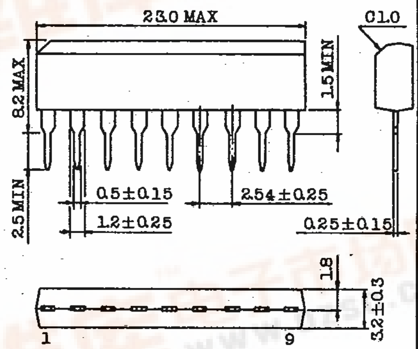
TA7325P

T-74-05-01

DUAL PRE AMPLIFIER

- Dual Pre Amplifier for Car or Home Stereo Use.
- High Voltage Gain :
  G_{VO}=100dB (Typ.) at f=1kHz
- Excellent Channel Separation and High Ripple Rejection : CH. Sep.=70dB (Typ.)
  R.R.=50dB (Typ.)
- Low Noise : $V_{NI}=1.0\mu V_{rms}$ (Typ.)
  at $R_g=2.2k\Omega$, BW=15Hz ~ 30kHz
- Build in Muting Circuit : $2V \geq V_9 \geq 0.9V$
- Wide Operating Supply Voltage Range : V_{CC}=7 ~ 18V.

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	S9A-P

MAXIMUM RATINGS ($Ta=25^{\circ}C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	18	V
Power Dissipation (Note)	P_D	700	mW
Operating Temperature	T_{opr}	-25 ~ 75	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

Note : Derated above $Ta=25^{\circ}C$ in the proportion of 5.6mW/°C.

ELECTRICAL CHARACTERISTICS

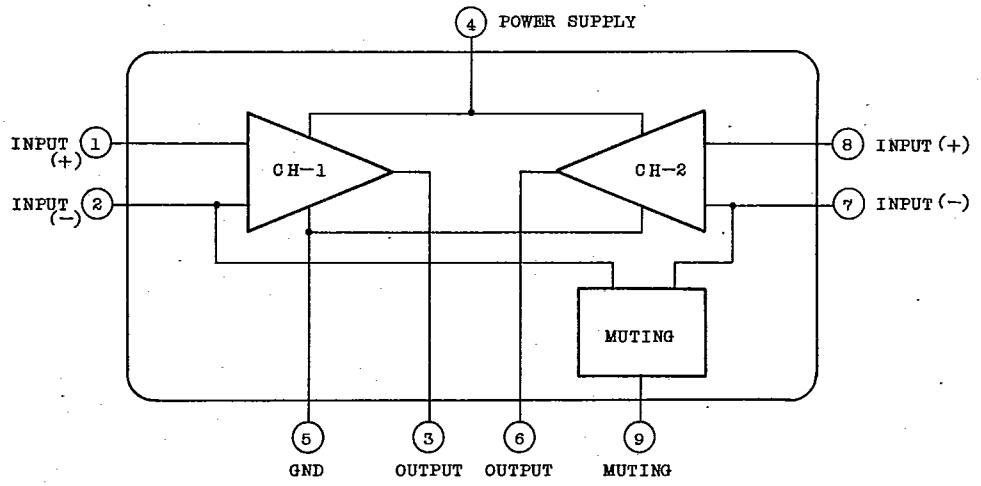
(Unless otherwise specified, V_{CC}=10V, f=1kHz, $R_g=600\Omega$, $R_L=10k\Omega$, $Ta=25^{\circ}C$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I_{CC}	1	V_{IN}=0	-	5.5	8.5	mA
Voltage Gain	G_{VO}	1	$C_f=100\mu F$, R_f=0	-	100	-	dB
Maximum Output Voltage	V_{OM}	2	THD=0.5%, NAB EQ	2.0	2.8	-	V_{rms}
Equivalent Input Noise Voltage	V_{NI}	2	$R_g=2.2k\Omega$, BPF=15Hz ~ 30kHz	-	1.0	2.5	μV_{rms}
Input Resistance	R_{IN}	2	$V_O=1V_{rms}$	-	100	-	kΩ
Channel Separation	CHsep	2	f=10kHz, $R_g=2.2k\Omega$ $V_O=1V_{rms}$	-	70	-	dB
Ripple Rejection	R.R	2	f=100Hz, $V_{IN}=1V_{rms}$ CB=NO connection	-	50	-	dB
Muting Ratio	M.R	2	V_9=1V, 0dB=$1V_{rms}$	-	80	-	dB

