Toshiba **INTEGRATED CIRCUIT**

TECHNICAL DATA

TA7136AP

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

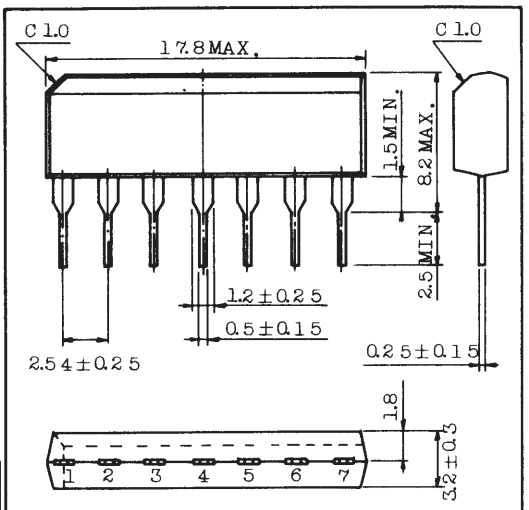
SILICON MONOLITHIC

PRE-AMPLIFIER FOR DUAL POWER SUPPLY

VARIOUS HIGH QUALITY PRE-AMPLIFIER

- Low Noise : V_{NI}=0.8μV_{rms}(Typ.)
- High Open Loop Voltage Gain : G_{VO}=92dB(Typ.)
- Low Distortion : THD=0.1%(Max.)
  (RIAA. EQ. 40dB(1kHz), V_{OUT}=7V_{rms})
- Wide Operating Supply Voltage Range : V_{CC}=±3~±20V

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	5-18A

MAXIMUM RATINGS (Ta=25°C)

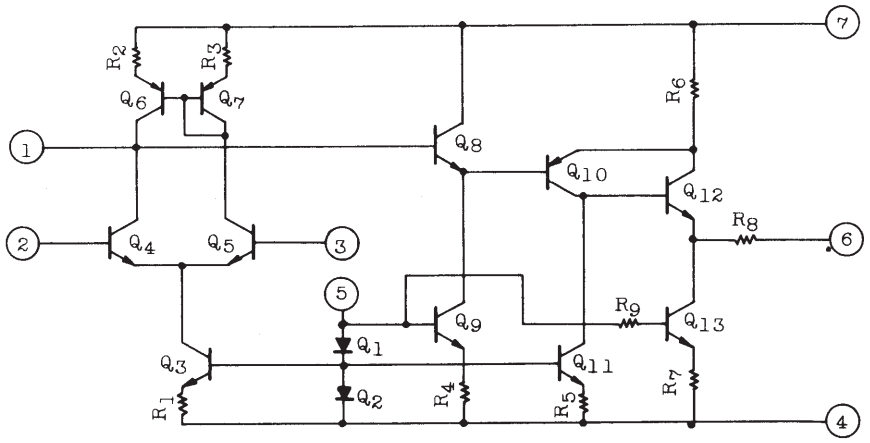
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_7-V_4	40	V
Power Dissipation (Note)	P_D	400	mW
Operating Temperature	Topr	-25~75	°C
Storage Temperature	Tstg	-55~125	°C

Note : Derated above Ta=25°C in the proportion of 4 mW/°C.

ELECTRICAL CHARACTERISTICS (V_{CC}=15V, V_{EE}=-15V, Ta=25°C)

