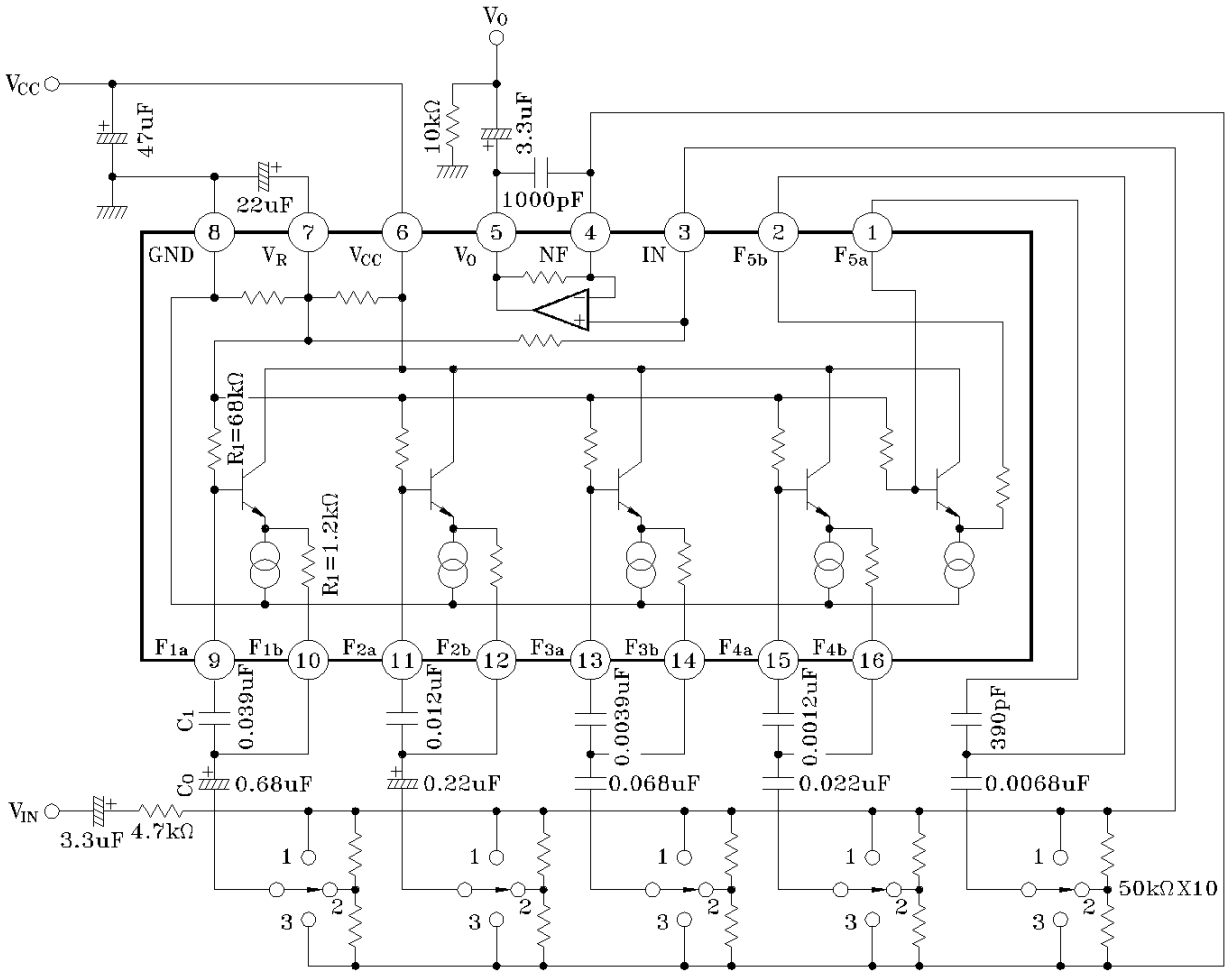
KIA6900Z



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