TA7325P

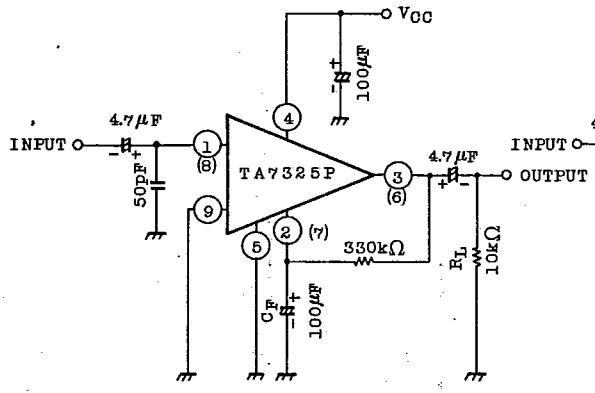
T-74-05-01

EQUIVALENT BLOCK DIAGRAM

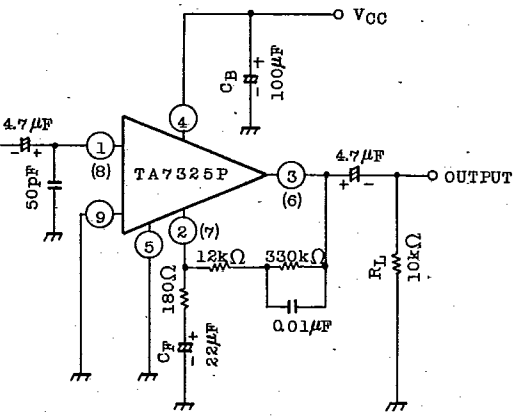


TEST CIRCUIT

1. G_{VO}, I_{CC}



2. V_{OM}, V_{NI}, R_{IN}, R.R



TA7325P

T-74-05-01

APPLICATION

(1) DECIDE OF FEEDBACK RESISTANCE

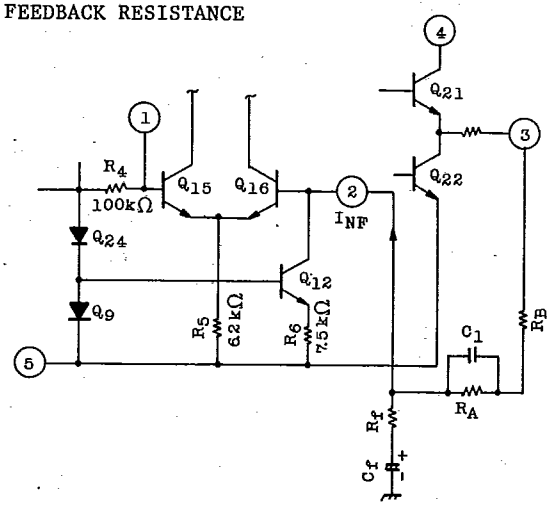


Fig.1

Fig.1 shows the internal circuit.

The optimum D.C output voltage is decided by following equation.

$$V_3 = \frac{1}{2}V_{CC} = V_2 + I_{NF}(R_A+R_B)$$

$$I_{NF} = 10\mu A$$

$$V_3 = \frac{1}{2}V_{CC}$$

$$= V_2 + I_{NF}(R_A+R_B) \quad (V)$$

$$V_2 = V_{BE}(Q9) + V_{BE}(Q24) = 2V_{BE} \cong V_1$$

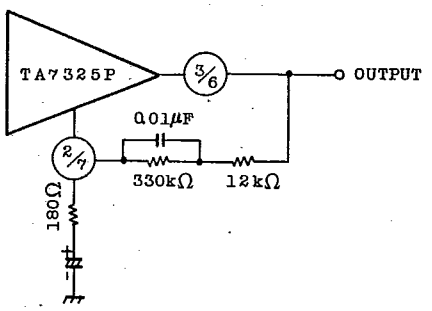
$$V_3 = \frac{1}{2}V_{CC} = 5 = 2V_{BE} + I_{NF}(R_A+R_B)$$

