

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

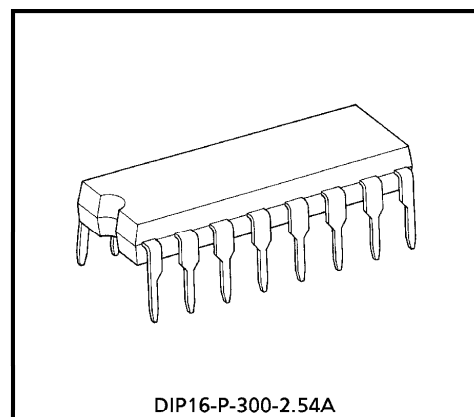
TA7784P**DUAL PREAMPLIFIER FOR AUTOREVERSE**

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.)
($R_g = 600\Omega$, $BW = 20\sim 20\text{kHz}$, NAB EQ)

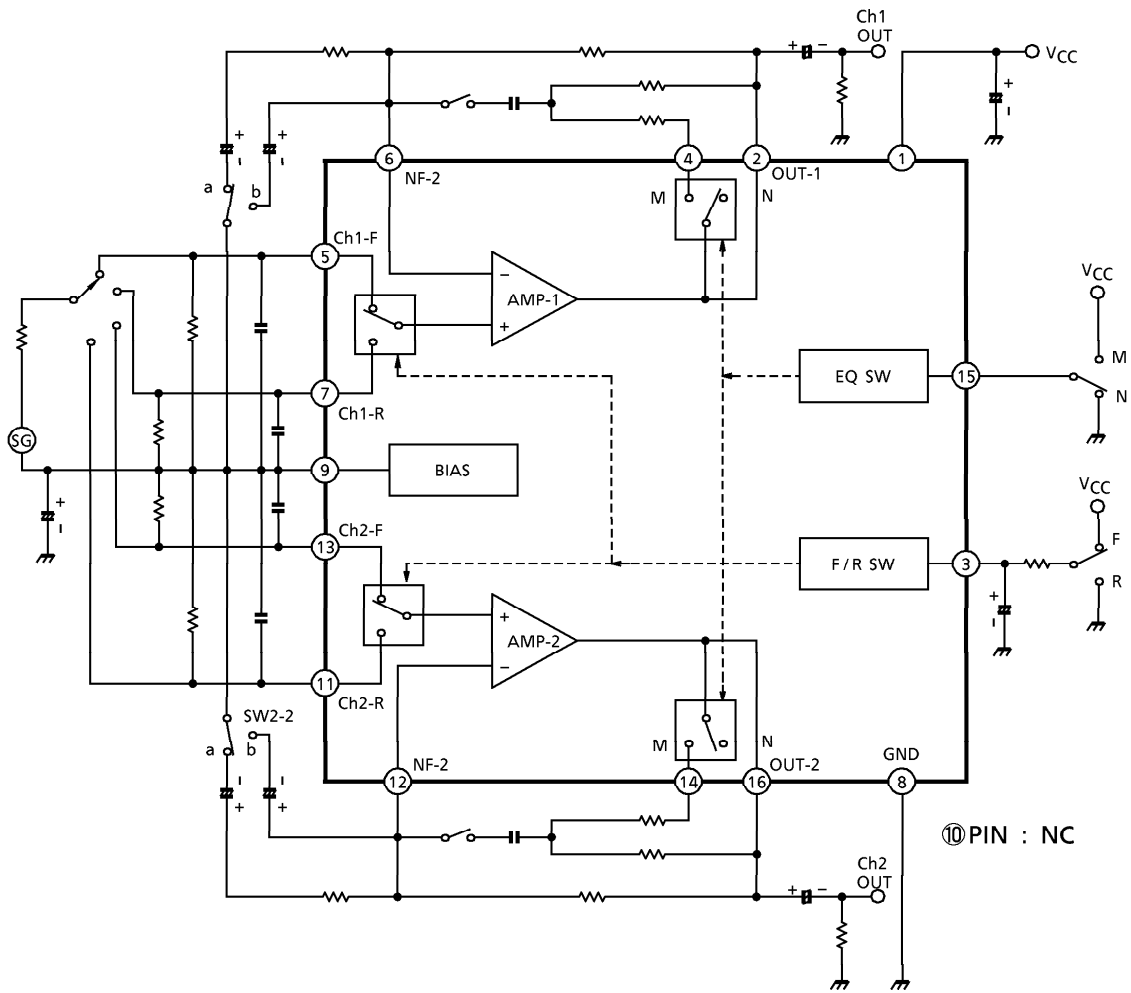


Weight : 1.00g (Typ.)

