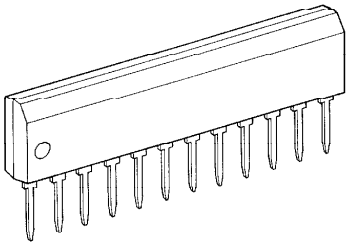
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8162SN

DUAL PREAMPLIFIER

The TA8162SN is dual preamplifier designed for car stereo tape deck.
This IC contains dual preamplifier and metal / normal tape equalizer control switches.



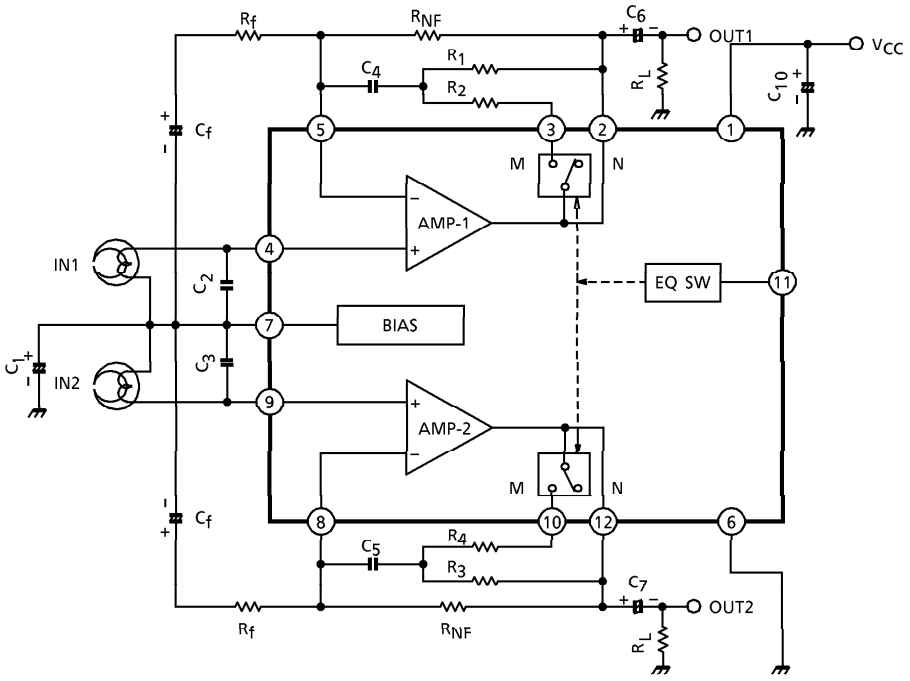
SSIP12-P-1.78

Weight : 0.65g (Typ.)

FEATURES

- High Open Loop Voltage Gain
  : G_{VO} = 98dB (Typ.) (V_{CC} = 9V, f = 1kHz)
- Low Distortion
  : THD = 0.035% (Typ.) (G_V = 40dB, f = 1kHz, V_{OUT} = 0.5V_{rms})
- Low Noise (Equivalent Input Noise Voltage)
  : V_{NI} = 0.9μV_{rms} (Typ.)
  (R_g = 620Ω, BW = 20Hz~20kHz, NAB EQ)
- No Input Coupling Capacitor
- Small Package : Shrink Pitch (1.78mm) Single In-line 12pin
- Operating Supply Voltage Range : $V_{CC\,(opr.)}$ = 6~16V

BLOCK DIAGRAM

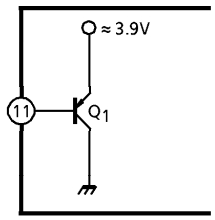


APPLICATION INFORMATION

(1) Equalizer control switch

Pin⑪ is coupled to the base of Q_1 (PNP-Tr) as shown in Fig.1.
The emitter potential of Q_1 is 3.9Vdc.
Threshold voltage (pin⑪)

Metal	3.2~V_{CC}
Normal	0~2.4V



(Fig.1)

(2) $C_{2\sim3}$

Capacitor C_2 / C_3 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.

