

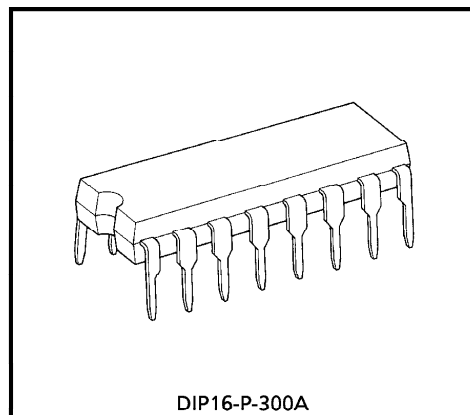
## DUAL PREAMPLIFIER FOR AUTOREVERSE

The TA7784P is dual preamplifier for autoreverse type and W-cassette type tape player.

This IC contains dual preamplifier, forward / reverse control switches and metal / normal tape equalizer control switches.

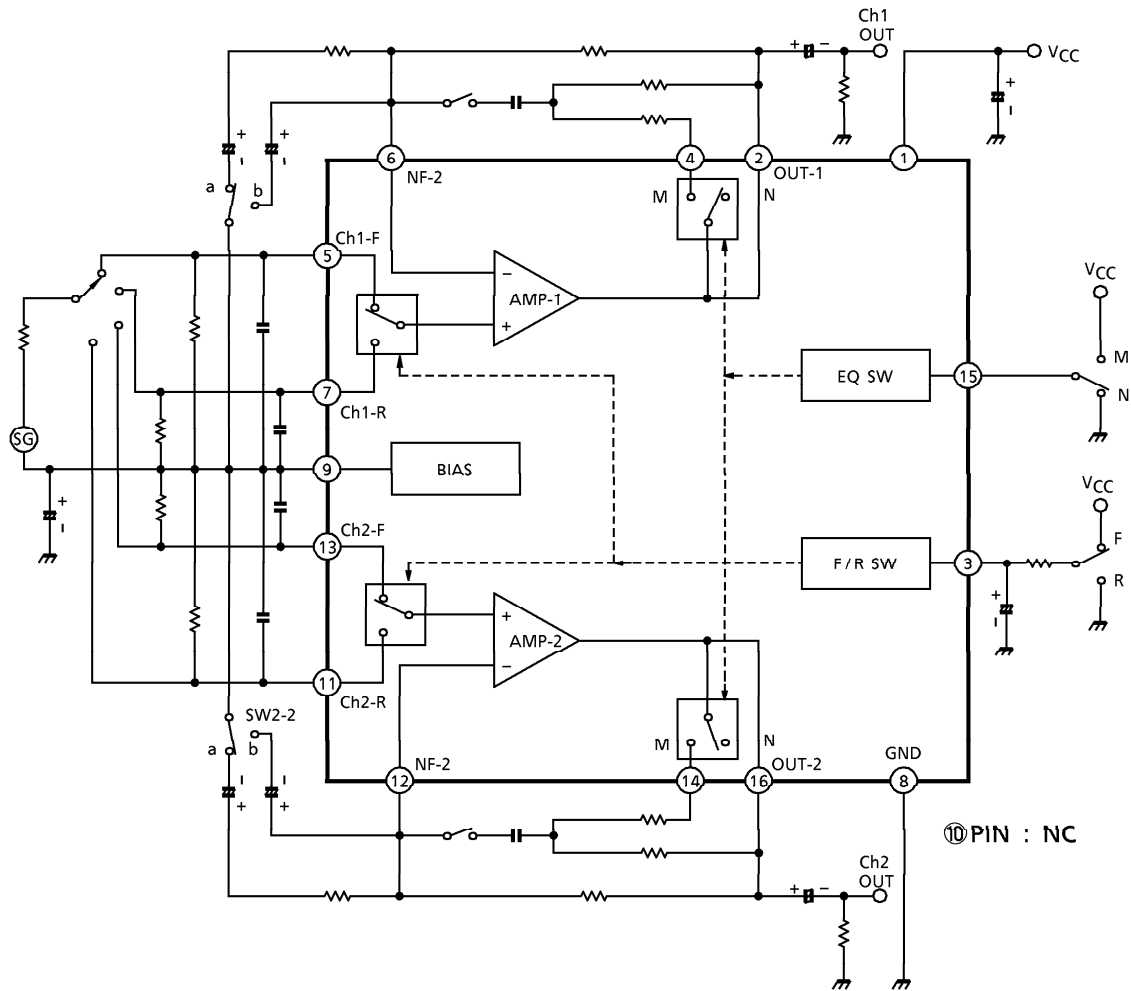
### FEATURES

- Built-in Forward / Reverse (TAPE1 / TAPE2) Control Switches.
- Built-in Metal / Normal Tape Equalizer Control Switches.
- High Voltage Gain  
:  $G_{VO} = 95\text{dB}$  (Typ.) ( $V_{CC} = 6\text{V}$ ,  $f = 1\text{kHz}$ )
- Operating Supply Voltage Range  
:  $V_{CC(\text{opr})} = 3.5 \sim 15\text{V}$  ( $T_a = 25^\circ\text{C}$ )
- Input Coupling Capacitor Less
- Low Noise (Equivalent Input Noise Voltage)  
:  $V_{ni} = 1.0\mu\text{V}_{\text{rms}}$  (Typ.)  
( $R_g = 600\Omega$ ,  $\text{BW} = 20 \sim 20\text{kHz}$ , NAB EQ)



Weight : 1.00g (Typ.)

