Toshiba INTEGRATED CIRCUIT

TECHNICAL DATA

TA7322P

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

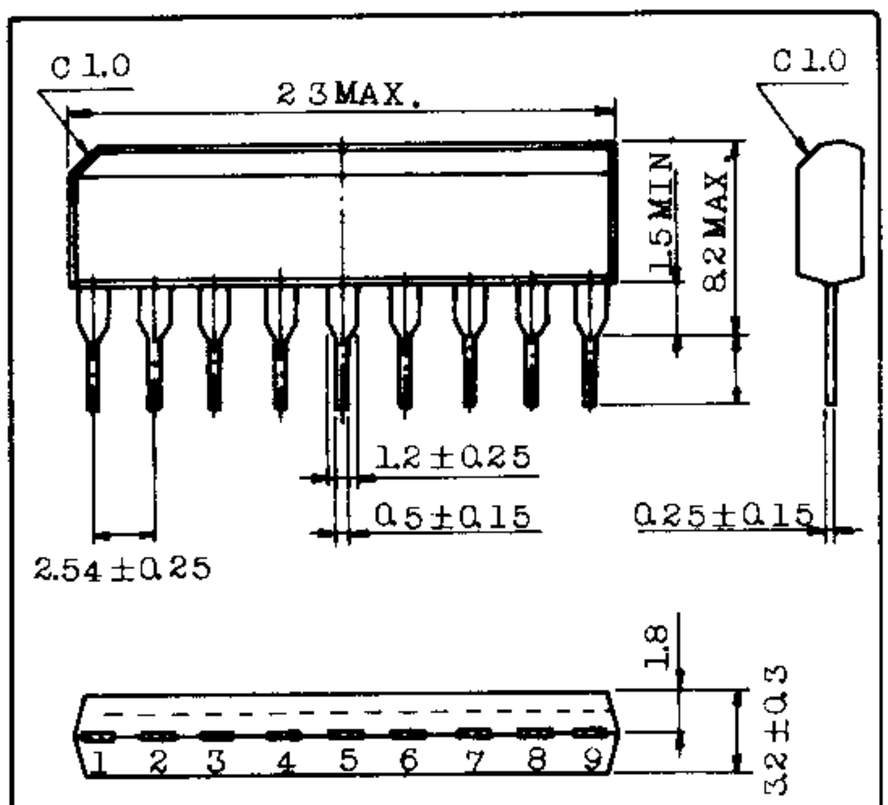
HIGH VOLTAGE, SUPER LOW NOISE PRE-AMPLIFIER WITH DUAL POWER SUPPLY.

The TA7322 is suitable for pre-amplifier of stereo or deck with equalizer, flat, tone and buffer amplifiers.

- . High Voltage and High Dynamic Range.
- . Low Harmonic Distortion.
- . Low Impedance Drive.
- . Super Low Noise. (S/N=82dB, IHF-A Filter).
- . High Stability for Buffer Amplifier.
- . Dual Power Operation.
- . Wide Operating Supply Voltage Range :

$V_{CC}-V_{EE}=\pm5V \sim \pm30V$.

Unit in mm



Lead pitch is 2.54 and tolerance is ±0.25 against theoretical center of each lead that is obtained on the basis of No.1 lead.

JEDEC	—
TOSHIBA	5—23B

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{9-5}	±30	V
Output Current	I_7	25	mAp-p
Power Dissipation (Note)	P_D	750	mW
Operating Temperature	T_{opr}	-25 ~ 75	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

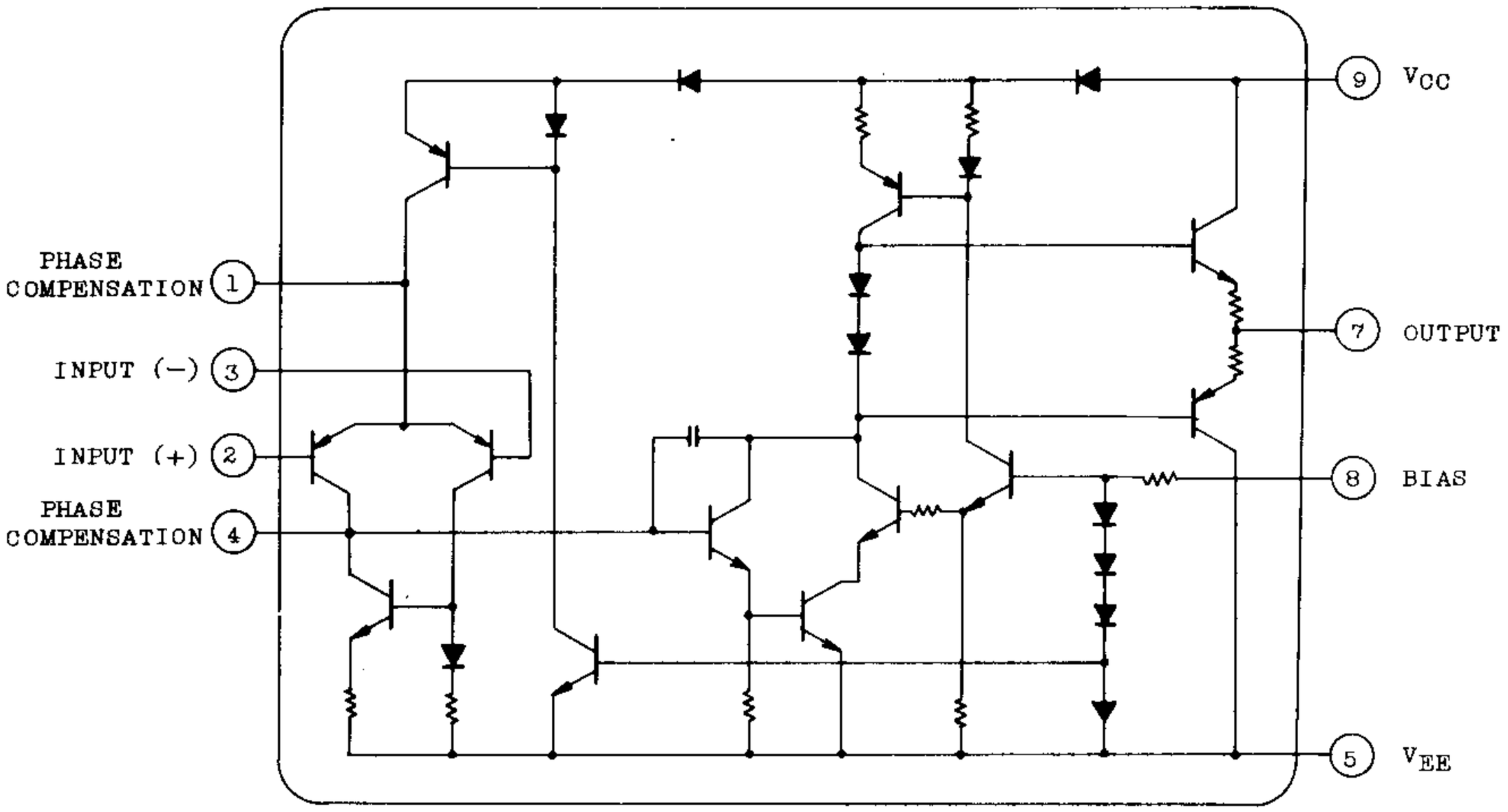
Note : Derated above Ta=25°C in the proportion of 6mW/°C.