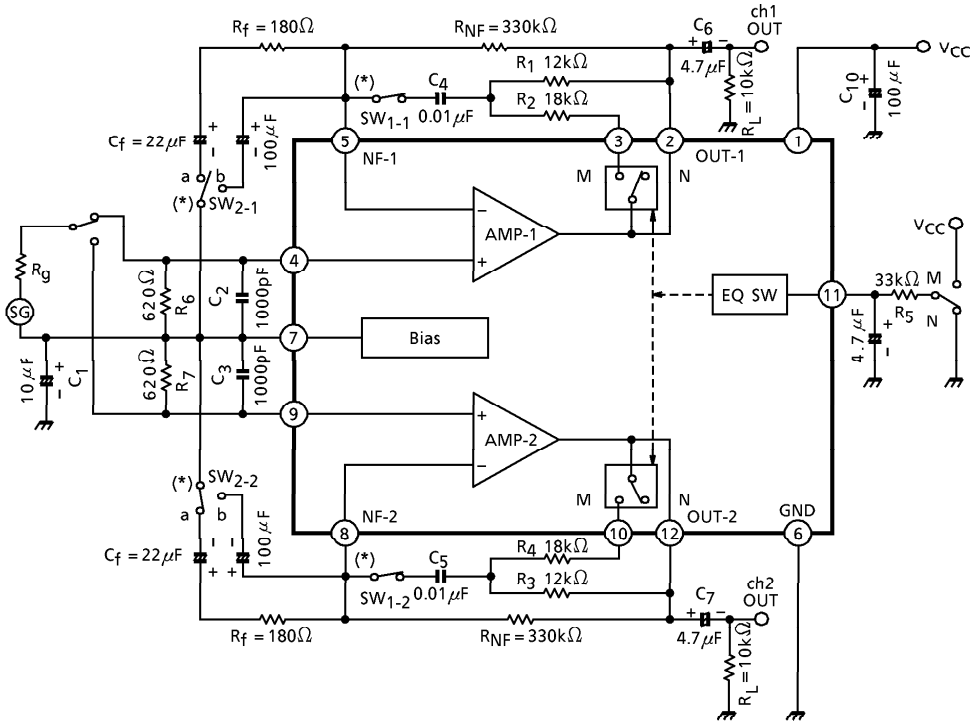
TYP. DC VOLTAGE OF EACH TERMINAL
(V_{CC} = 9V, Ta = 25°C, Dual mode test circuit)

TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12
DC-Voltage (V)	V_{CC}	3.0	3.0	3.0	3.0	GND	3.0	3.0	3.0	3.0	3.5	3.0

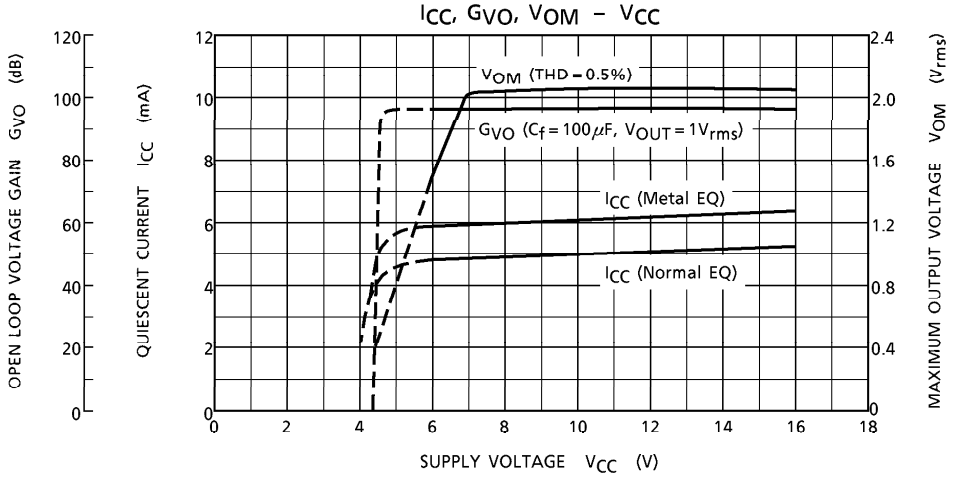
ELECTRICAL CHARACTERISTICS
(Unless otherwise specified, V_{CC} = 9V, f = 1kHz, R_L = 10kΩ, R_g = 600Ω, Ta = 25°C, Normal EQ)