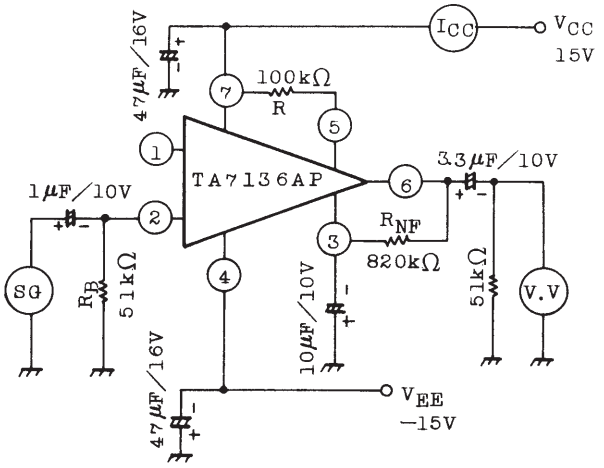
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I_{CC}	1	V_{IN}=0	-	3.1	4.2	mA
Voltage Gain (Open Loop)	G_{VO}	1	f=1kHz, V_{IN}=-85dBm	87	92	-	dB
Maximum Output Voltage	V_{OM}	2	RIAA EQ, f=1kHz, THD=0.1%	7.0	-	-	V_{rms}
Equivalent Input Noise Voltage	V_{NI}	3	RIAA equalizer R_g=2.2kΩ, f=1kHz	-	0.8	1.5	μV_{rms}