**BLOCK DIAGRAM**



**APPLICATION INFORMATION**

(1) Forward / reverse select switch

① Threshold voltage

Pin③ is coupled to the base of Q1 (PNP-Tr) as shown Fig.1.  
Threshold voltage

REVERSE	0~0.3V
FORWARD	1.1~V <sub>CC</sub>

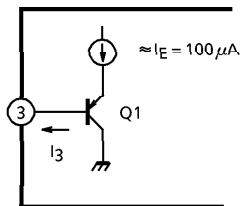


Fig.1

② The recommended forward / reverse select circuit is shown in Fig.2.

③ I<sub>3</sub> (In Fig.1)

I<sub>3</sub> = 12 μA (Max.) (T<sub>a</sub> = 25°C)

(2) Equalizer control switch

Pin⑮ is coupled to the base of Q2 (PNP-Tr) as shown Fig.3.  
The emitter potential of Q2 is 2.6Vdc.  
Threshold voltage

METAL	2.1~V <sub>CC</sub>
NORMAL	0~1.2V

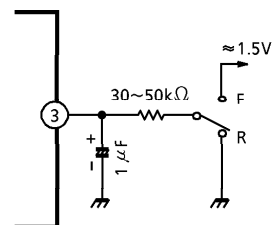


Fig.2

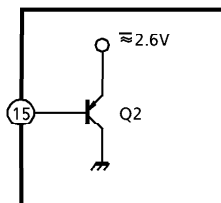


Fig.3

(3) C2~C5

Capacitor C2~C5 may be required for preventing a instability caused by the pattern layout or interference of external high frequency signal.

**MAXIMUM RATINGS** ( $T_a = 25^\circ\text{C}$ )

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

(Note) Derated above  $T_a = 25^\circ\text{C}$  in the proportion of  $6\text{mW}/^\circ\text{C}$ .

**ELECTRICAL CHARACTERISTICS**

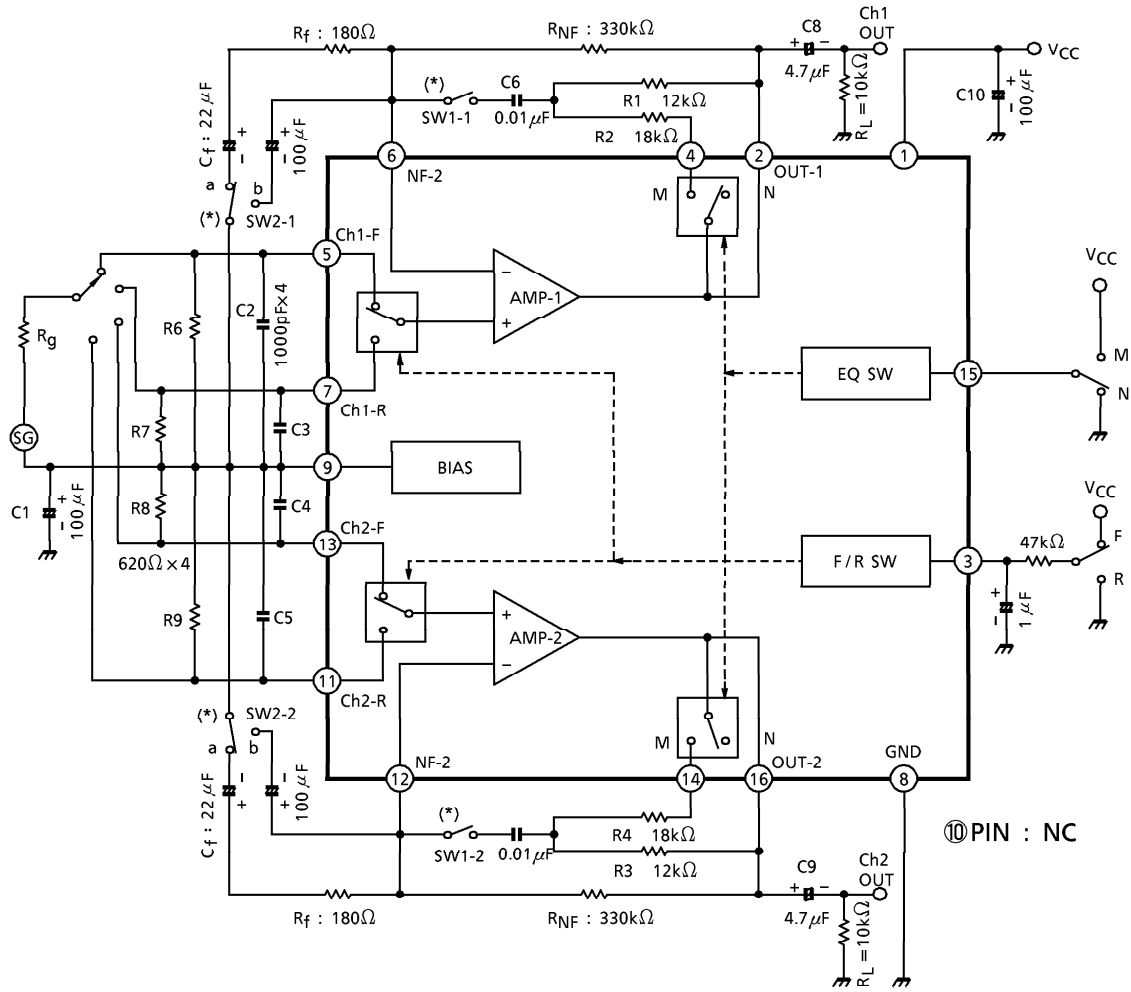
(Unless otherwise specified,  $V_{CC} = 6\text{V}$ ,  $f = 1\text{kHz}$ ,  $R_L = 10\text{k}\Omega$ ,  $R_g = 600\Omega$ ,  $T_a = 25^\circ\text{C}$ , metal EQ)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	$I_{CCQ(1)}$	—	$V_{in} = 0$ , NORMAL EQ	—	5.5	—	mA
	$I_{CCQ(2)}$	—	$V_{in} = 0$ , METAL EQ	—	7.0	11	
Open Loop Voltage Gain	$G_{vo}$	—	$C_f = 100\mu\text{F}$ , $R_f = 0$	—	95	—	dB
Maximum Output Voltage	$V_{om}$	—	THD = 0.5%	1.1	1.5	—	$V_{rms}$
Total Harmonic Distortion	THD	—	$V_{out} = 0.5V_{rms}$	—	0.035	0.12	%
Equivalent Input Noise Voltage	$V_{in}$	—	$R_g = 620\Omega$ , NAB BW = 20Hz~20kHz, Nor. EQ	—	1.0	1.7	$\mu\text{V}_{rms}$
Ripple Rejection	R.R.	—	$f_{ripple} = 100\text{Hz}$ , $V_{in} = 1V_{rms}$	—	55	—	dB
Cross Talk	C.T.	—	$V_{out} = 0.775V_{rms}$ (0dBm)	50	60	—	dB
Forward / Reverse Cross Talk	C.T. (F / R)	—	$V_{out} = 0.775V_{rms}$ (0dBm)	60	70	—	dB