961001EBA2

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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 _{CC}

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

③ I₃ (In Fig.1)

$I_3 = 12\mu A$ (Max.) (T_a = 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 _{CC}
NORMAL	0~1.2V

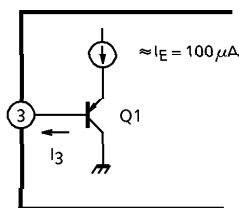


Fig.1

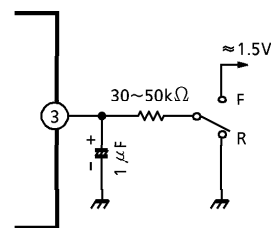


Fig.2

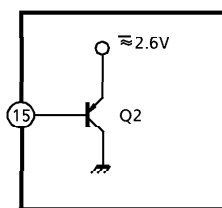


Fig.3

(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 (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	16	V
Power Dissipation	P _D (Note)	750	mW
Operating Temperature	T _{opr}	-30~75	°C
Storage Temperature	T _{stg}	-55~150	°C

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

ELECTRICAL CHARACTERISTICS

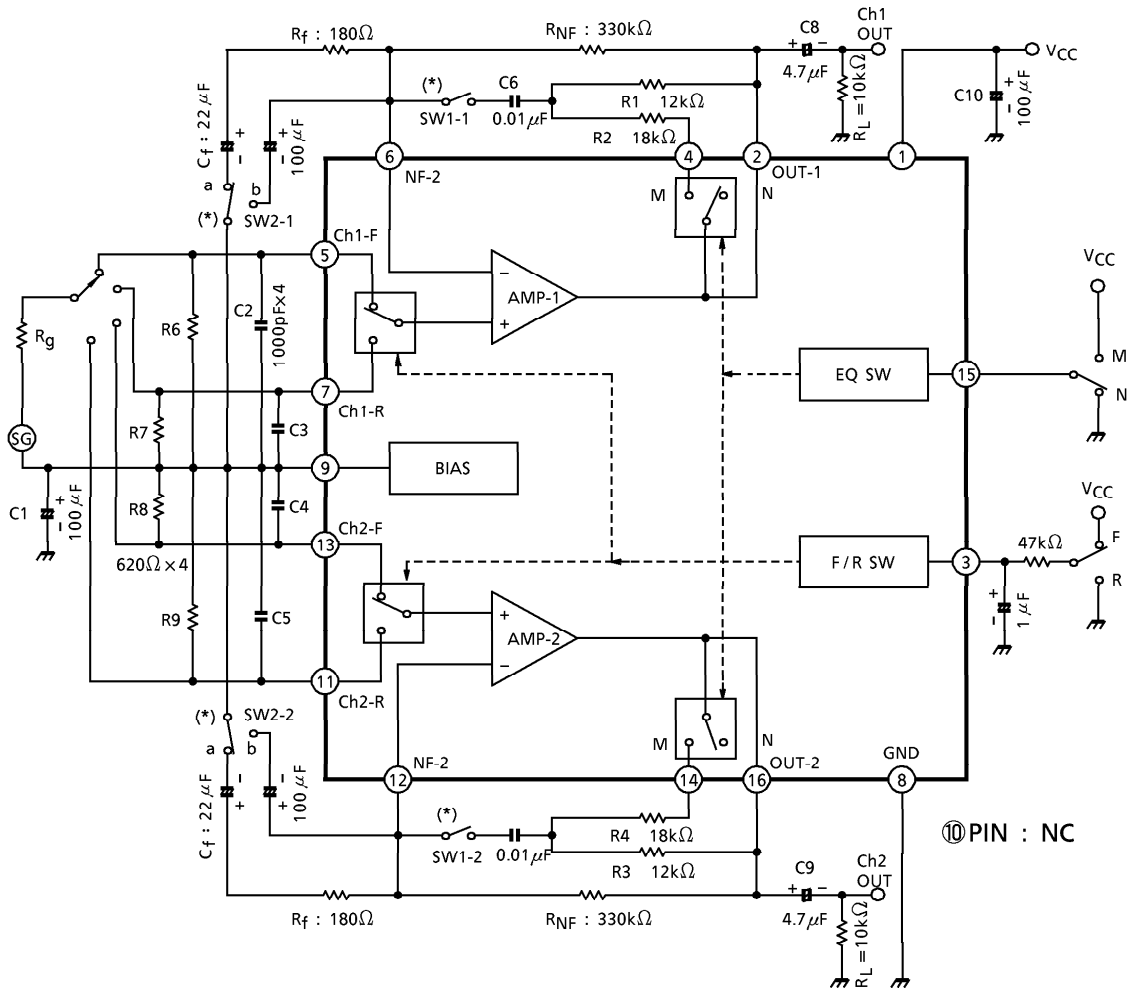
(Unless otherwise specified, V_{CC} = 6V, f = 1kHz, R_L = 10kΩ, R_g = 600Ω, Ta = 25°C, metal EQ)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	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 = 100μF, 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 = 620Ω, NAB BW = 20Hz~20kHz, Nor. EQ	—	1.0	1.7	μV _{rms}
Ripple Rejection	R.R.	—	f _{ripple} = 100Hz, 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