EQUIVALENT CIRCUIT

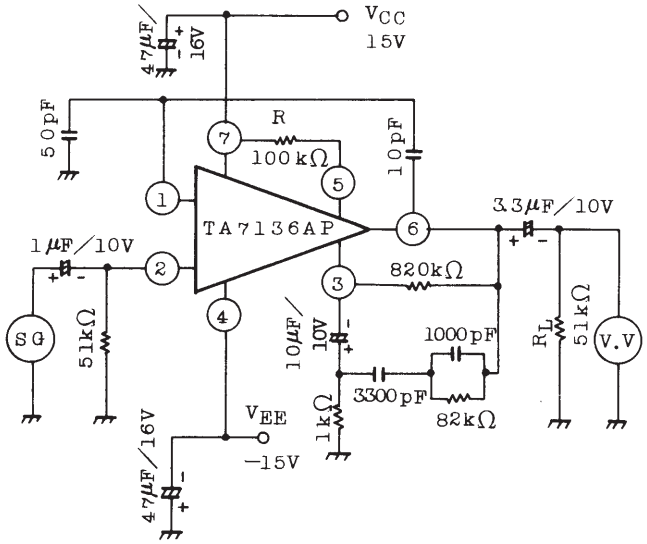


TEST CIRCUIT

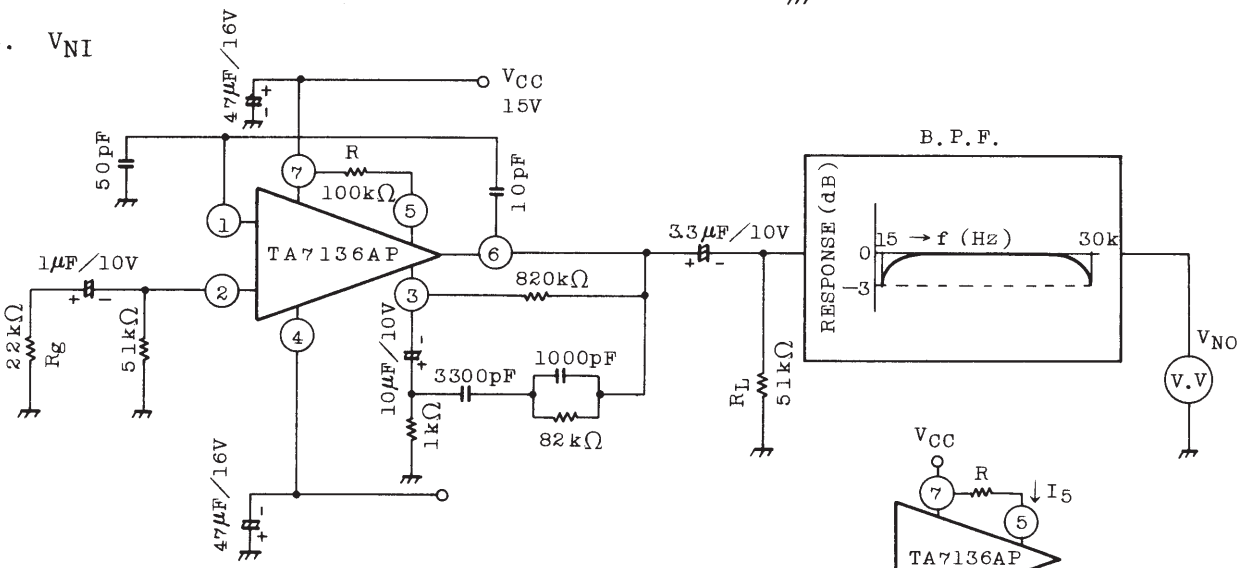
1. I_{CC}, G_{VO}



2. V_{OM}



3. V_{NI}



DECISION OF BIAS RESISTANCE R

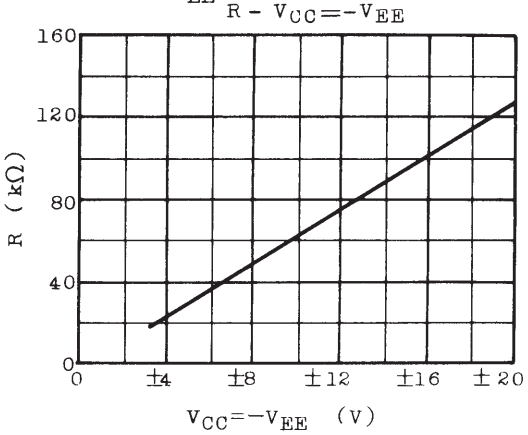
The TA7136AP is designed to operate under the bias condition I_5=300μA±20%.

Please decide the R by the following equation.

$I_5=(V_{CC}-V_{EE}-2V_F)/R$

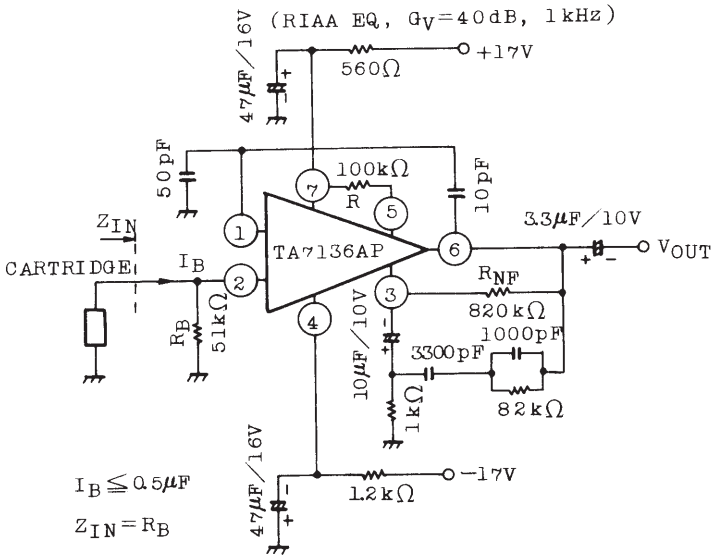
$R=(V_{CC}-V_{EE}-1.4)/0.3(k\Omega)$

The following figure shows the caluculated value of R.