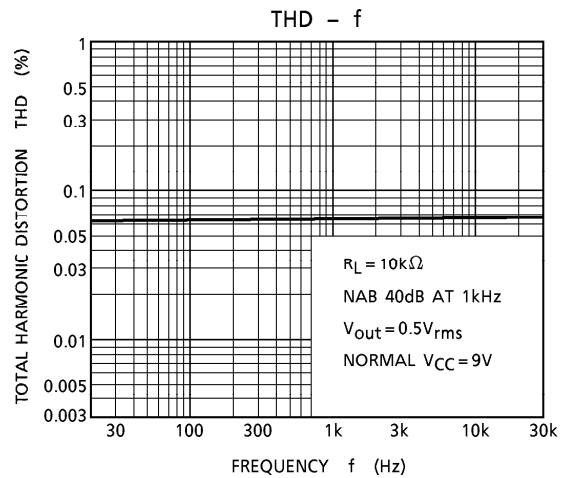
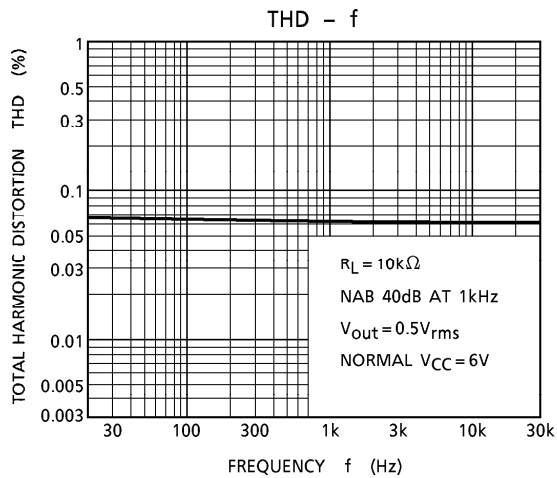
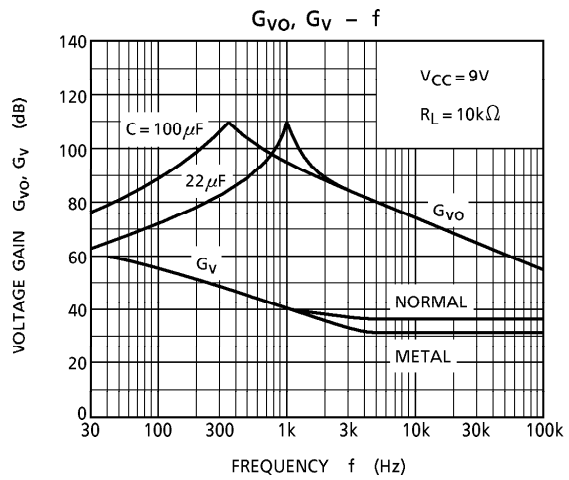
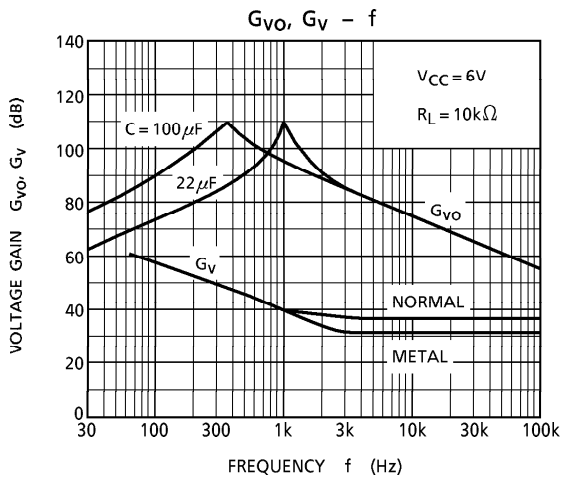
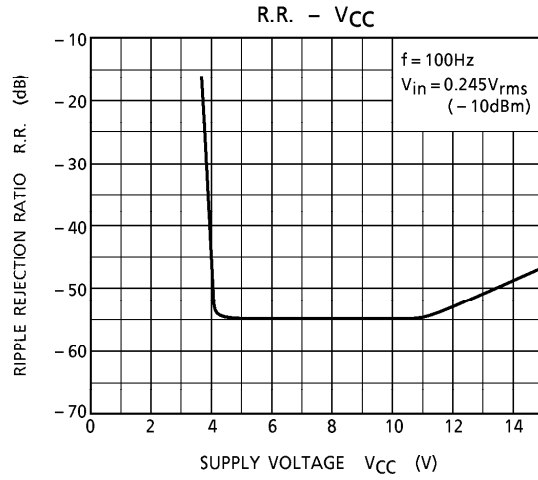
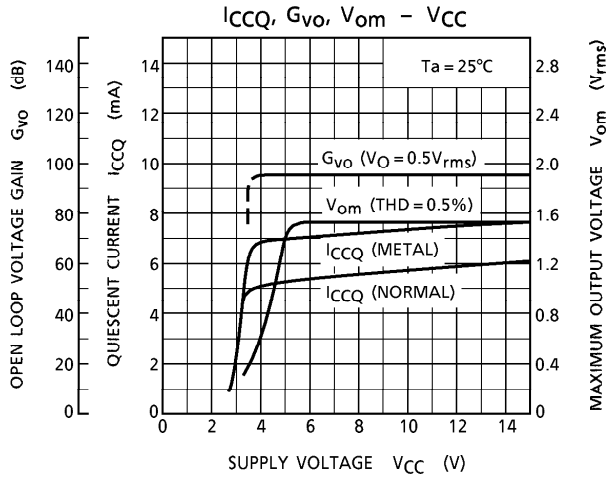
**TYPICAL DC VOLTAGE OF EACH TERMINAL** ( $V_{CC} = 6\text{V}$ ,  $T_a = 25^\circ\text{C}$ , dual mode test circuit)