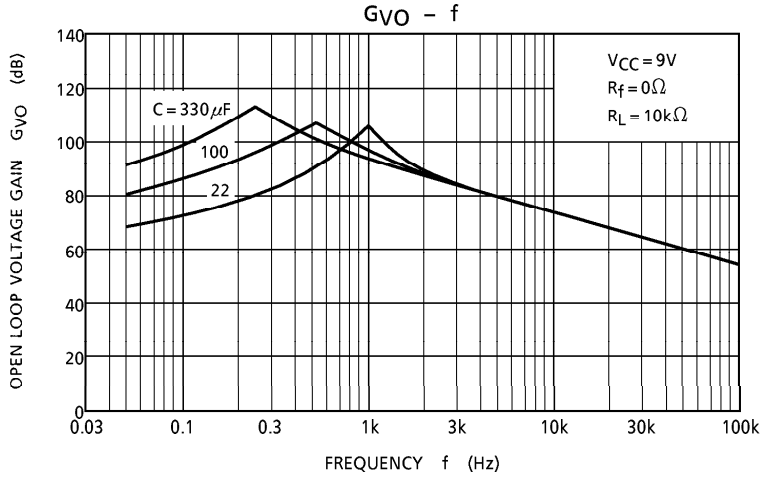
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ} (1)	—	V_{IN} = 0, Normal EQ	—	5.0	—	mA
	I_{CCQ} (2)	—	V_{IN} = 0, Metal EQ	—	6.0	9.0	
Open Loop Voltage Gain	G_{VO}	—	C_f = 100μF, R_f = 0	—	98	—	dB
Maximum Output Voltage	V_{OM}	—	THD = 0.5%	1.5	2.0	—	V_{rms}
Total Harmonic Distortion	THD	—	V_{OUT} = 0.5V_{rms}	—	0.035	0.12	%
Equivalent Input Noise Voltage	V_{NI}	—	R_g = 620Ω, NAB BW = 20Hz~20kHz	—	0.9	1.7	μV_{rms}
Input Resistance	R_{IN}	—	—	—	500	—	kΩ
Ripple Rejection Ratio	R.R.	—	f_{ripple} = 100Hz, V_{IN} = 1V_{rms}	—	55	—	dB