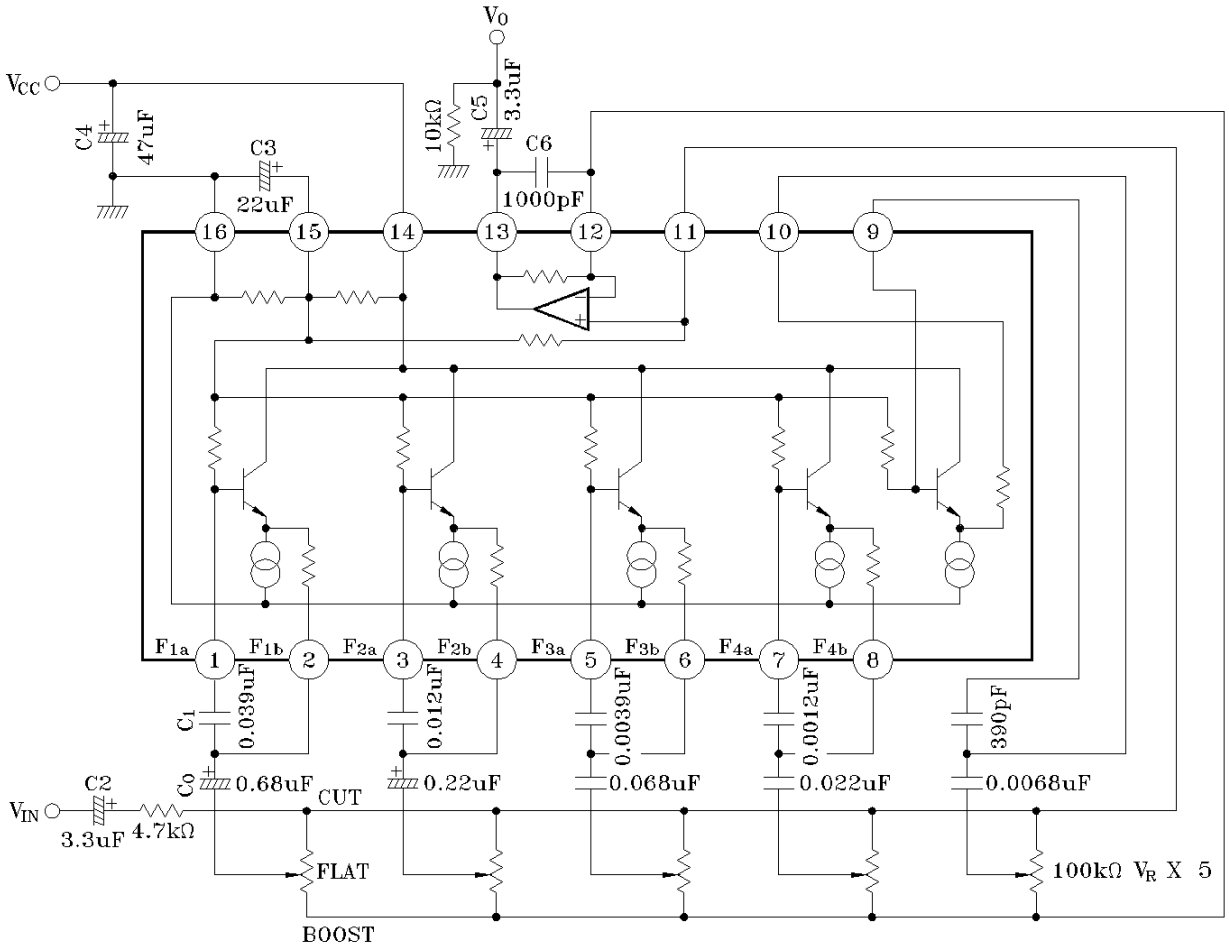
APPLICATION