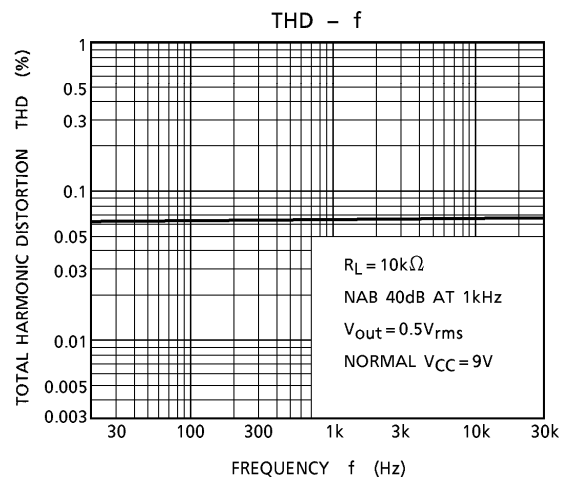
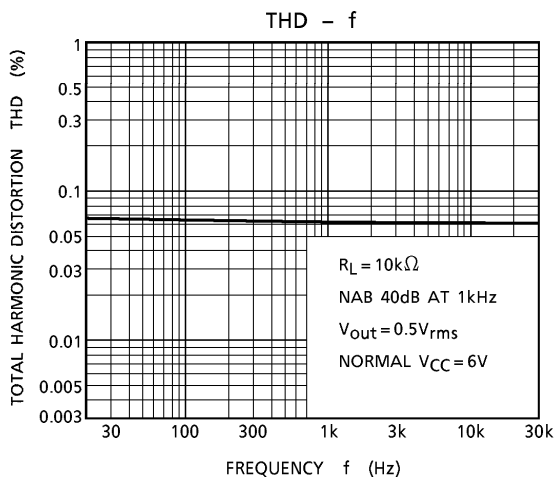
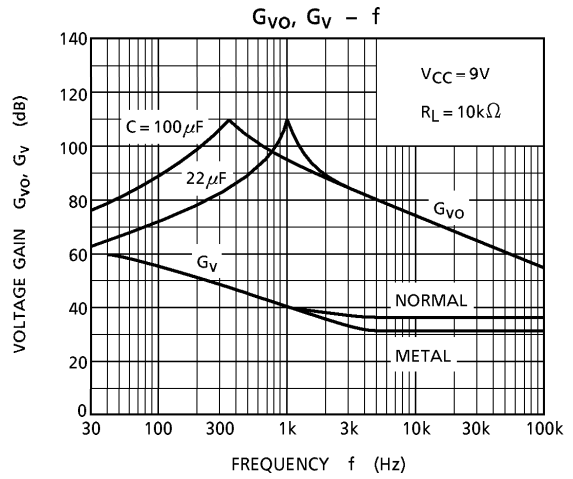
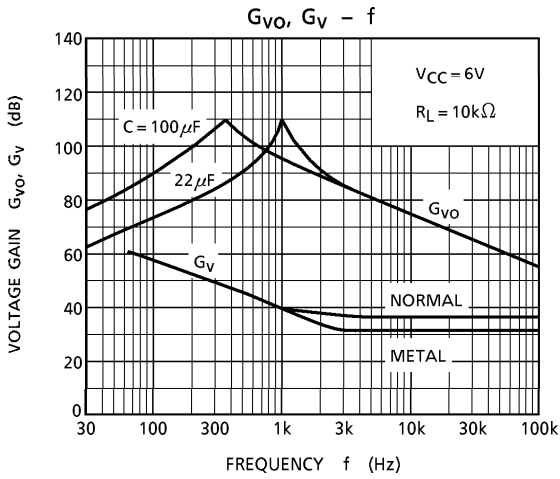
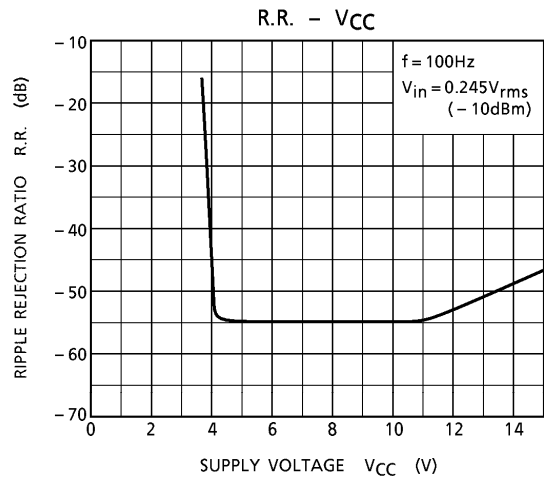
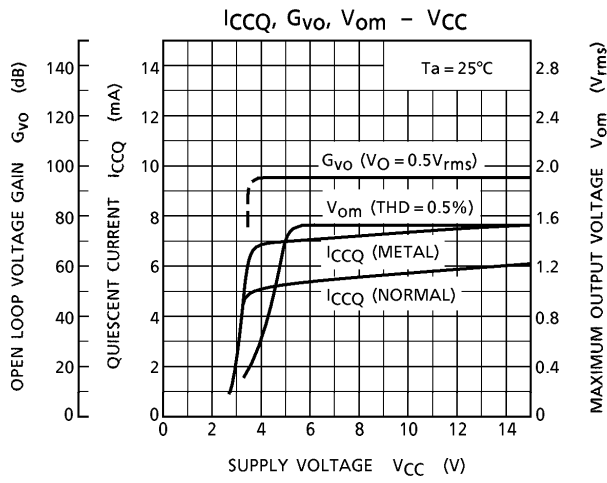
TYPICAL DC VOLTAGE OF EACH TERMINAL (V_{CC} = 6V, Ta = 25°C, dual mode test circuit)