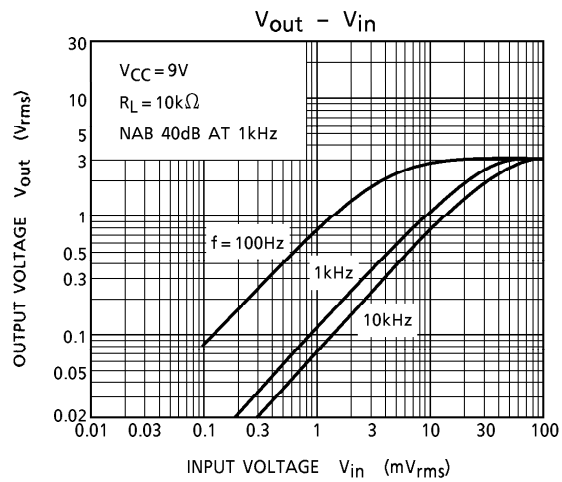
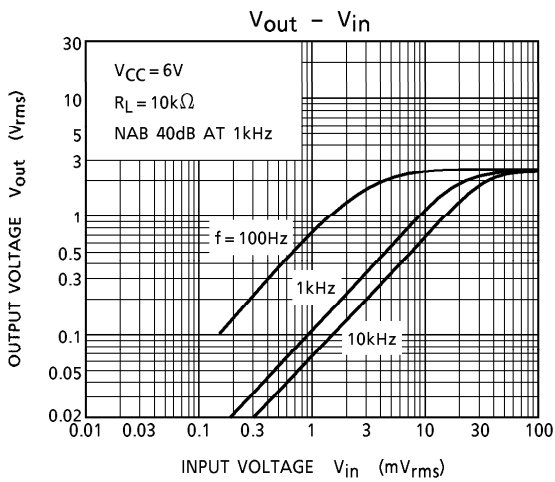
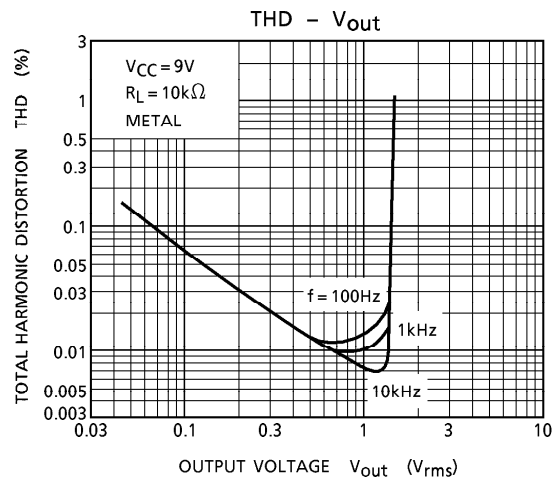
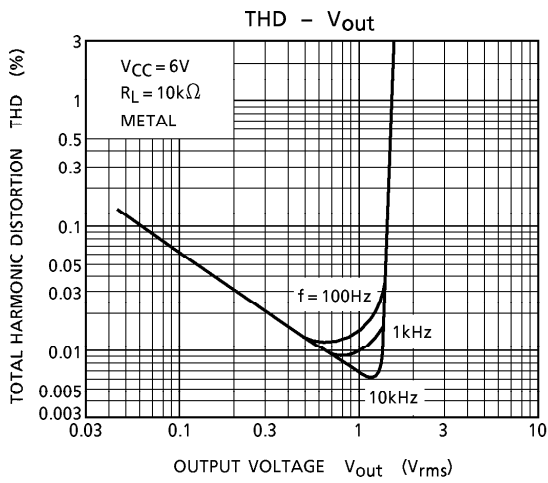
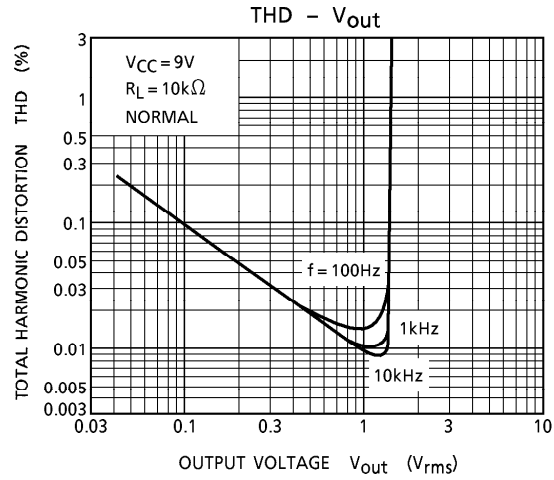
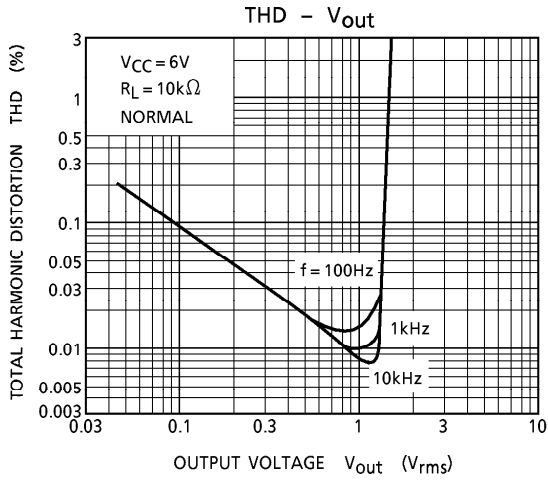
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DC-VOLTAGE (V)	$V_{CC}$	2.3	$\frac{V_{CC}}{GND}$	2.2	2.2	2.2	2.2	GND	2.2	NC	2.2	2.2	2.2	2.2	$\frac{V_{CC}}{GND}$	2.2