$$= 1.4 + 10 \times 10^{-6}(R_A+R_B)$$

$$R_A+R_B = \frac{5-1.4}{10 \times 10^{-6}}$$

$$= 3.6 \times 10^5$$

$$= 360 \quad (k\Omega)$$



TA7325P

T-74-05-01

(2) MUTING CIRCUIT APPLICATION

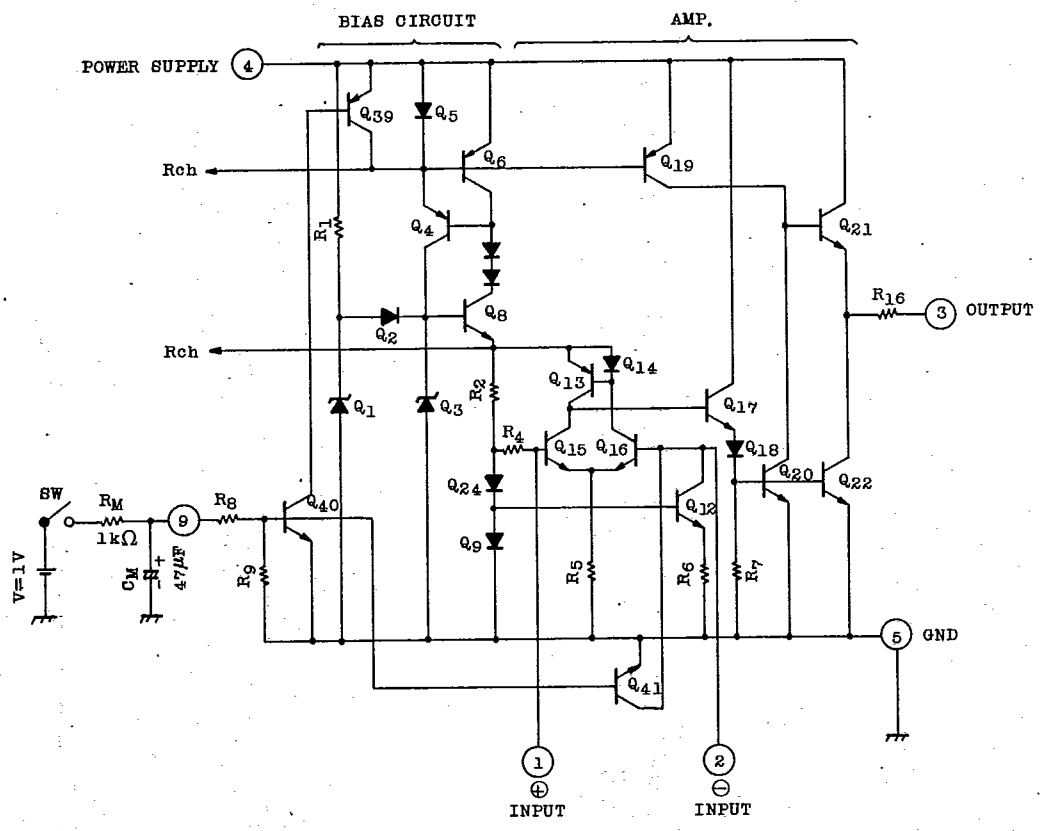


Fig.2

Fig.2 shows the equivalent circuit of (L ch) TA7325P.
The Q40 is turned ON when the voltage above 0,9V feed into PIN 9, Q41 and Q39 'turned ON' consequently and the muting operation obtained.

(3) NOTE

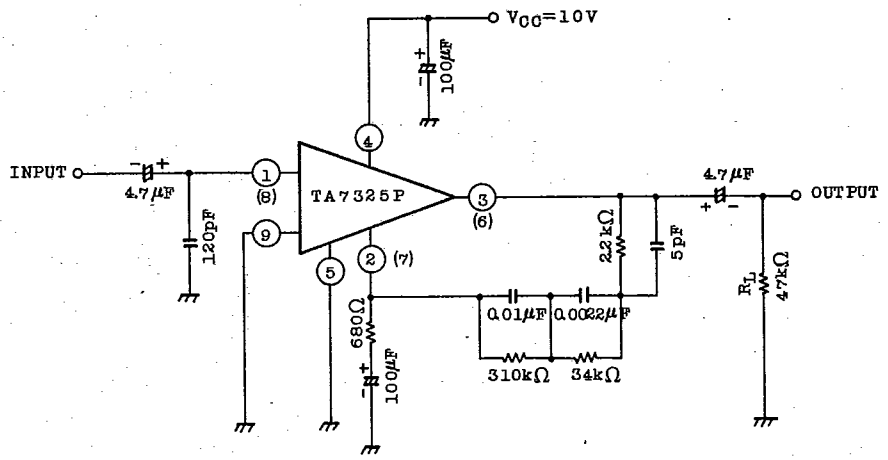
- Care should be taken not to decrease a closed loop gain less 20dB cause parasitic oscillation.
- The maximum allowable input voltage is 300 mV_{rms} not to increase the input voltage above this value for stable operation.