KIA6900P

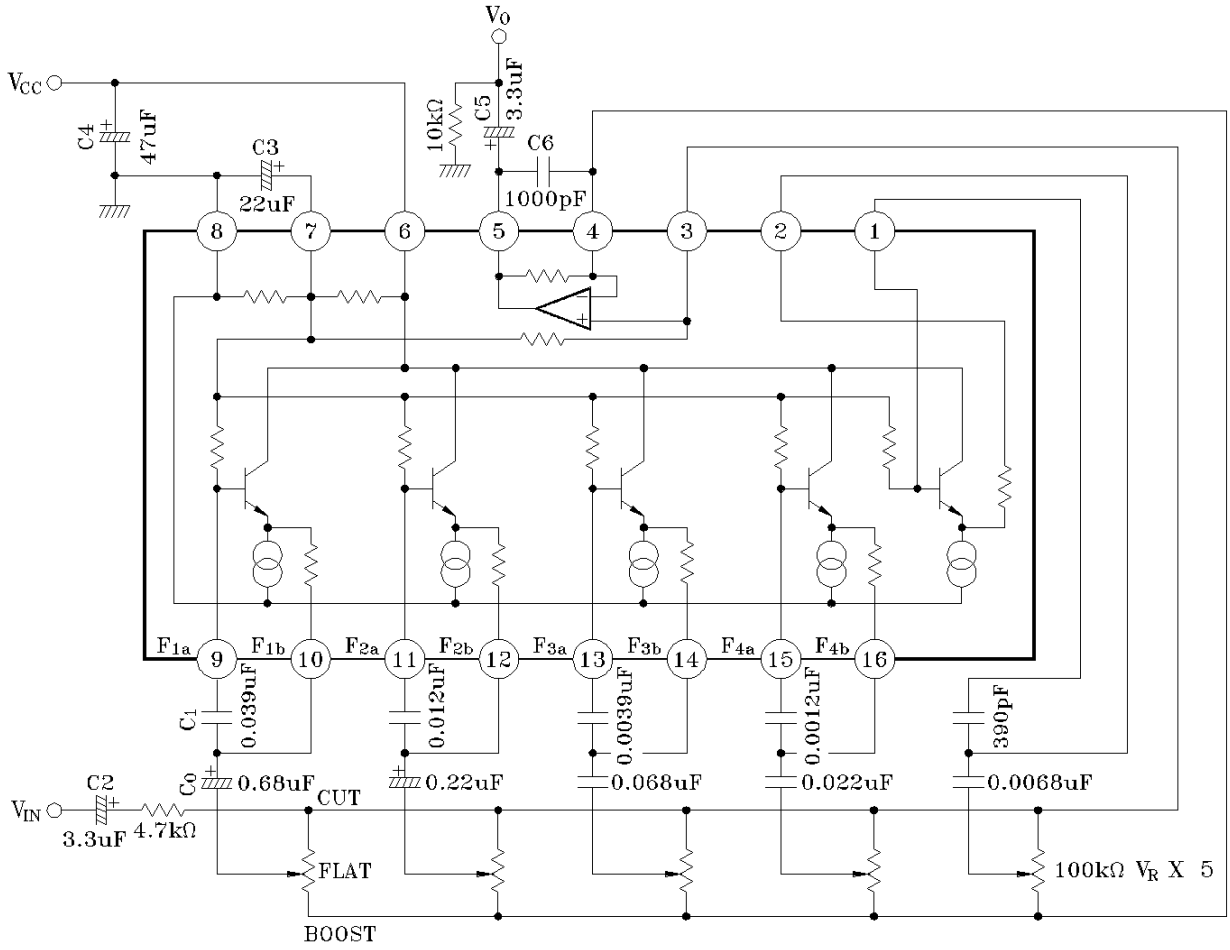


Description of external parts.

C_0, C_1 : Capacitors used to fix f_0 (resonance frequency).
C_2 : Input Capacitor.
C_3 : Decoupling Capacitor.
C_4 : Power Capacitor.
C_5 : Output Capacitor.