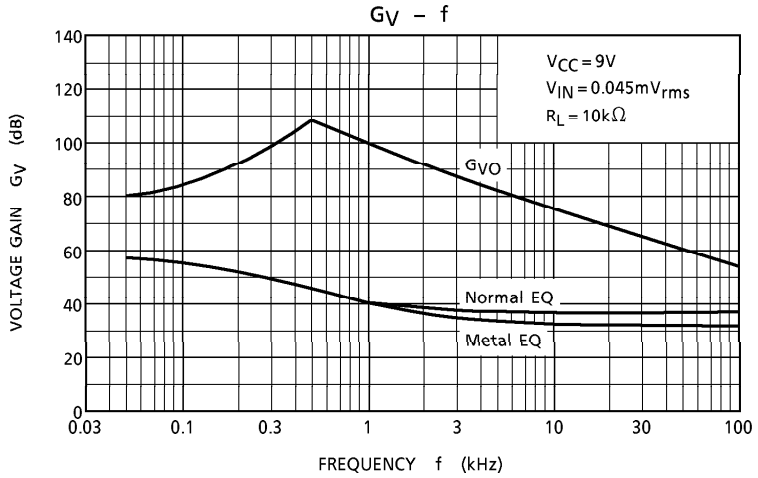
TEST CIRCUIT



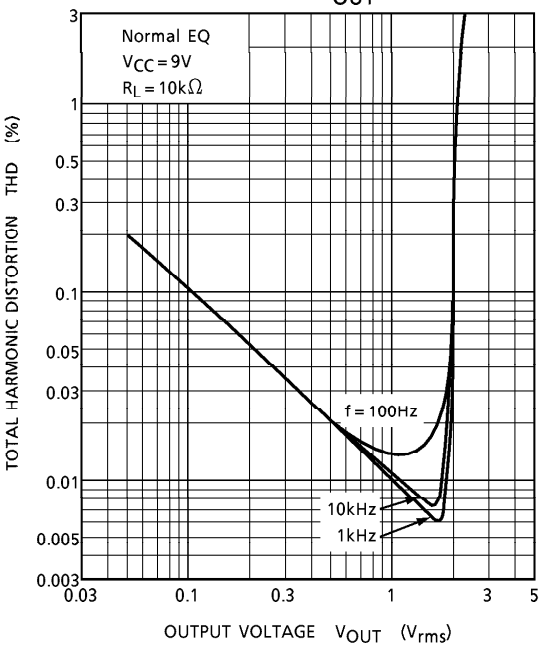
(*) G_{VO} Test : $SW_{1-1,\ 2}$ = OFF, $SW_{2-1,\ 2}$ = b


I_{CC}, G_{VO}, V_{OM} – V_{CC}
OPEN LOOP VOLTAGE GAIN G_{VO} (dB)
QUIESCENT CURRENT I_{CC} (mA)
MAXIMUM OUTPUT VOLTAGE V_{OM} (V_{rms})
V_{OM} (THD = 0.5%)
G_{VO} (C_f = 100μF, V_{OUT} = 1V_{rms})
I_{CC} (Metal EQ)
I_{CC} (Normal EQ)
SUPPLY VOLTAGE V_{CC} (V)

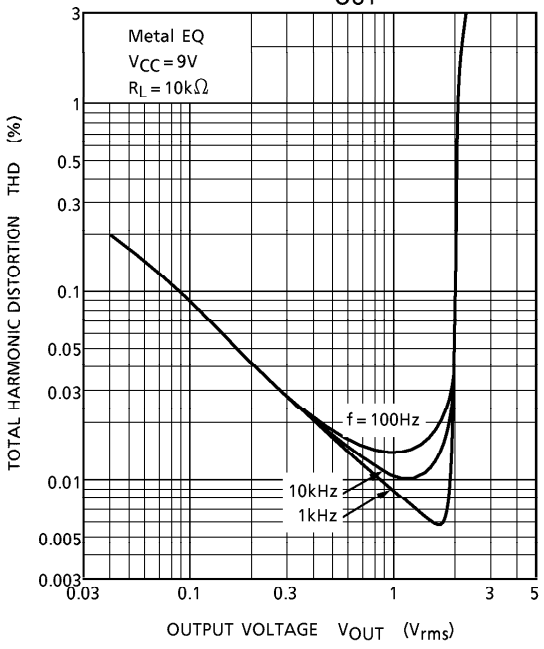

G_{VO} – f
OPEN LOOP VOLTAGE GAIN G_{VO} (dB)
V_{CC} = 9V
R_f = 0Ω
R_L = 10kΩ
C = 330μF
100
22
FREQUENCY f (Hz)


G_V – f
VOLTAGE GAIN G_V (dB)
V_{CC} = 9V
V_{IN} = 0.045mV_{rms}
R_L = 10kΩ
G_{VO}
Normal EQ
Metal EQ
FREQUENCY f (kHz)