ELECTRICAL CHARACTERISTICS

(Ta=25°C, V_{CC}=25V, V_{EE}=-25V, RIAA EQ f=1kHz, R_L=47kΩ)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	1	V_{IN}=0	-	3.5	6.0	mA
Open Loop Voltage Gain	G_{VO}	1	V_{IN}=-90dBs	-	100	-	dB
Maximum Output Voltage	V_{OM}	2	THD=0.01%	12	15	-	V_{rms}
Total Harmonic Distortion	THD(1)	2	V_{OUT}=12V_{rms}	-	0.002	0.01	%
	THD(2)	2	f=20Hz ~ 20kHz V_{OUT}=3V_{rms}	-	0.004	-	%
Equivalent Input Noise Voltage	V_{NI}	2	R_g=2.2kΩ BW=15Hz ~ 30kHz	-	0.7	1.5	μV_{rms}
Signal-Noise Ratio	S/N	2	R_g=0, IHF A Curve Filter	-	82	-	dB

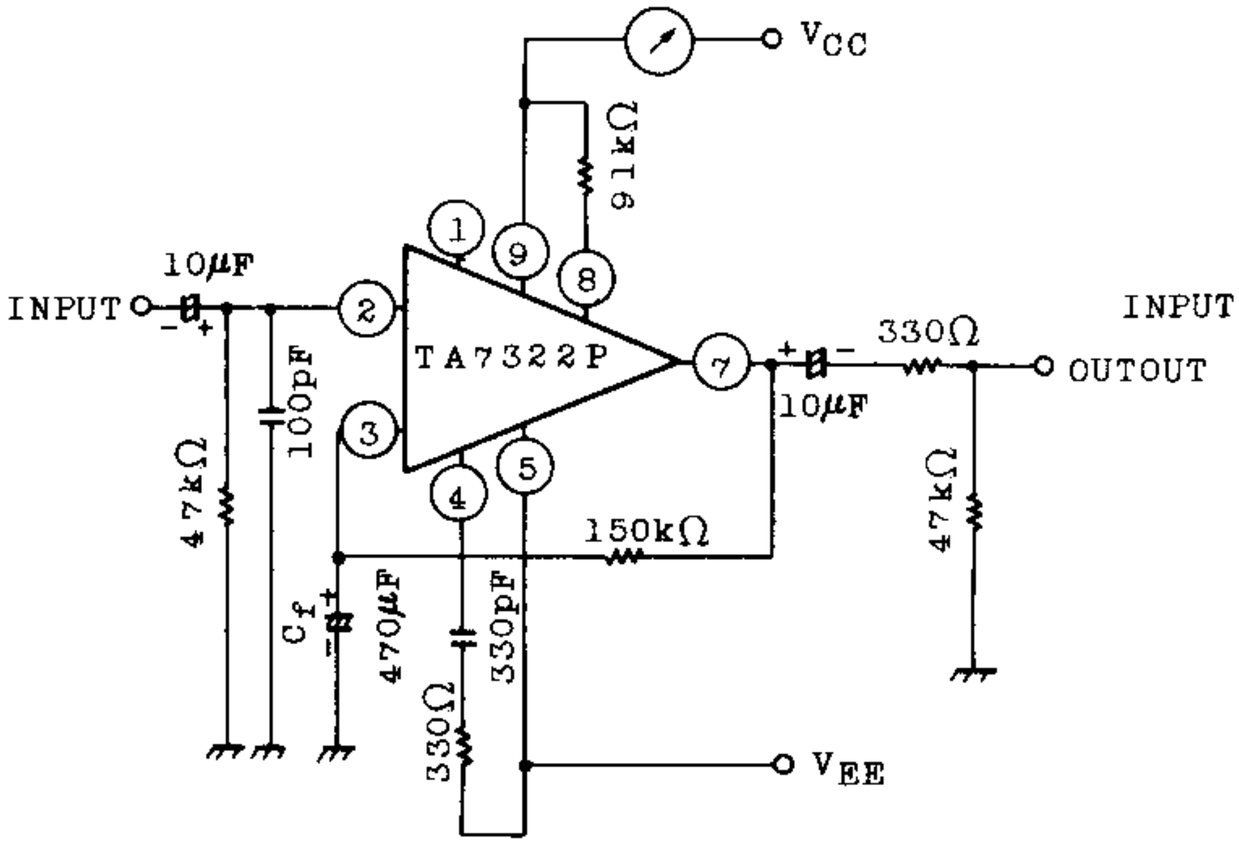
EQUIVALENT CIRCUIT



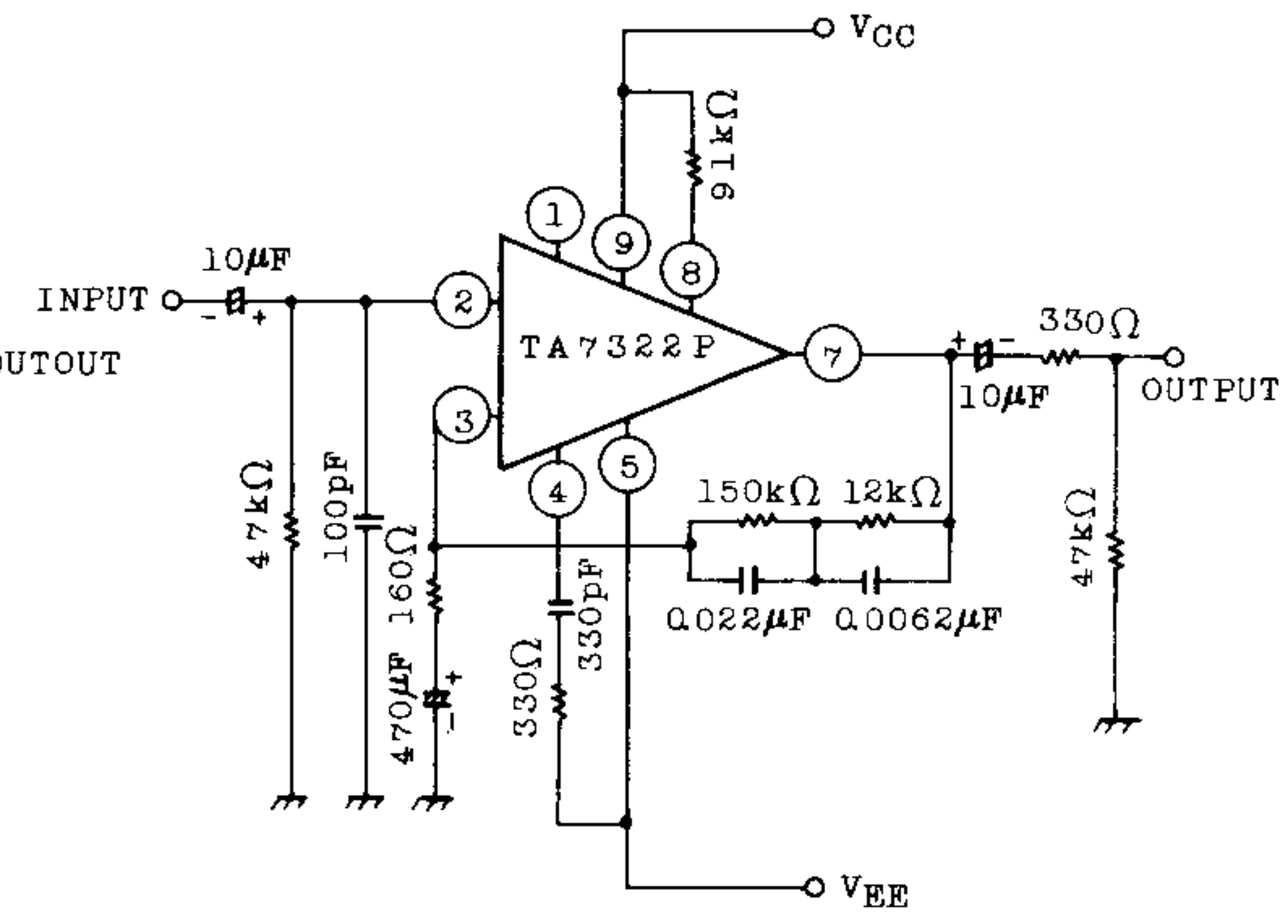
PIN 6 : NO CONNECTION

TEST CIRCUIT

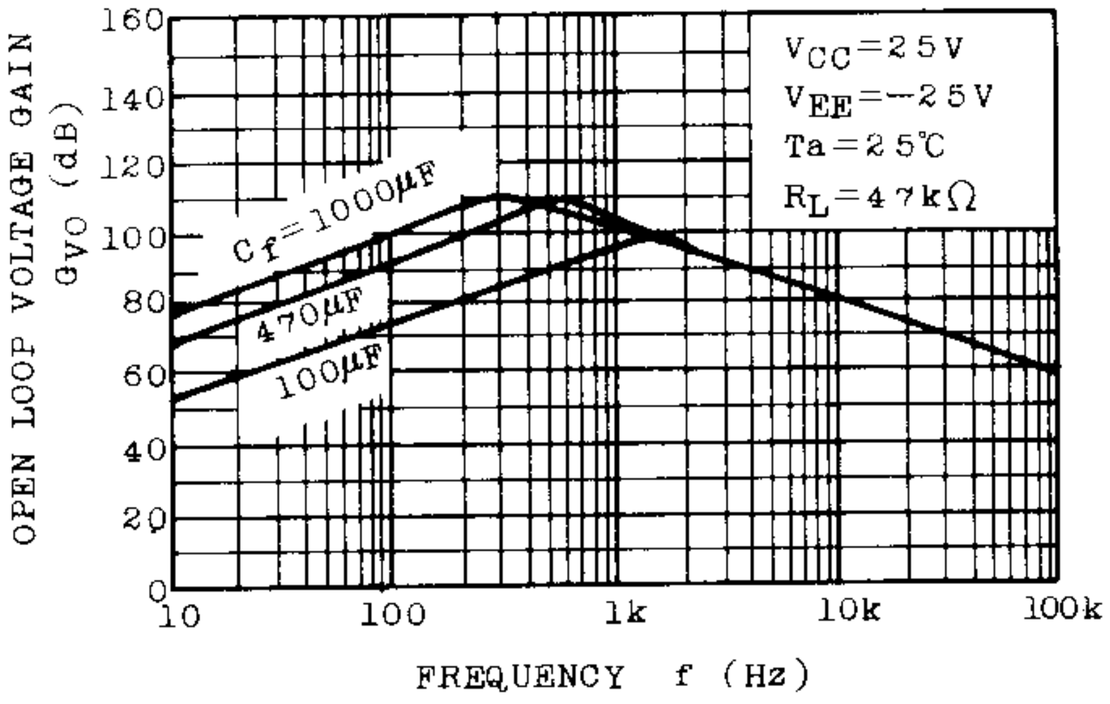
1. I_{CCQ}, G_{VO}



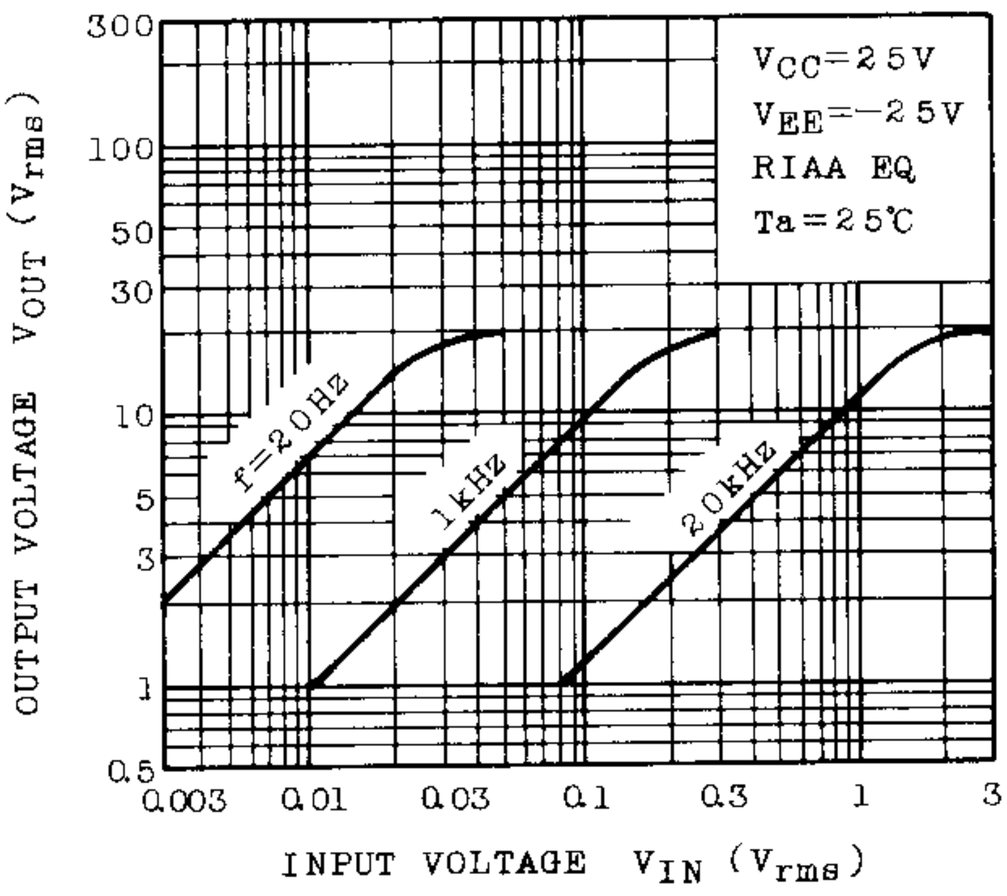
2. V_{OM}, THD(1), THD(2), V_{NI}, S/N