TA7325P

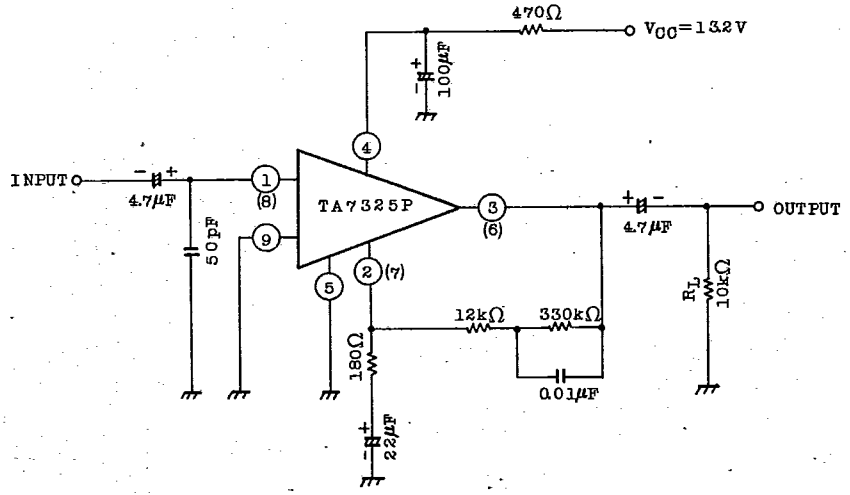
T-74-05-01

APPLICATION

1. RIAA EQ



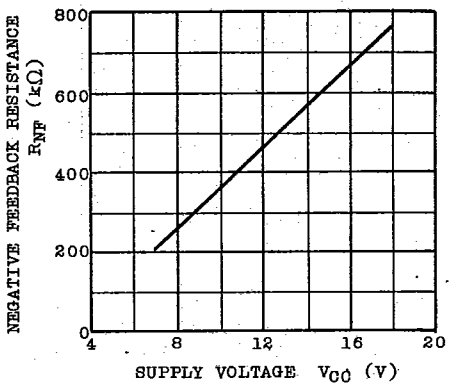
2. NAB EQ



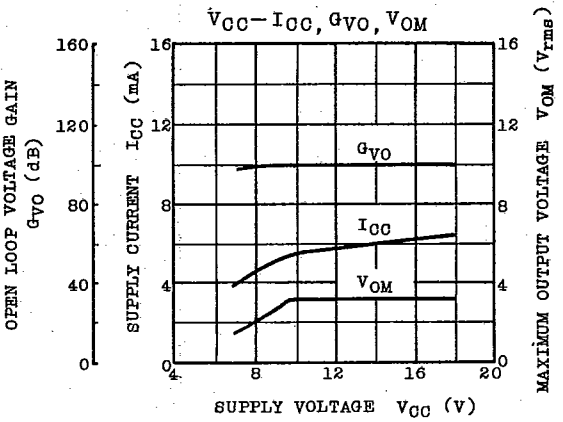
TA7325P

T-74-05-01

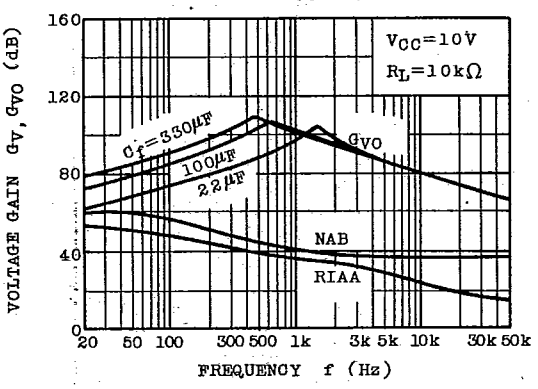
V_{CC} – R_{NF}



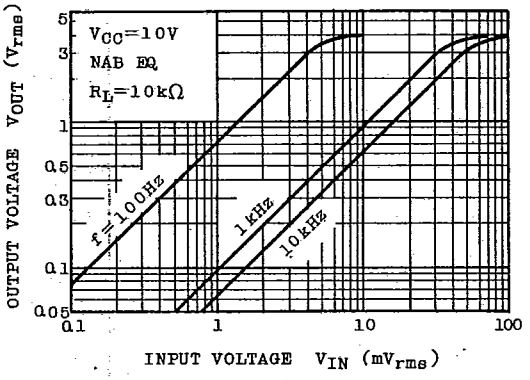
V_{CC} – I_{CC}, G_{VO}, V_{OM}