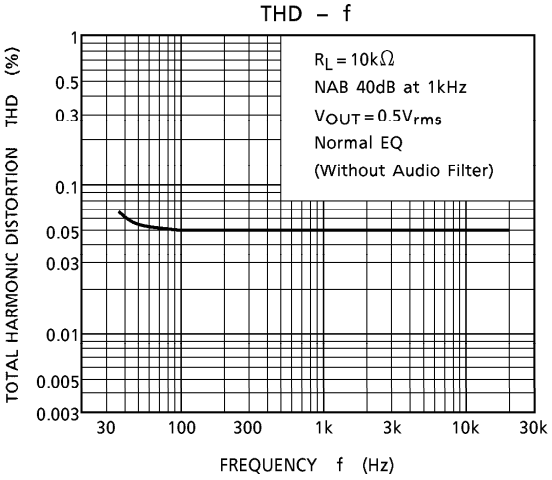
THD – V_{OUT}



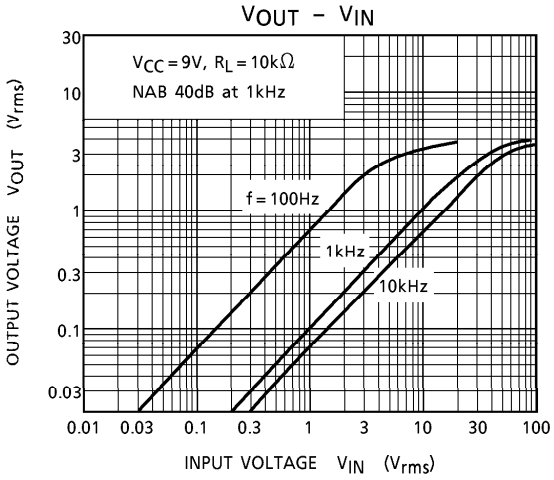
THD – V_{OUT}



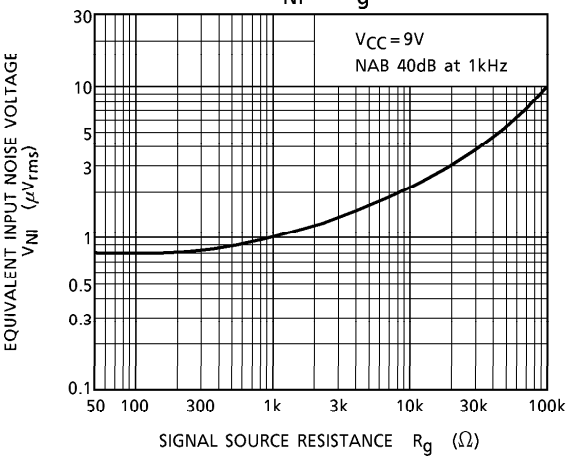
THD – f



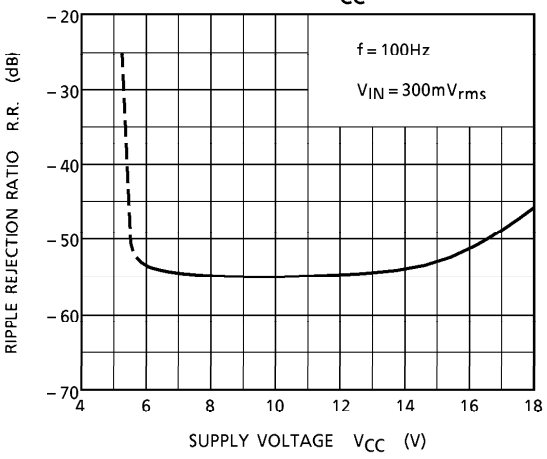