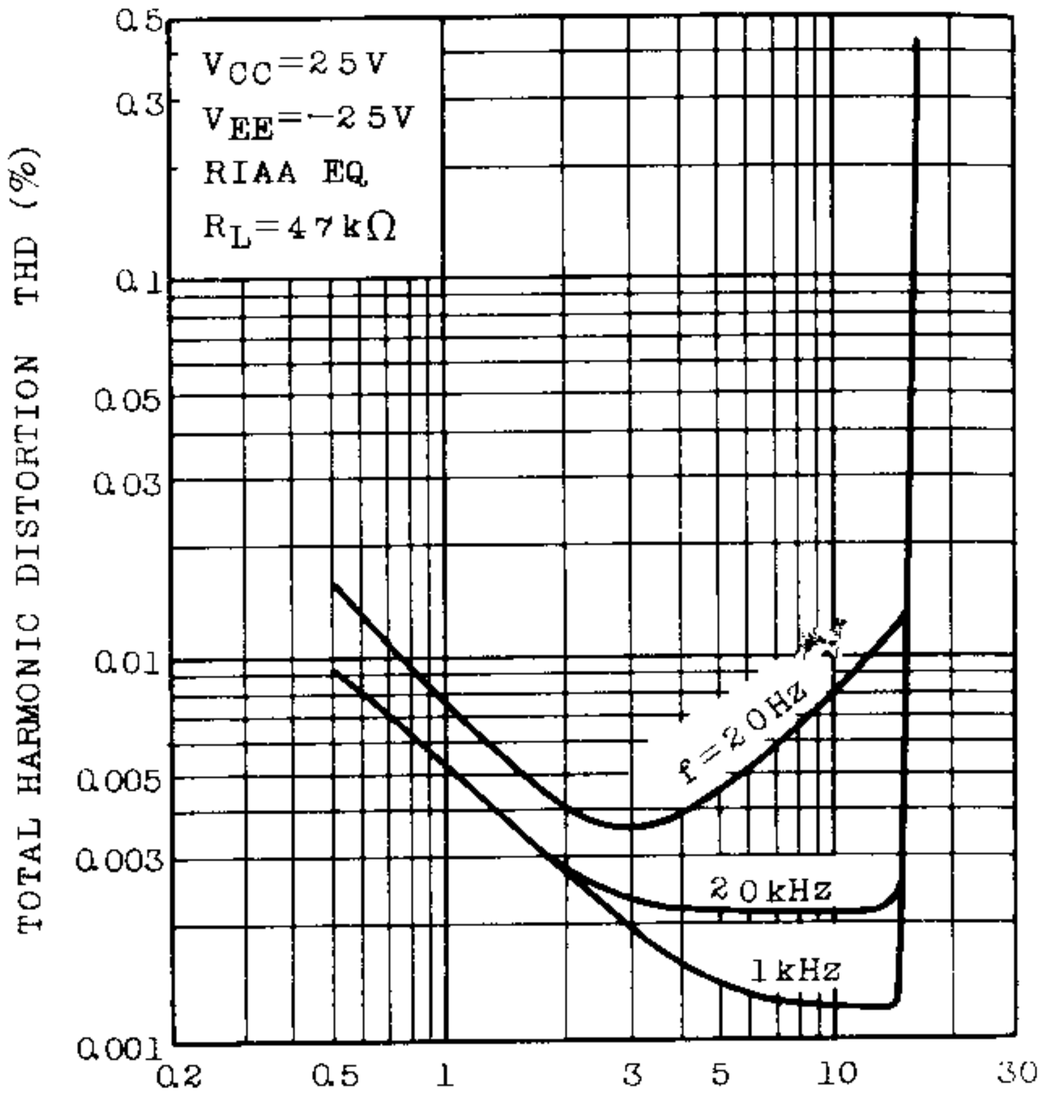
G_{VO} – f



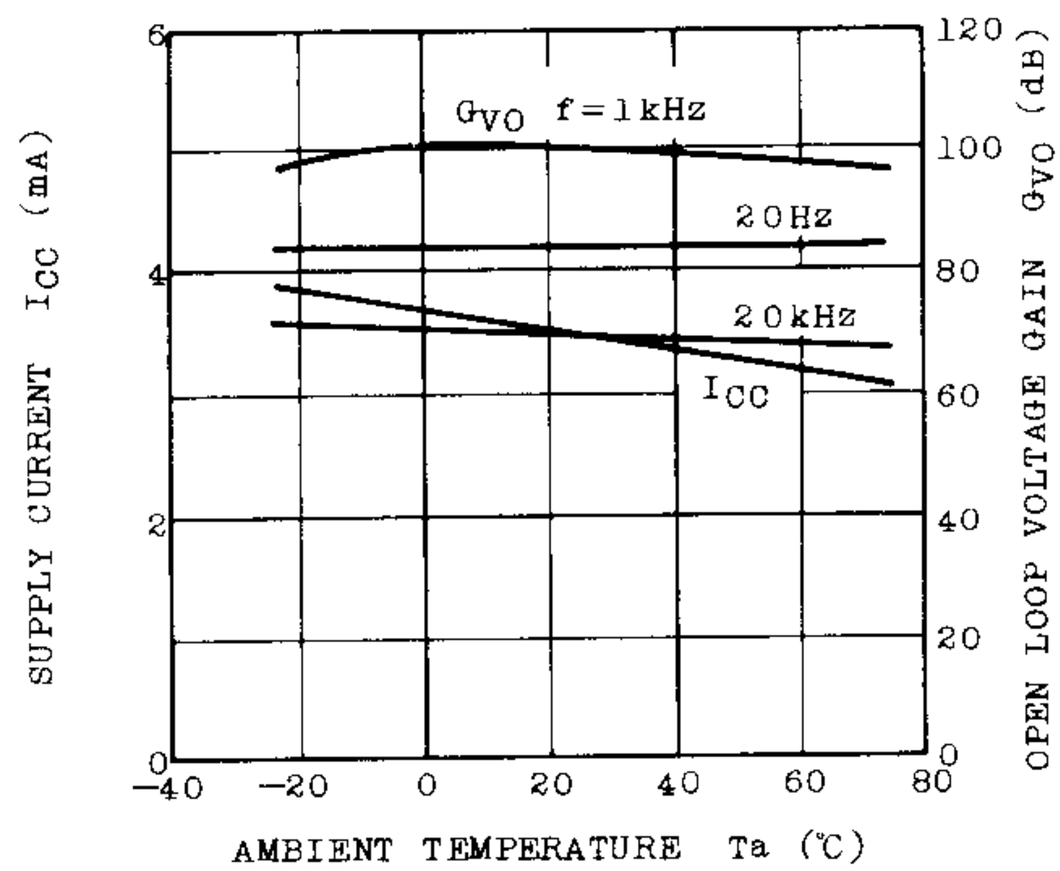
V_{OUT} – V_{IN}



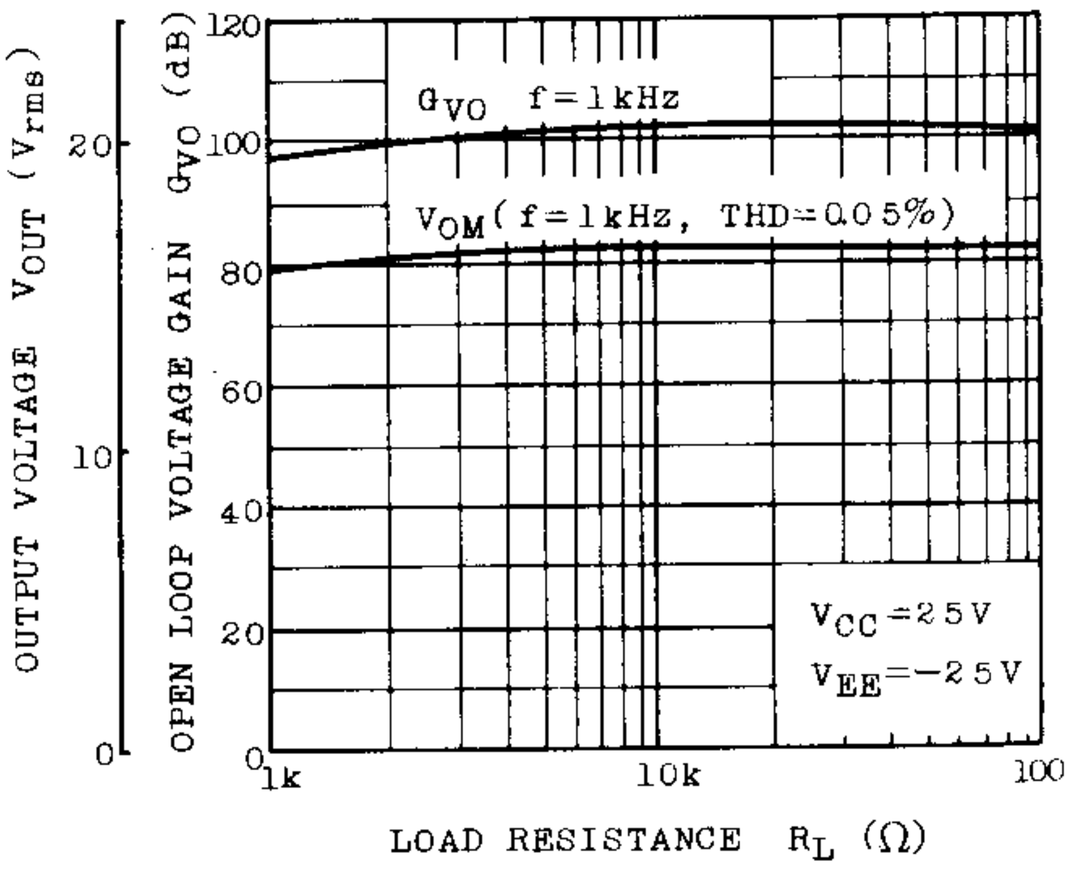
V_{OUT} – THD



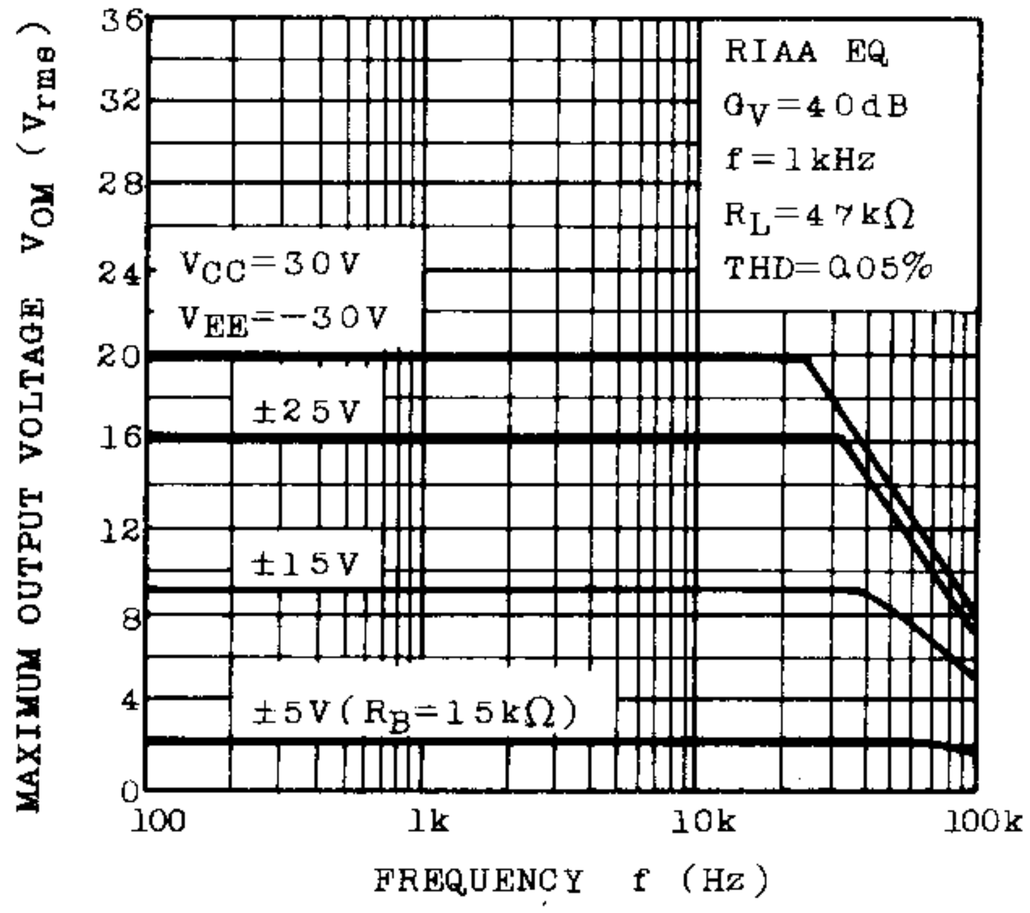
I_{CC}, G_{VO} – Ta



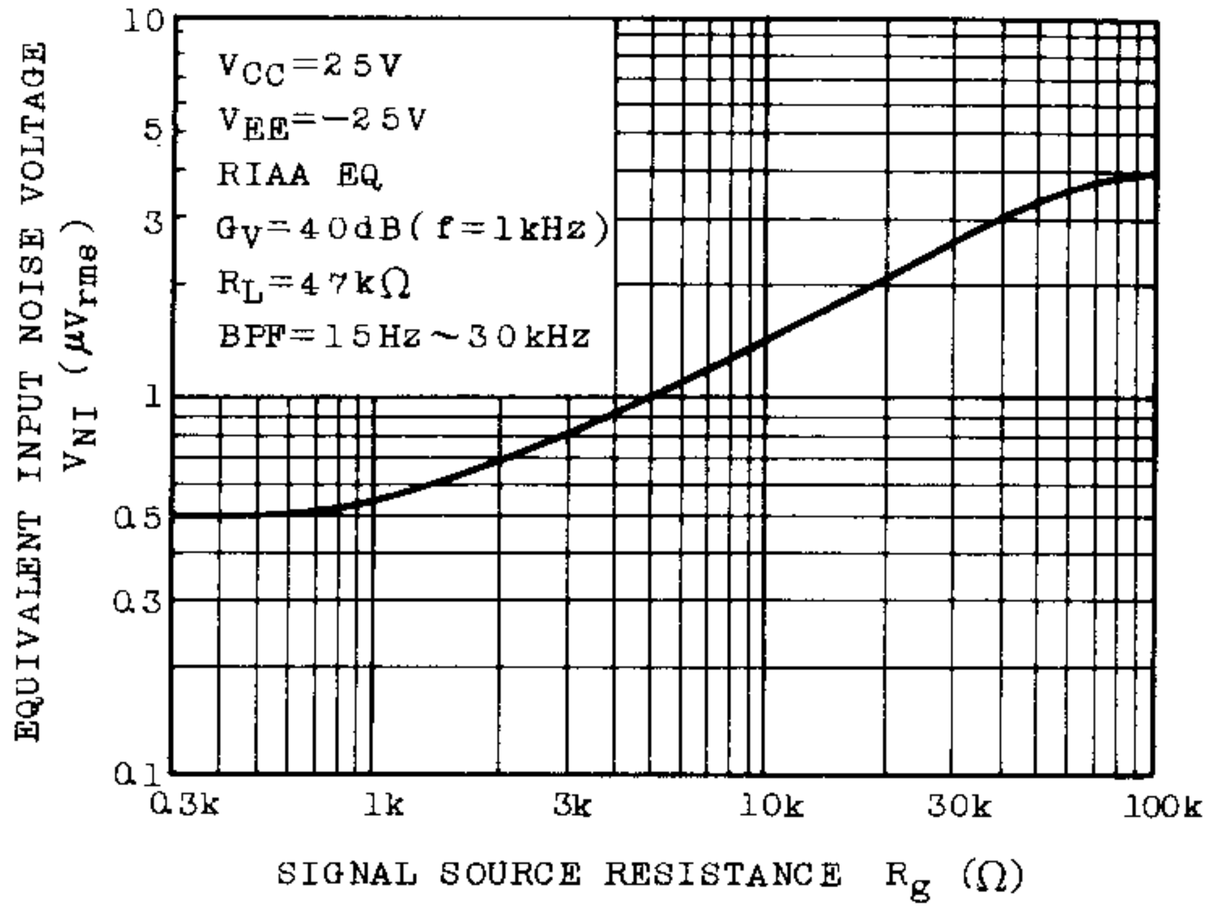