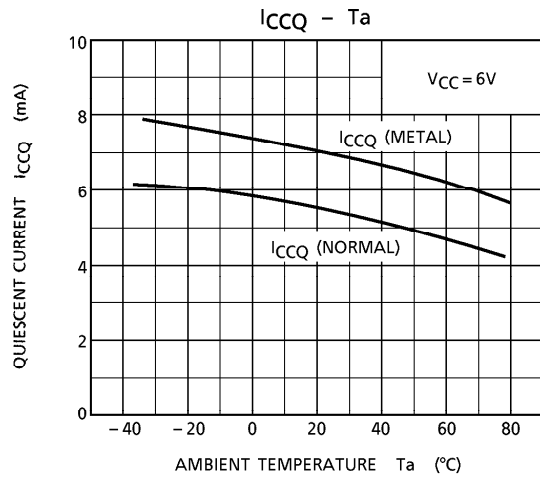
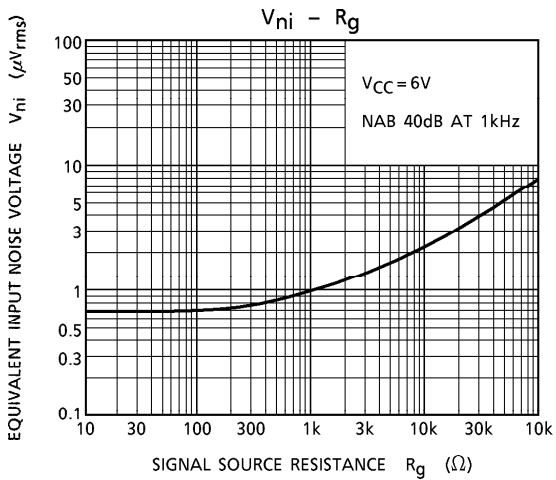
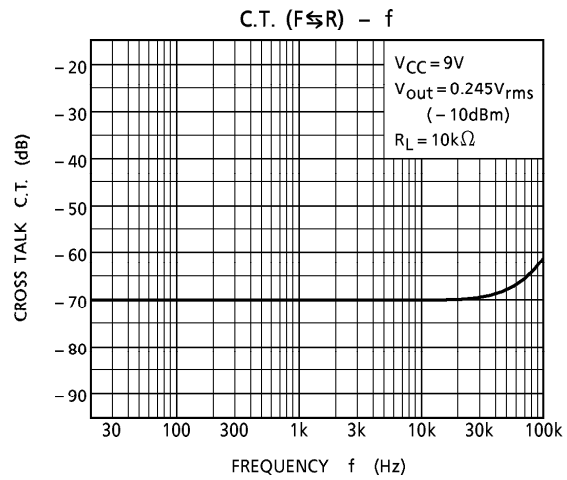
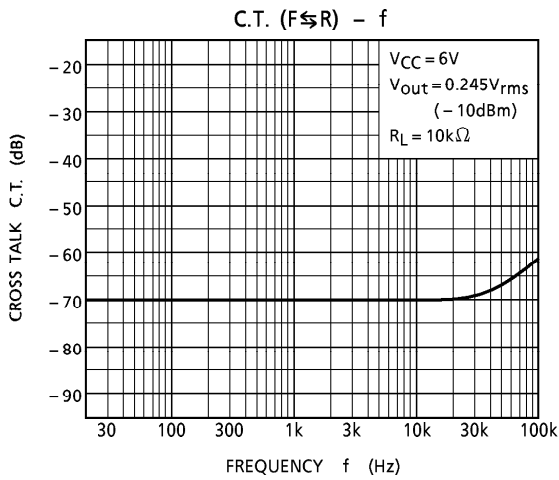
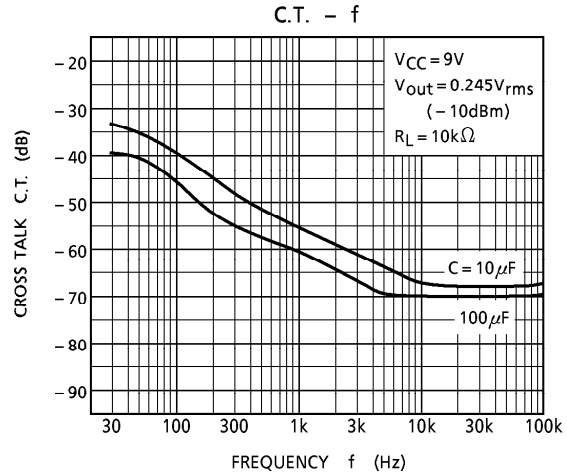
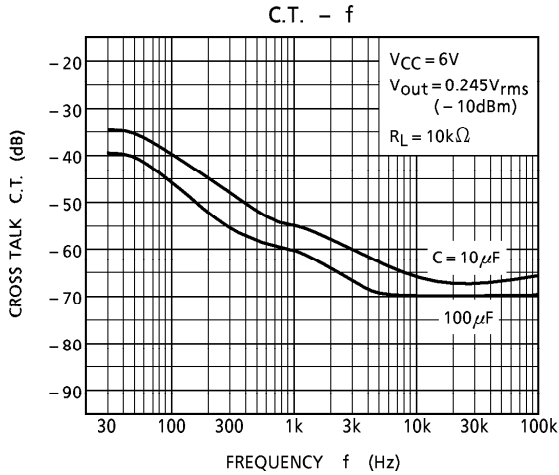
**TEST CIRCUIT**