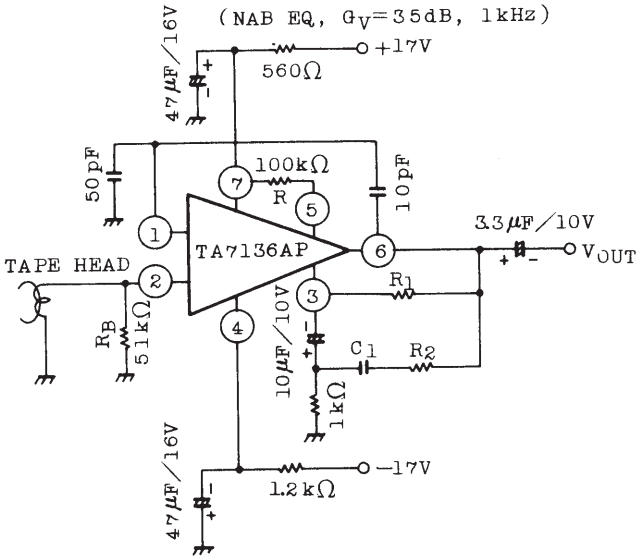


APPLICATION CIRCUIT

1. MAGNETIC PHONO PRE-AMPLIFIER

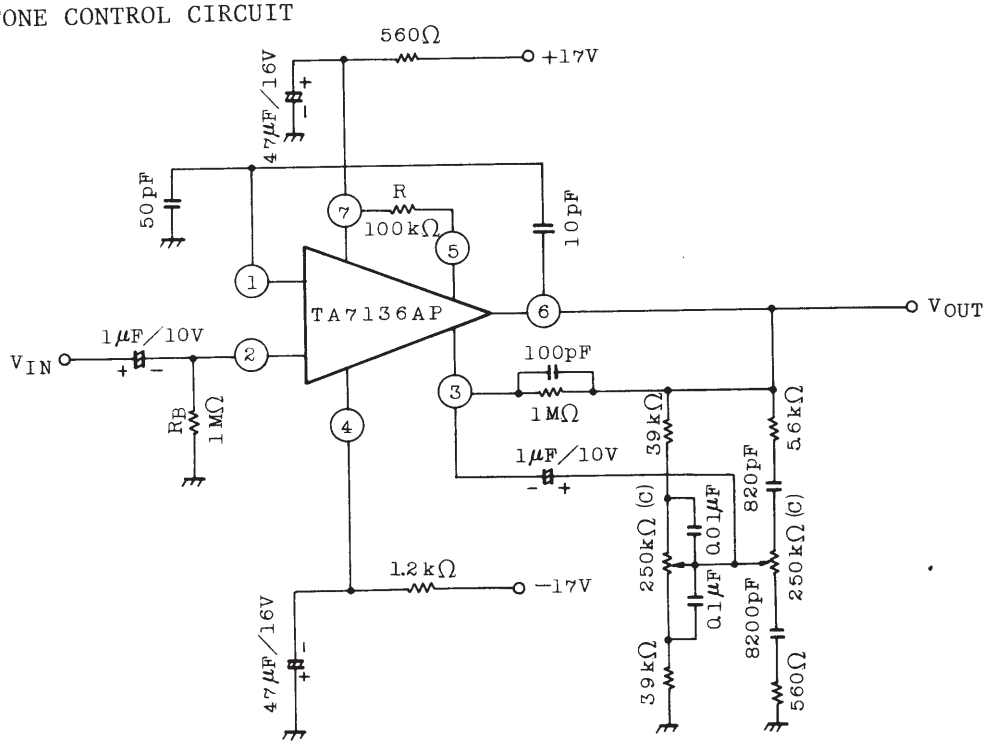


2. TAPERECORDER PRI-AMPLIFIER

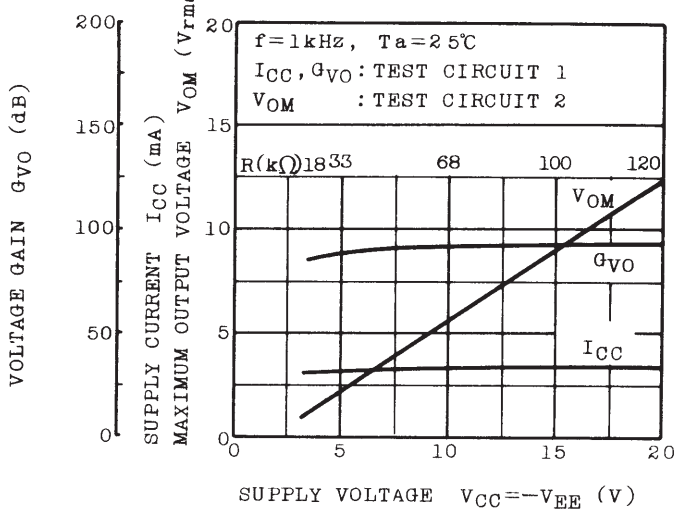


	9.5cm/sec	19cm/sec	CASSETTE
R_1	910kΩ	1MΩ	510kΩ
R_2	27kΩ	18kΩ	47kΩ
C_1	3300pF	2800pF	3300pF