V_{OUT} – V_{IN}



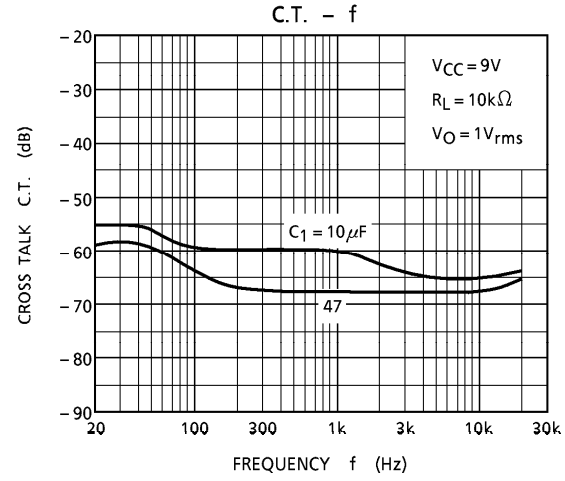
V_{NI} – R_g



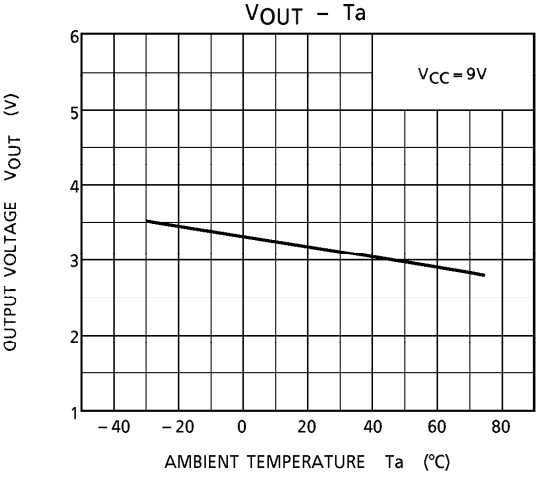
R.R. – V_{CC}



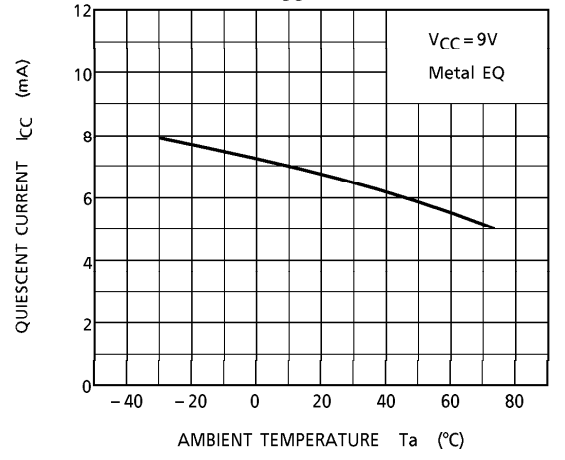
C.T. – f



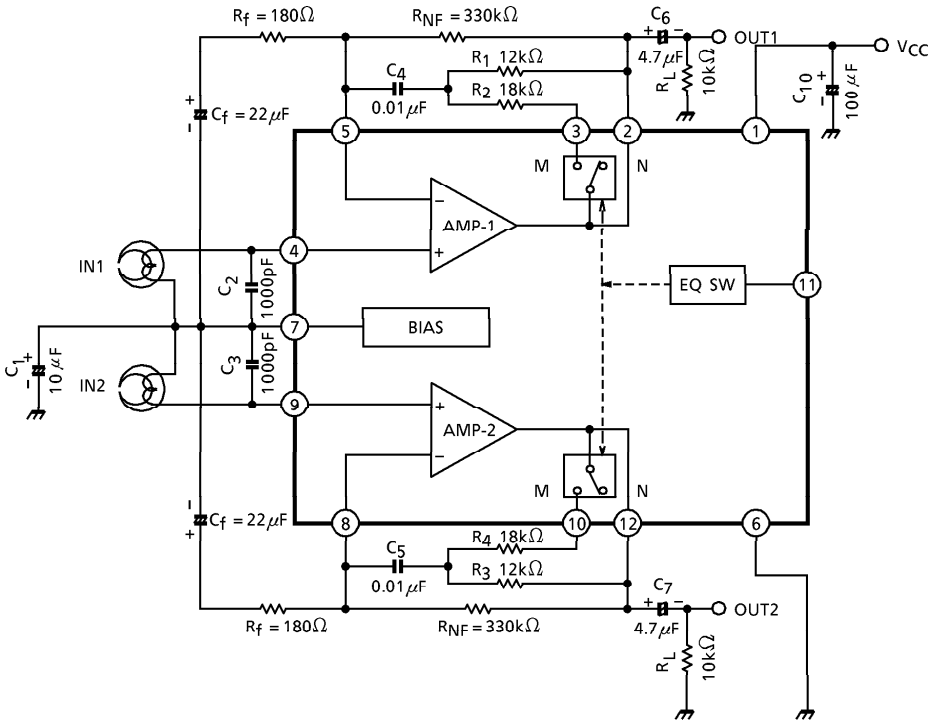