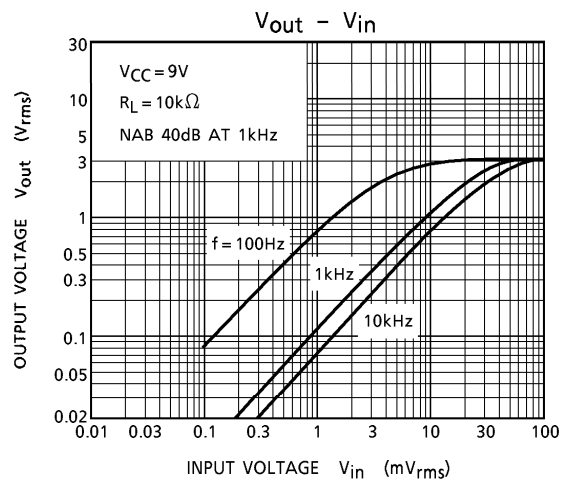
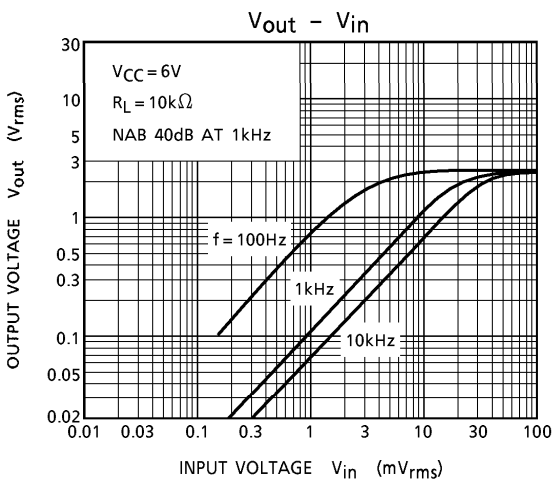
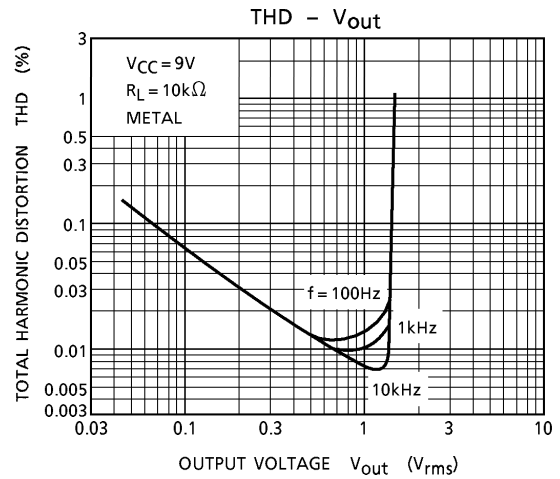
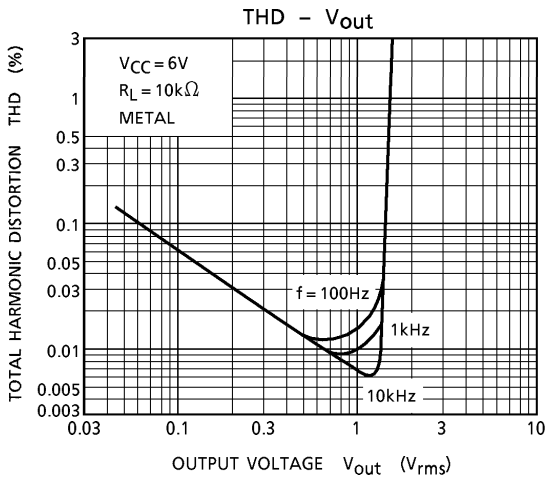
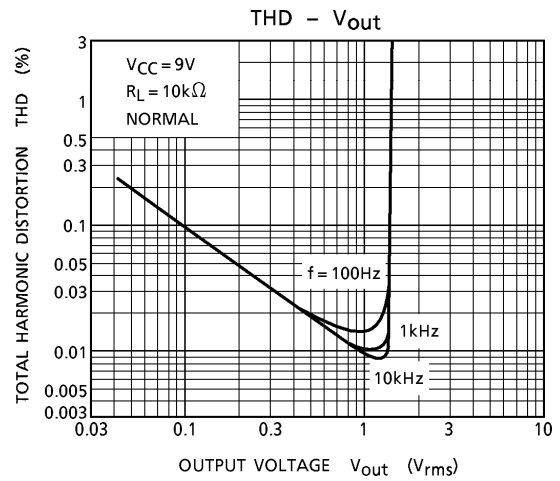
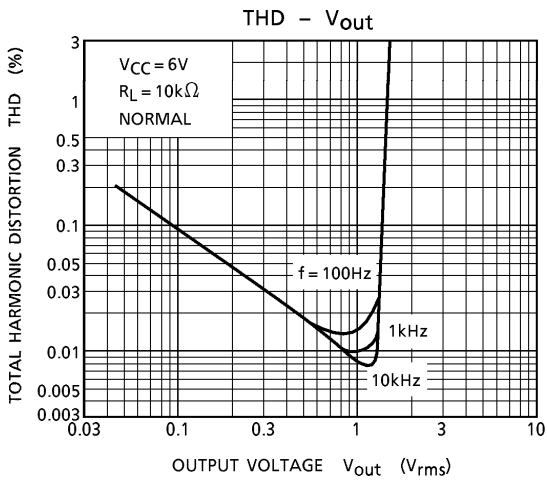
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DC-VOLTAGE (V)	V _{CC}	2.3	$\frac{V_{CC}}{GND}$	2.2	2.2	2.2	2.2	GND	2.2	NC	2.2	2.2	2.2	2.2	$\frac{V_{CC}}{GND}$	2.2