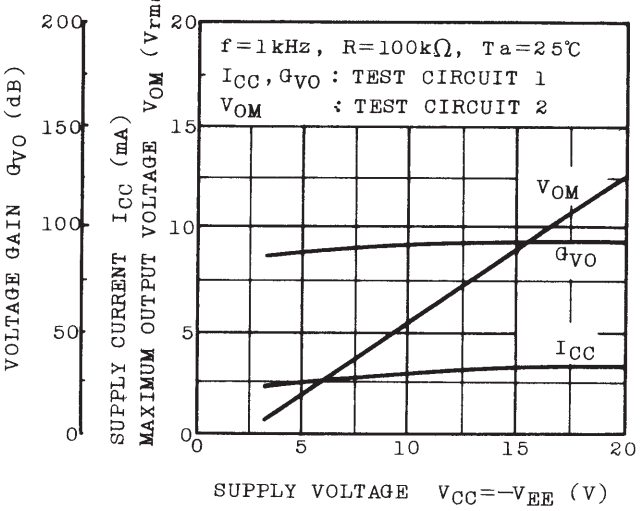
3. TONE CONTROL CIRCUIT



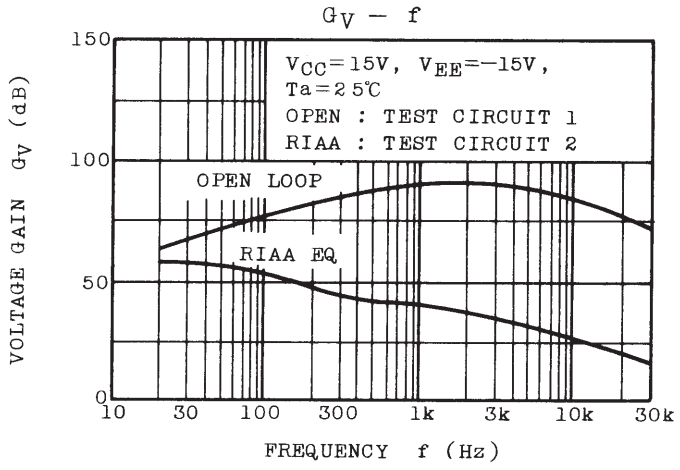
$G_{VO}, I_{CC}, V_{OM} - V_{CC}$



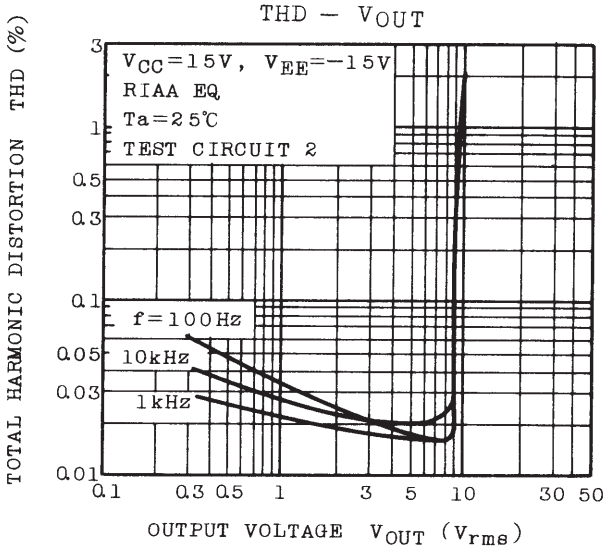
$G_{VO}, I_{CC}, V_{OM} - V_{CC}$



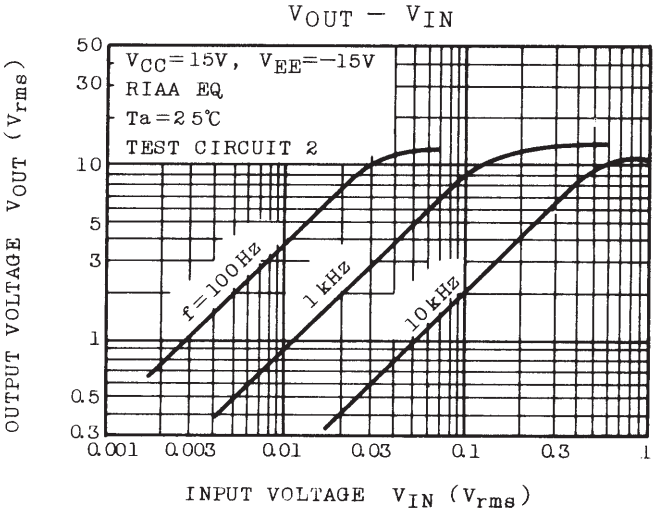