V_{OUT}, G_{VO} – R_L



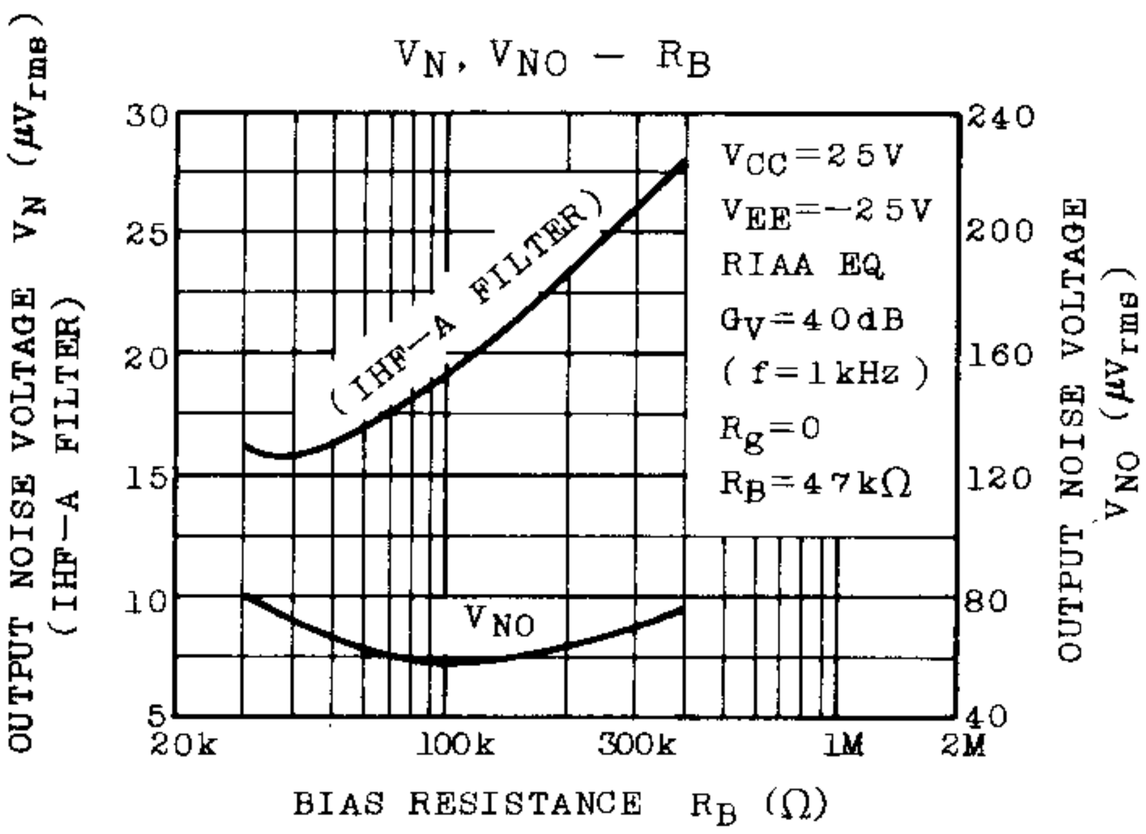
V_{OM} – f



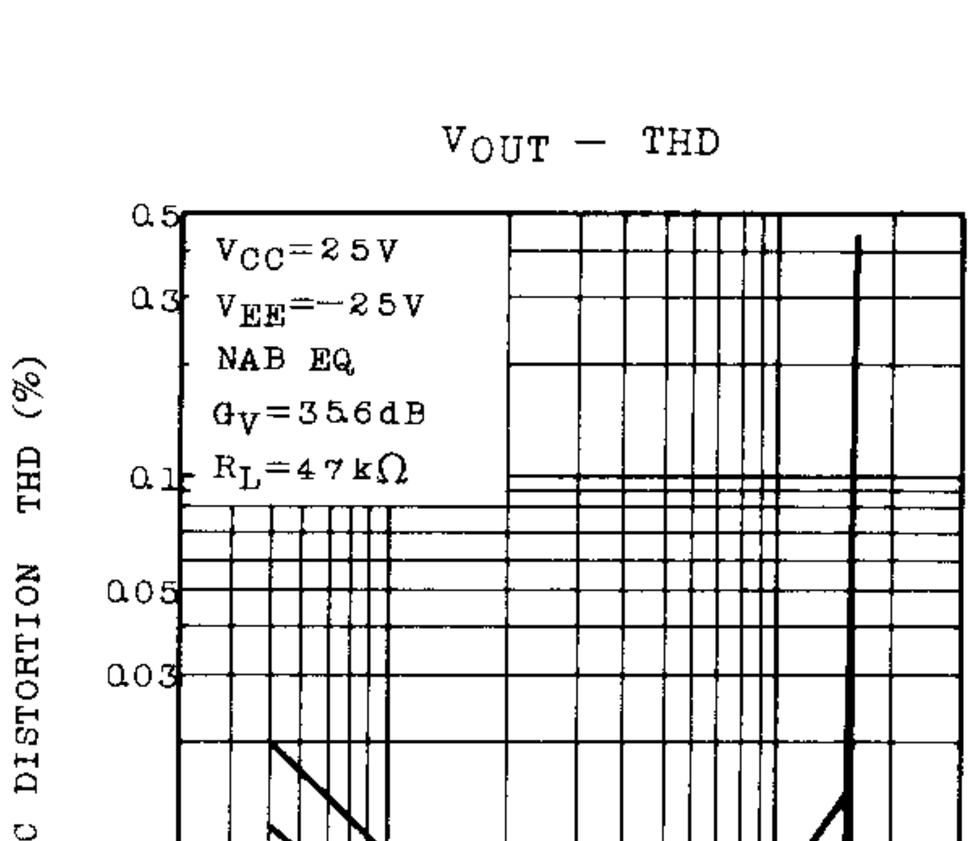
V_{NI} – R_g



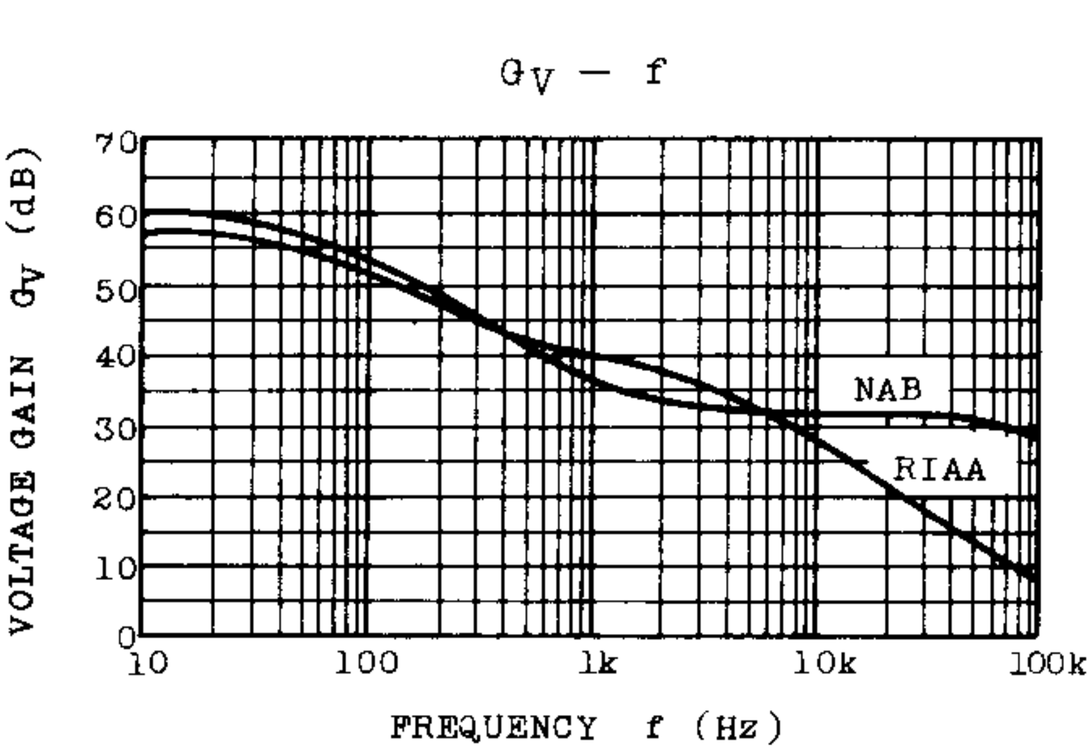
V_N, V_{NO} – R_B



V_{OUT} – THD

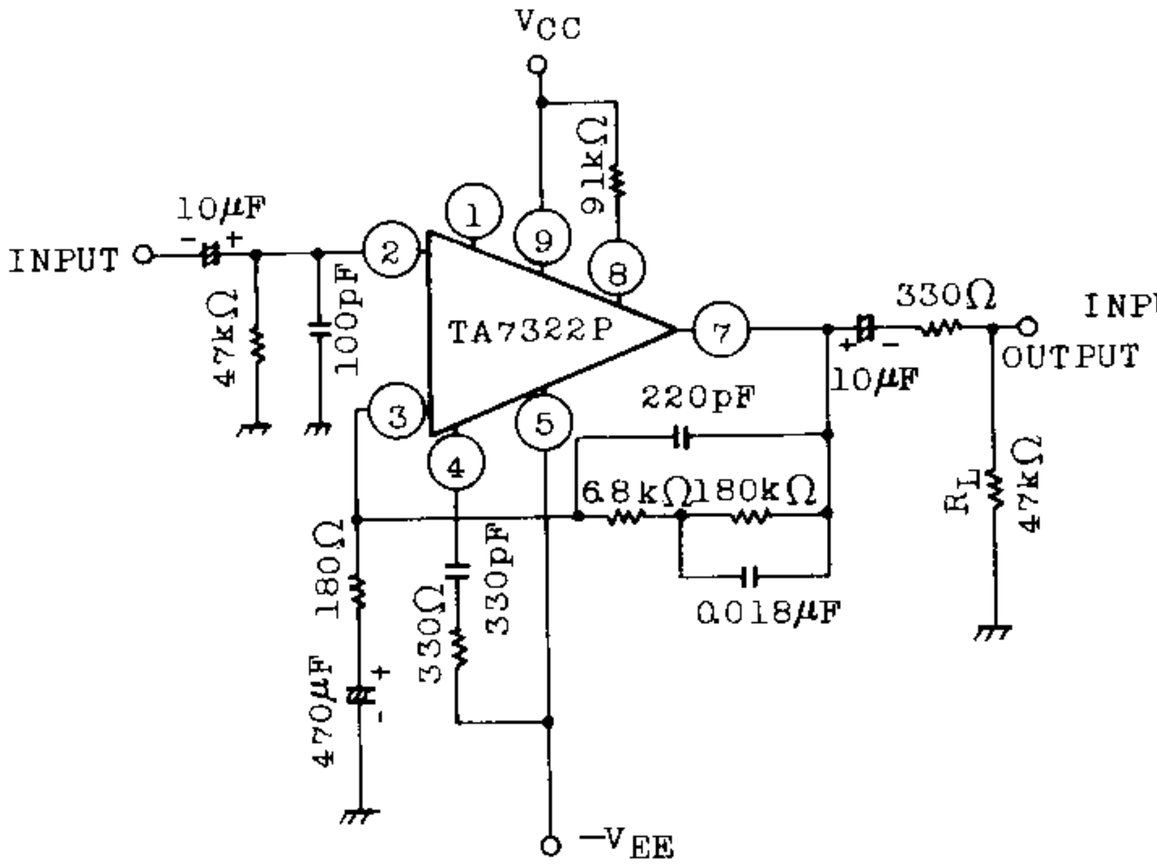


G_V – f