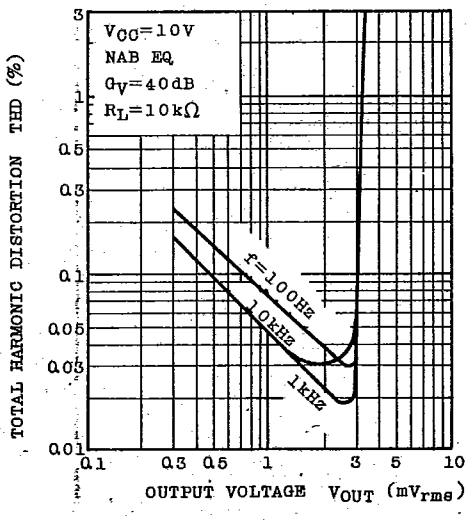
f – G_{VO}, G_V



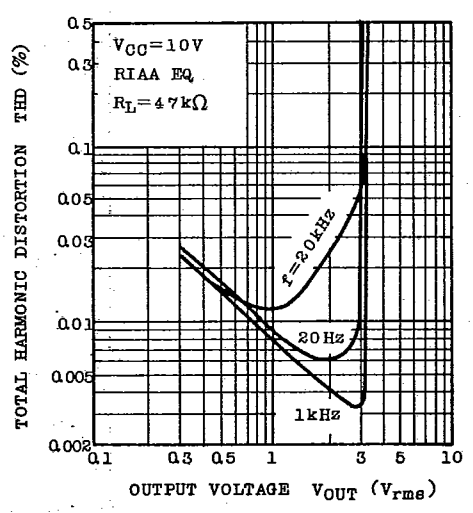
V_{IN} – V_{OUT}



V_{OUT} – THD



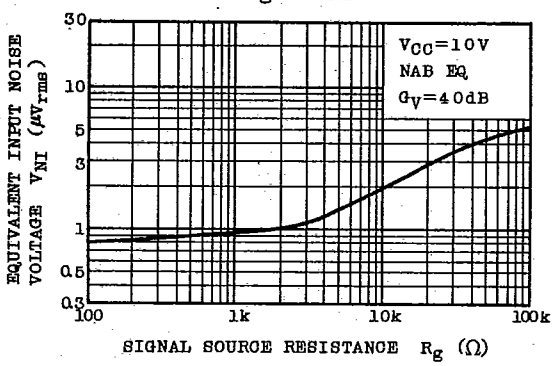
V_{OUT} – THD



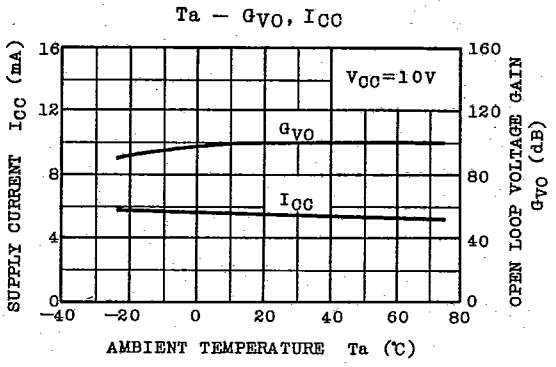
TA7325P

T-74-05-01

$R_g - V_{NI}$



Ta — G_{VO}, I_{CC}



R.R — RIPPLE LEVEL