V_{OUT} – Ta



I_{CC} – Ta



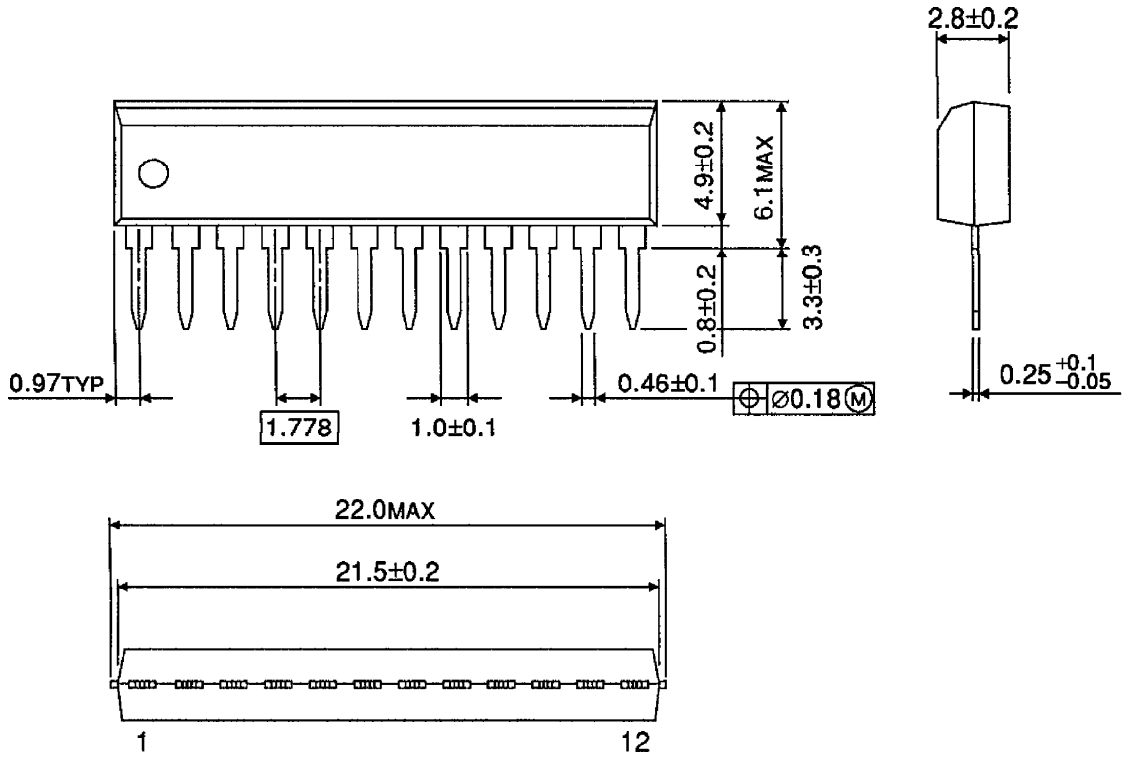
APPLICATION CIRCUIT



OUTLINE DRAWING

SSIP12-P-1.78

Unit : mm



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