APPLICATION

KIA6900Z



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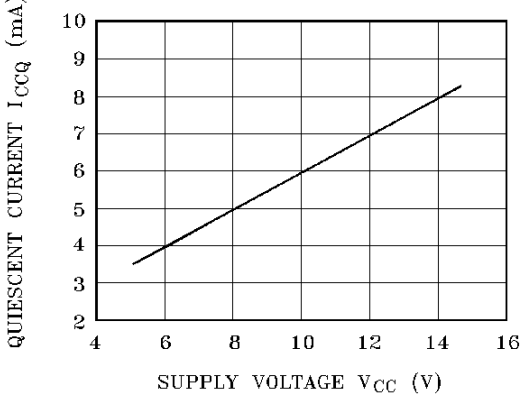
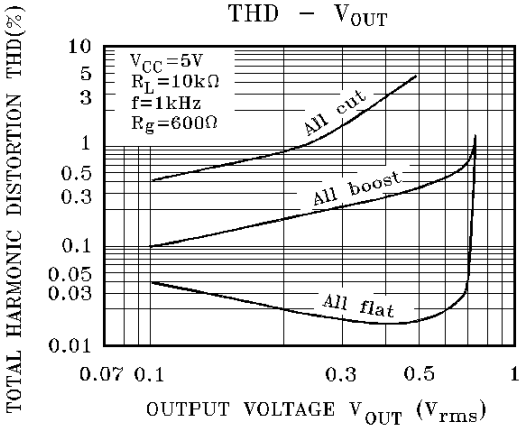
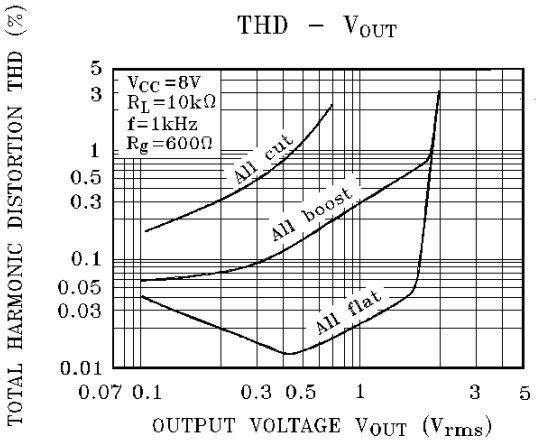
I_{CCQ} – V_{CC}



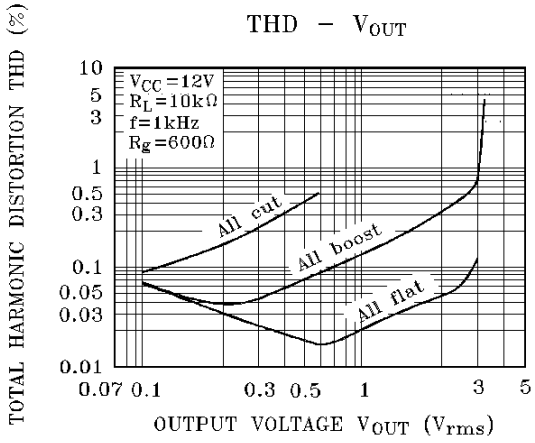
THD – V_{OUT}



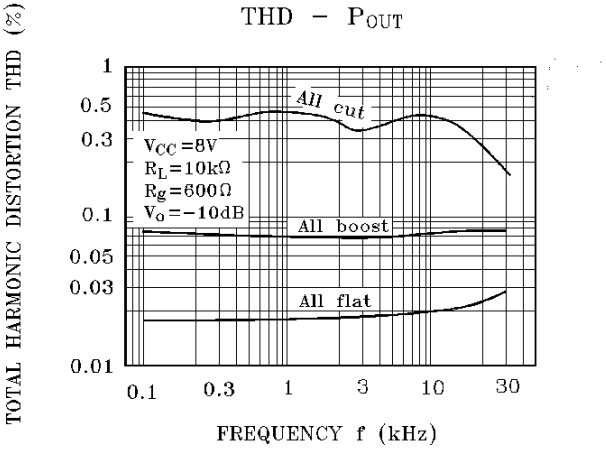
THD – V_{OUT}



THD – V_{OUT}



THD – P_{OUT}



RESPONSE – f