$G_V - f$



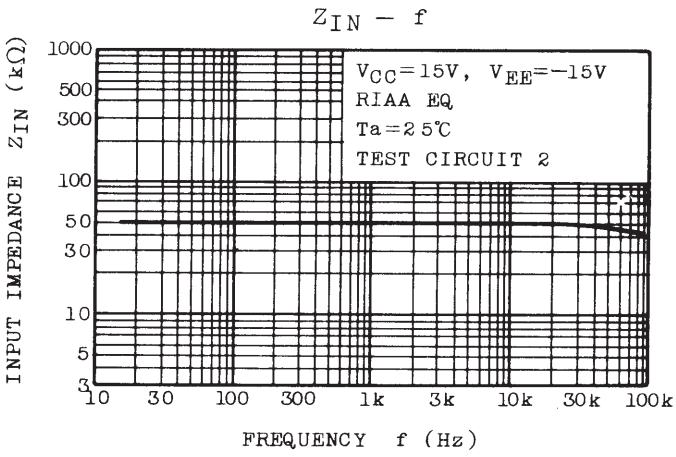
THD − V_{OUT}



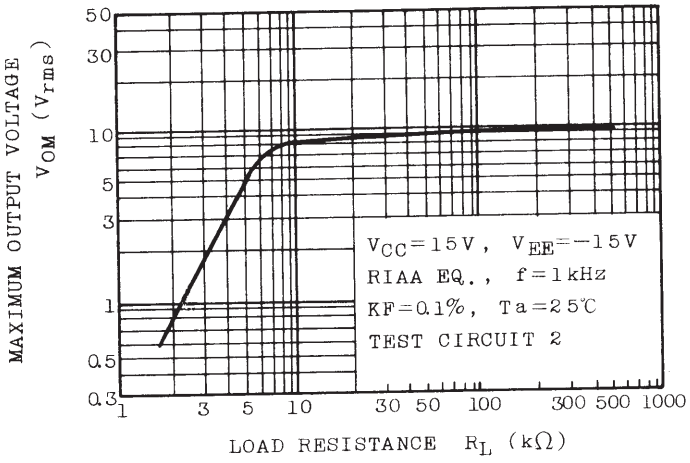
$V_{OUT} - V_{IN}$



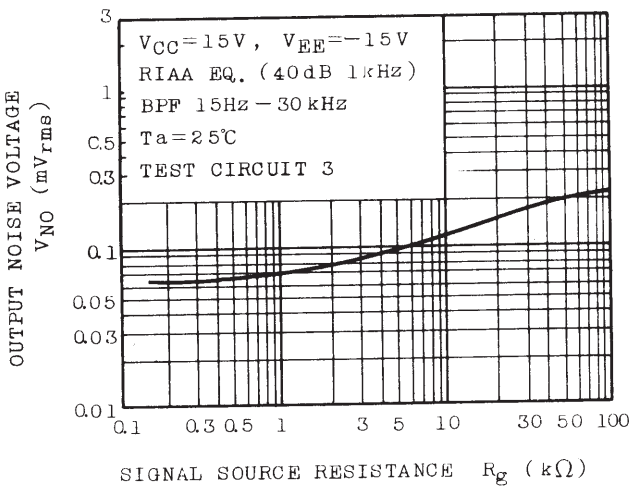
$Z_{IN} - f$



$V_{OM} - R_L$



$V_{NO} - R_g$



$G_{VO}, I_{CC}, V_{OM} - Ta$