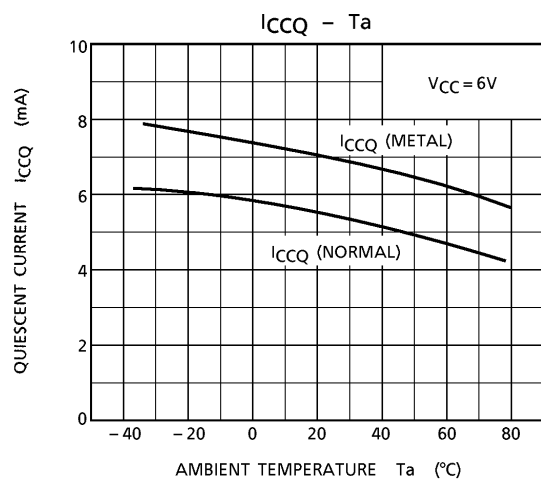
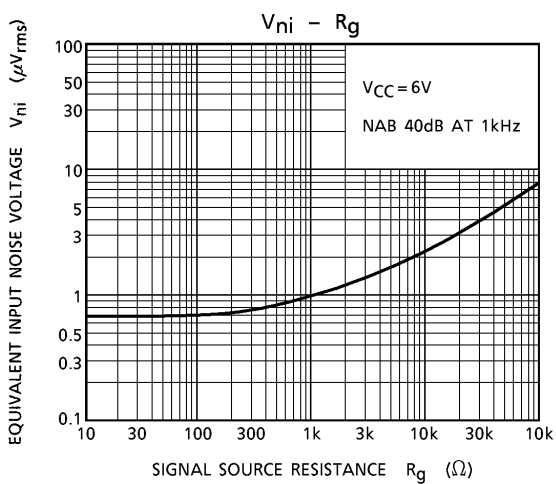
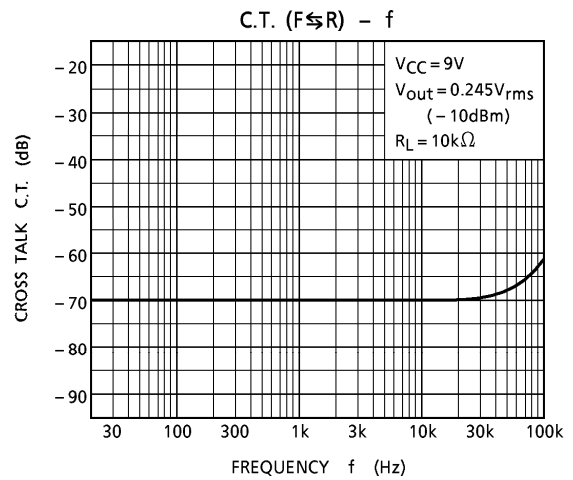
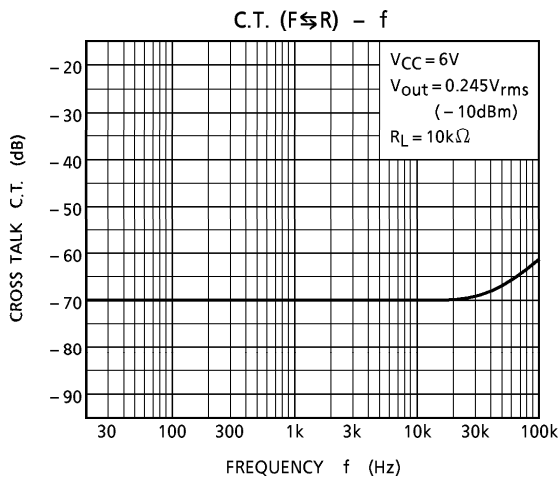
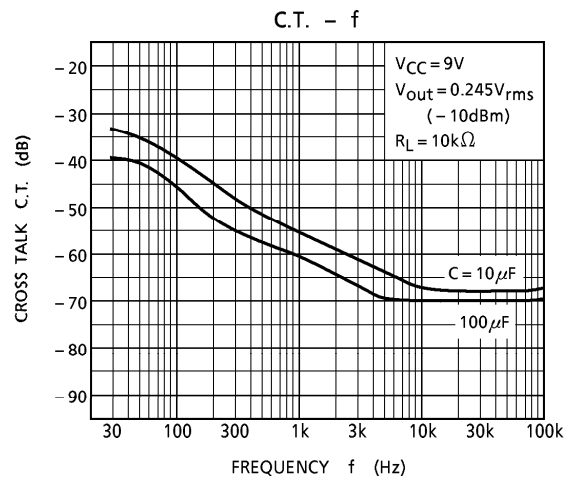
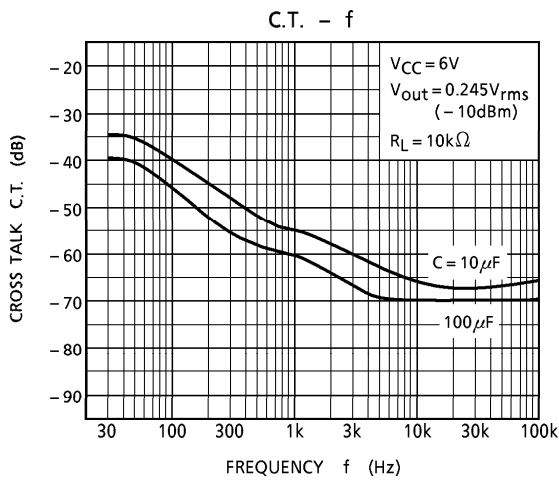
TEST CIRCUIT