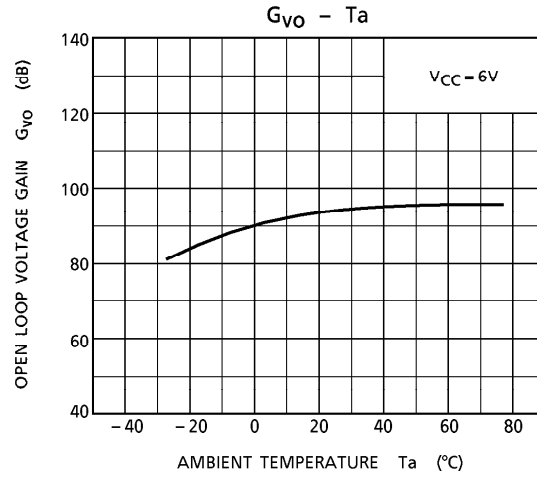
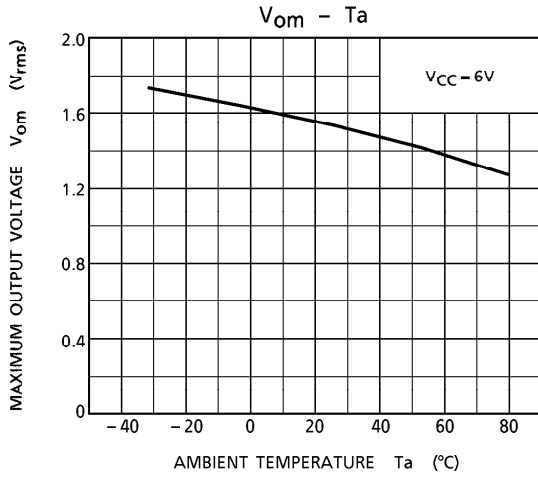
(\*)  $G_{VO}$  TEST : SW1-1, 2-OFF, SW2-1, 2-b