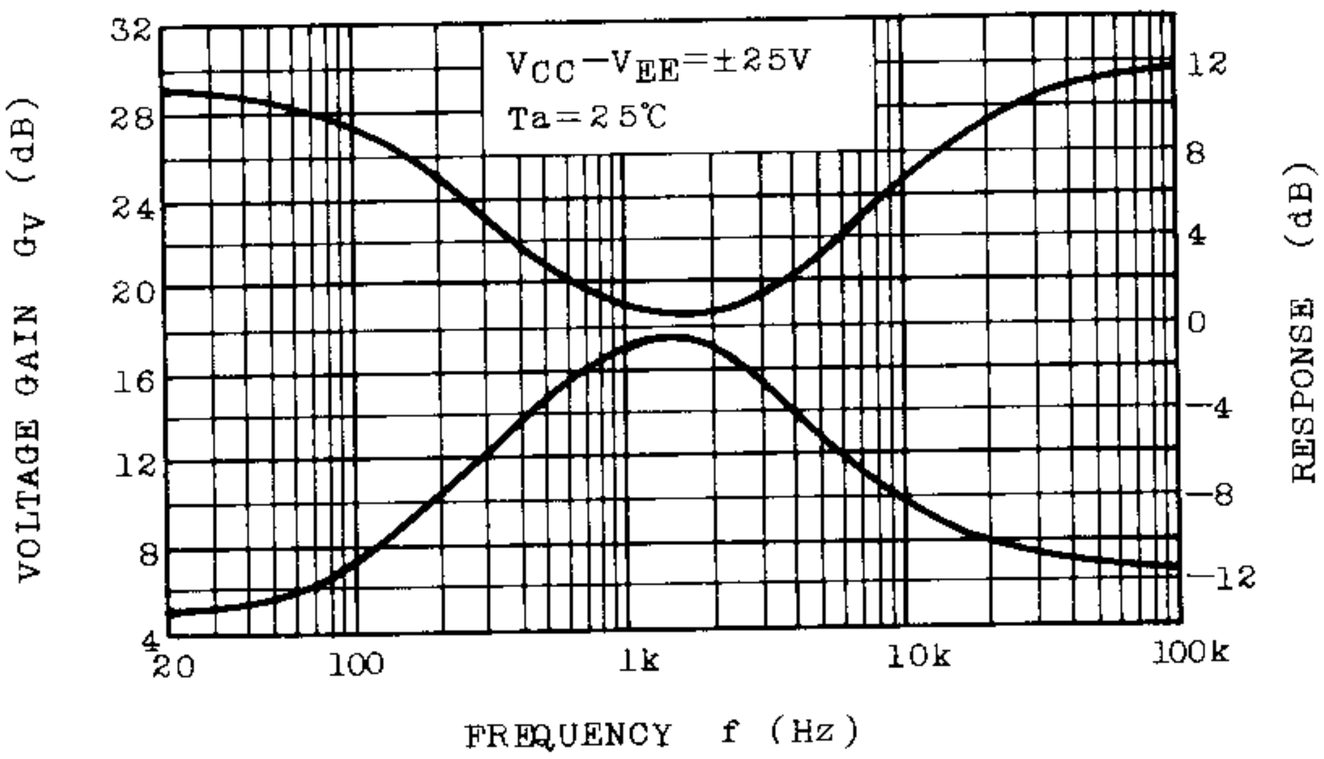


APPLICATION CIRCUIT

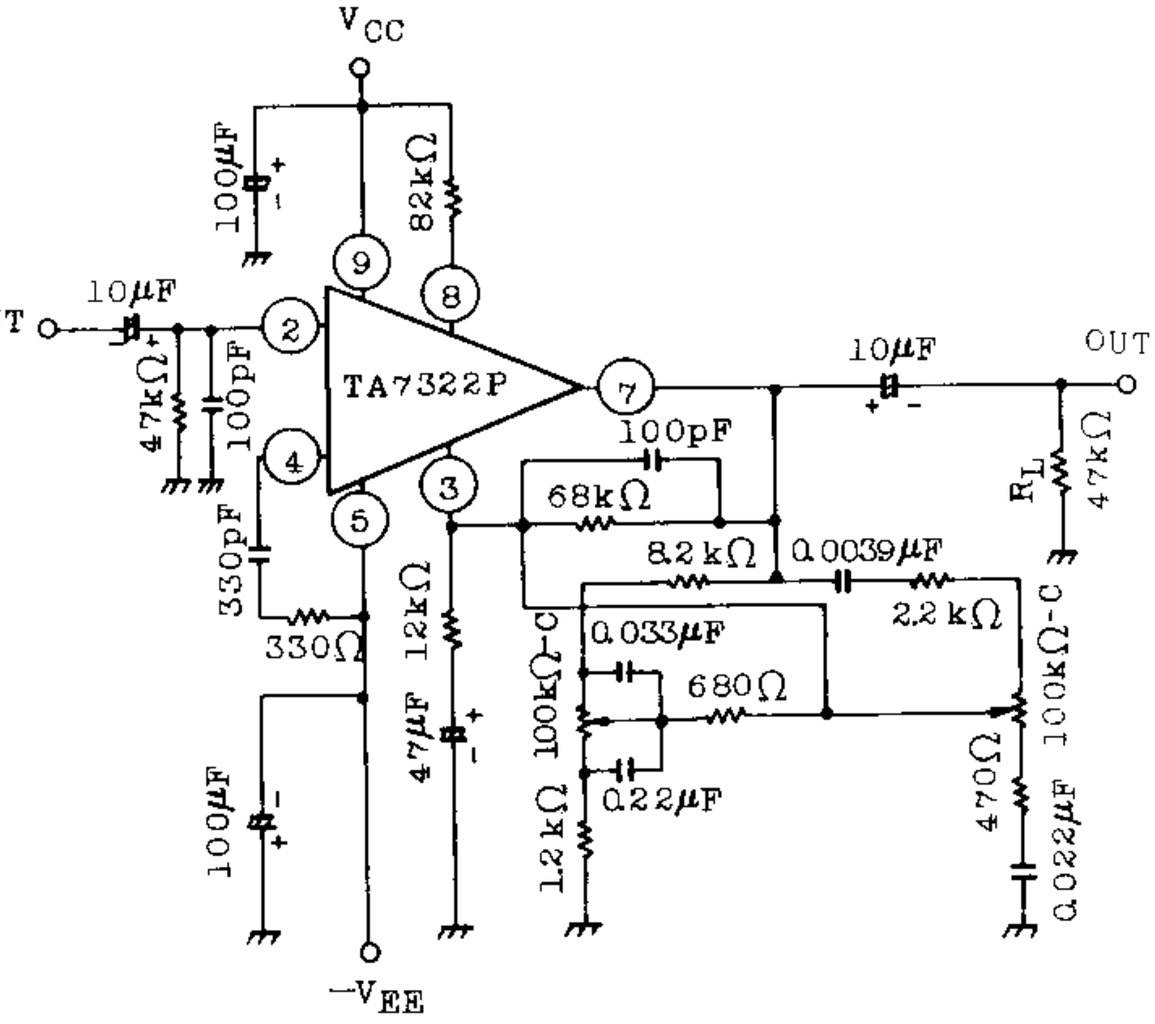
1. NAB EQ

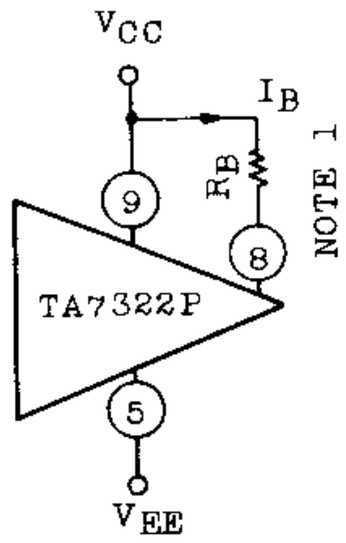


G_V — f



2. TONE CONTROL CIRCUIT





Note 1. Institution of Bias Resistance (R_B)
In regard to the value of supply voltage, R_B is found using the following formula:

$$R_B = \frac{V_{CC}-(V_{EE})-5.3V}{I_B} \quad (\Omega)$$

where $I_B = 500\mu A$

(Example)

at $V_{CC}=25V$, $V_{EE}=-25V$

$$R_B = \frac{25+25-5.3}{0.5mA}$$

$$= 89.4k\Omega$$

V_{OM}, G_{VO}, I_{CC} — $V_{CC}(-V_{EE})$