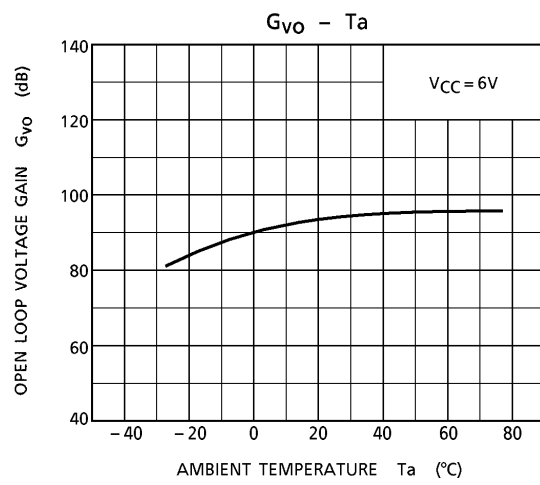
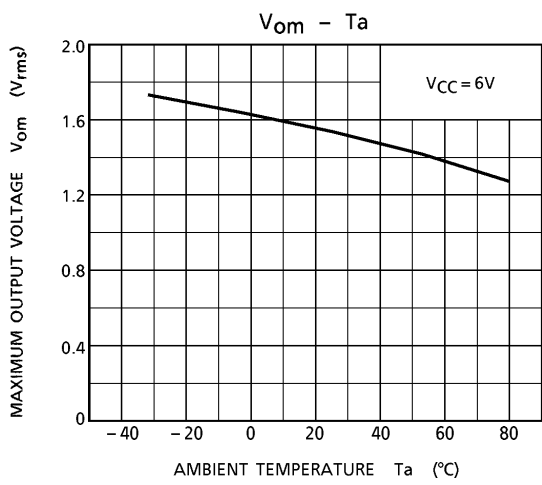