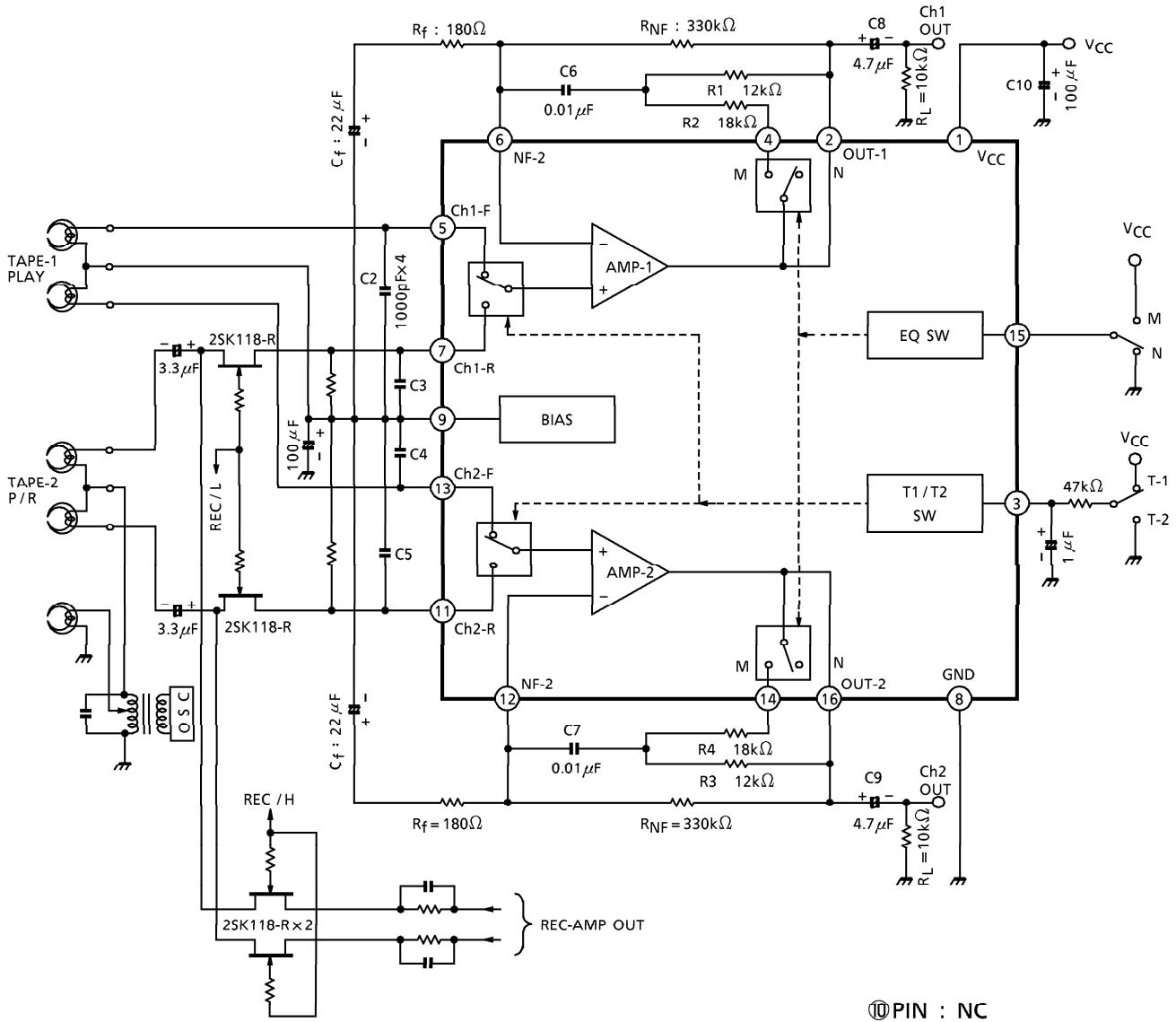




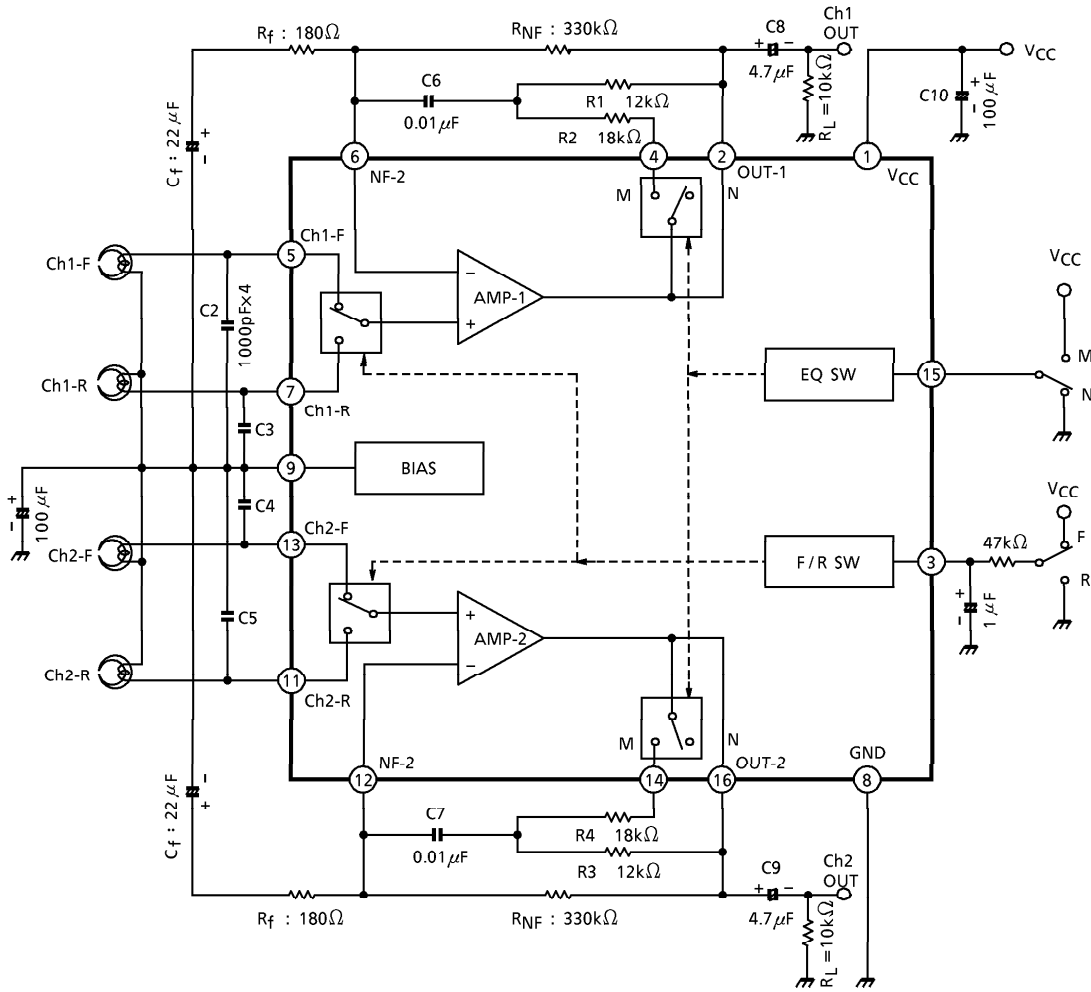




**APPLICATION 1 (Double cassette player)**



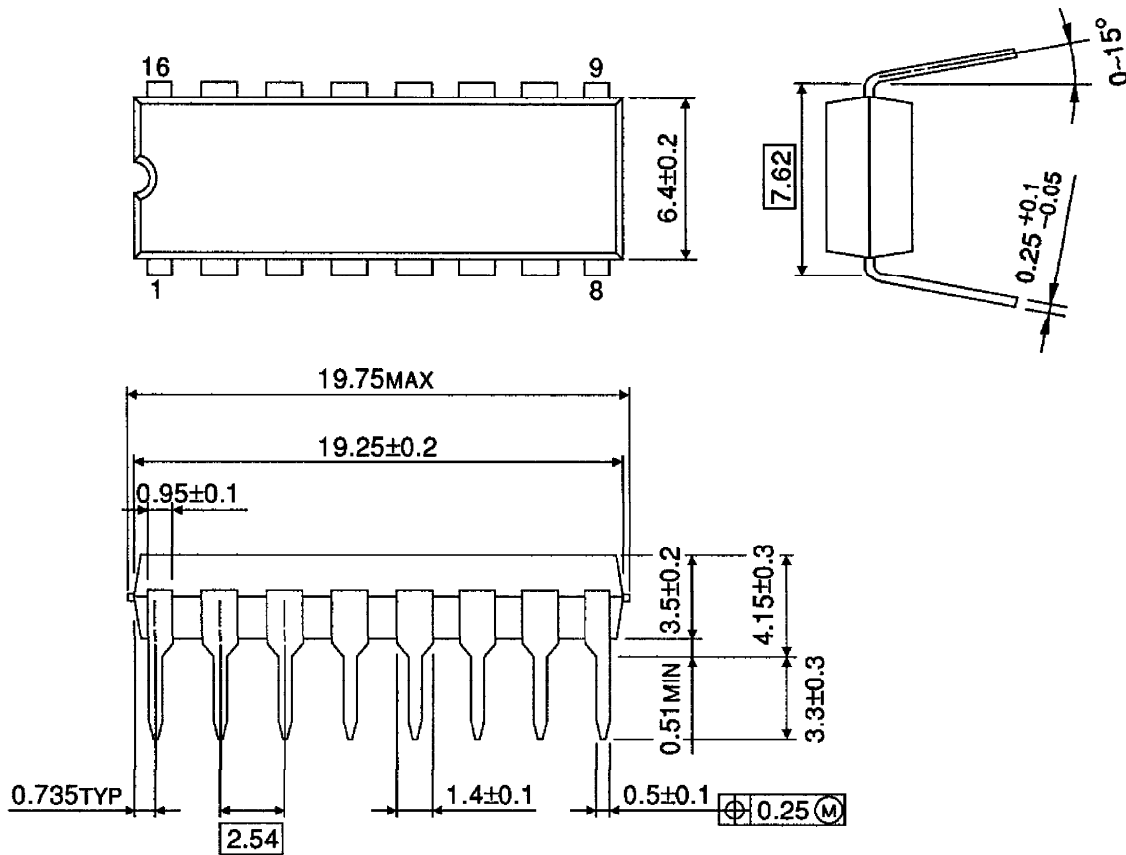
**APPLICATION 2 (Autoreverse)**



⑩ PIN : NC

**OUTLINE DRAWING**  
DIP16-P-300A

Unit : mm



Weight : 1.00g (Typ.)

TA7784P - 12*
1996 - 4 - 22
<b>TOSHIBA CORPORATION</b>