(*) G_{VO} TEST : SW1-1, 2-OFF, SW2-1, 2-b

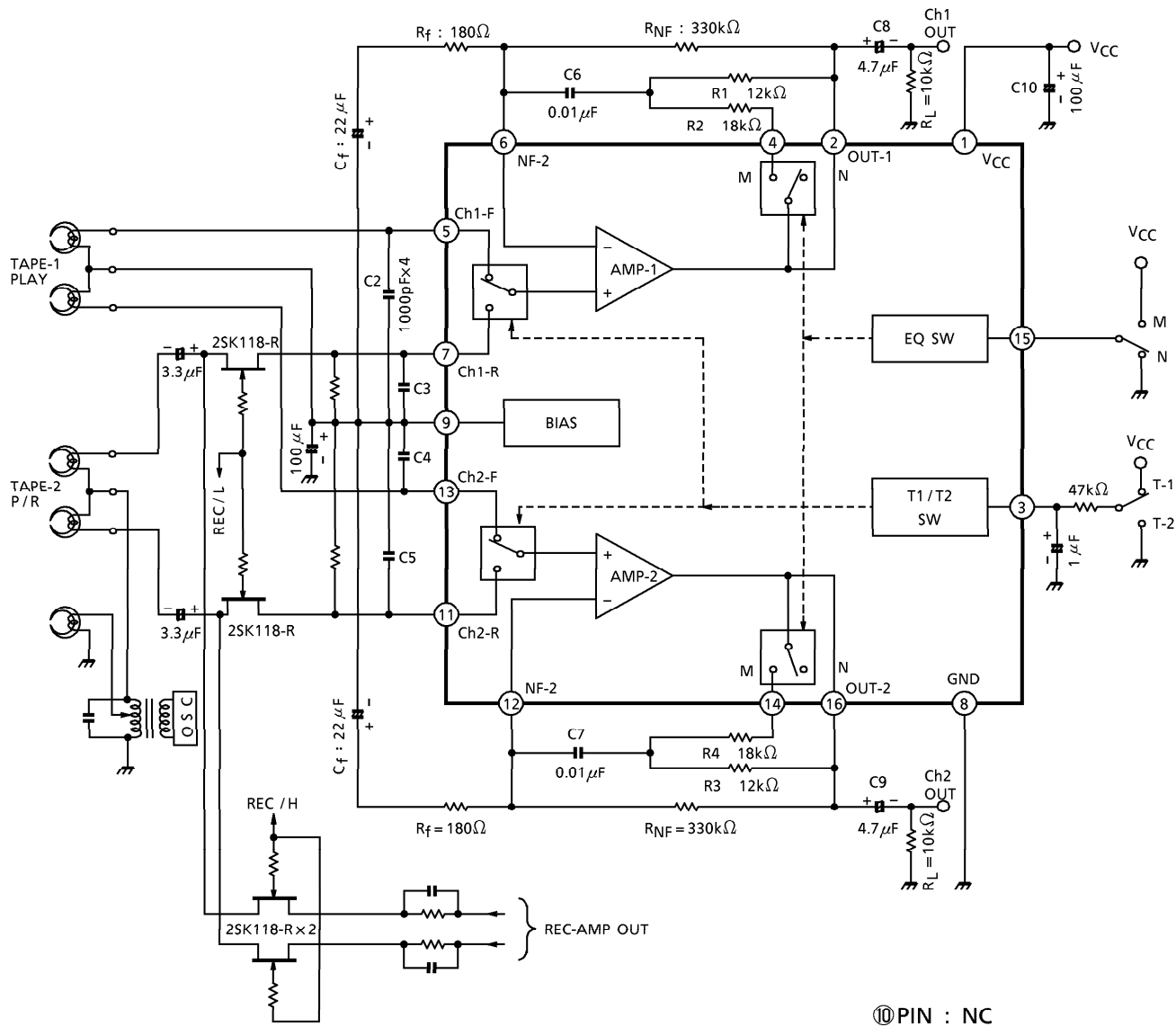




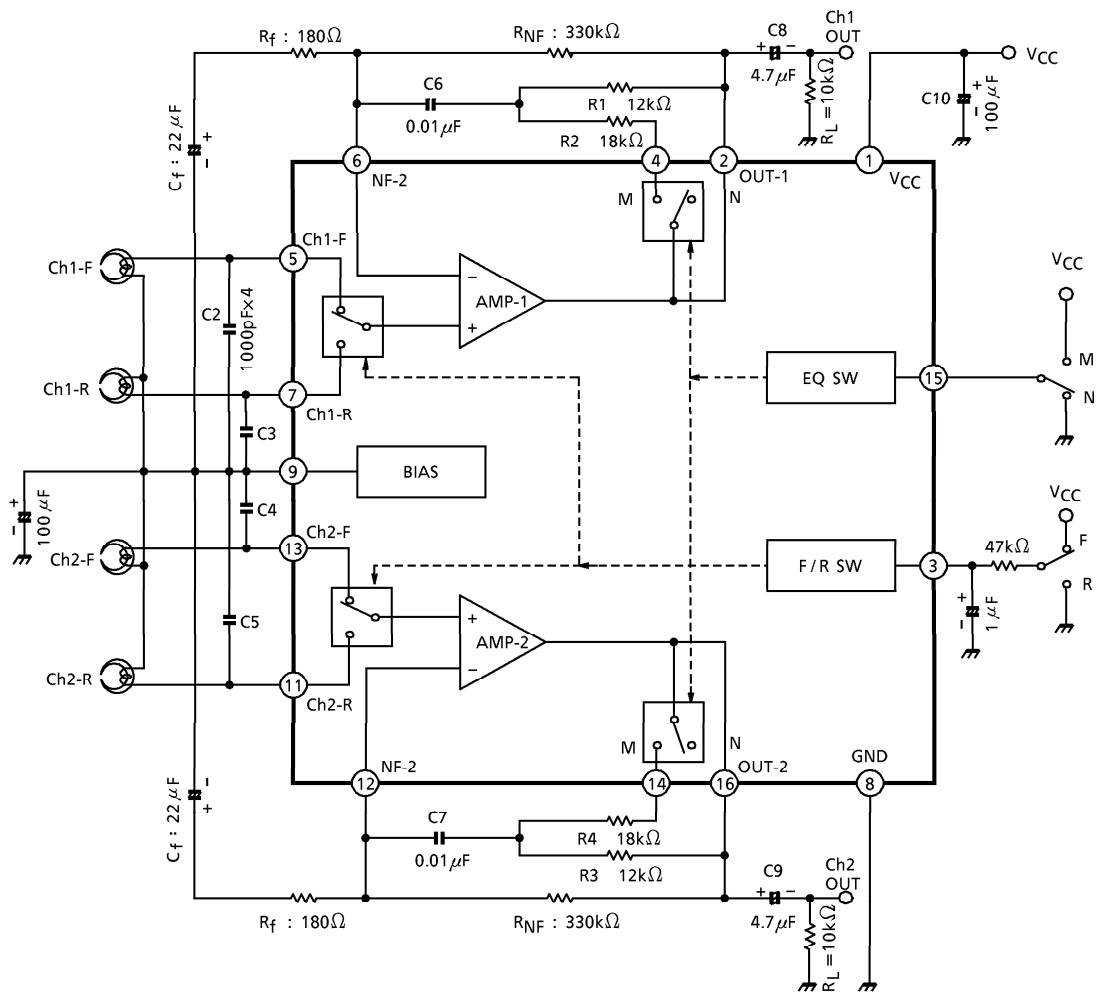




APPLICATION 1 (Double cassette player)



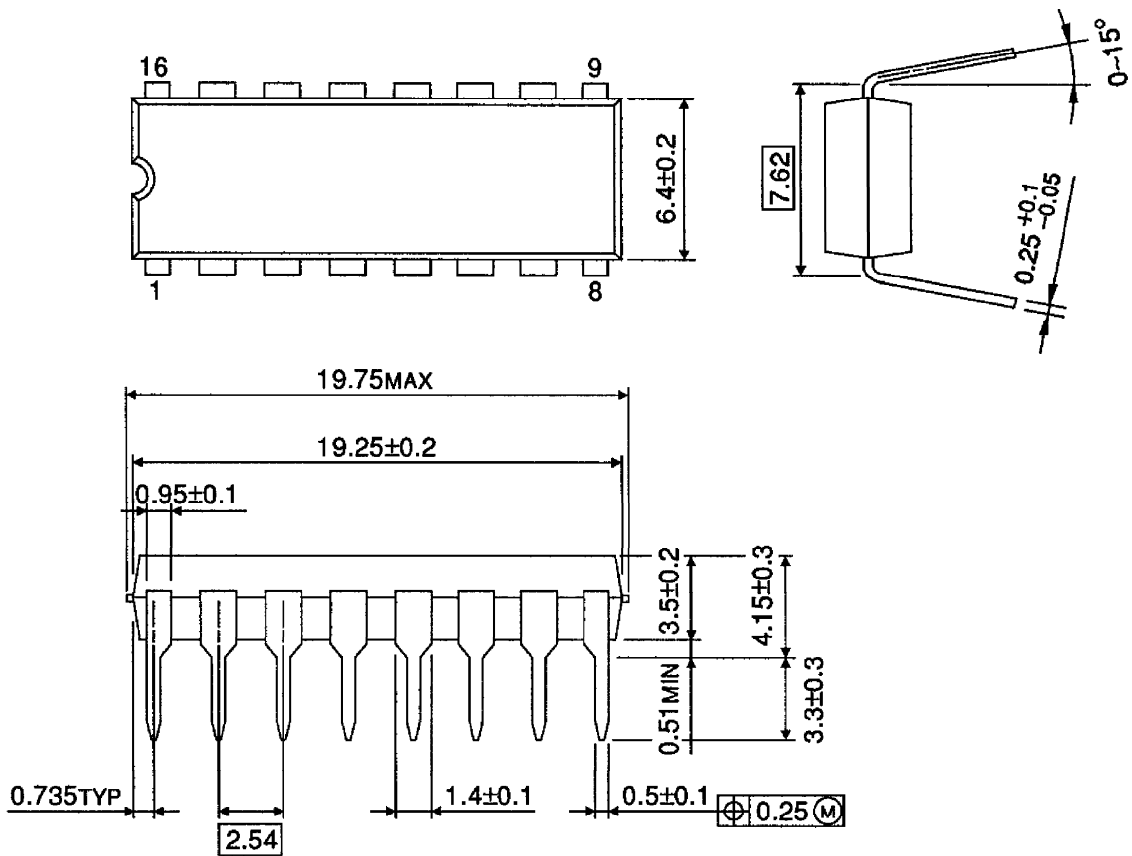
APPLICATION 2 (Autoreverse)



ⓐ PIN : NC

OUTLINE DRAWING
DIP16-P-300-2.54A

Unit : mm



Weight : 1.00g (Typ.)