

TA8208H

5.8W DUAL AUDIO POWER AMPLIFIER

The TA8208H are dual audio power amplifier for consumer applications.

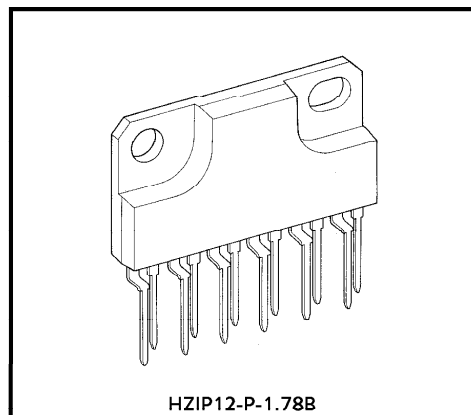
It is designed for high power, low distortion and low noise.

It also contains various kind of protectors.

It is suitable for car-audio power amplifier with high performance.

$P_{OUT} = 5.8W$ (Typ.) / ch

($V_{CC} = 13.2V$, $f = 1kHz$, $THD = 10\%$, $R_L = 4\Omega$)



HZIP12-P-1.78B

Weight : 4.04g (Typ.)

FEATURES

- Low Distortion
 - : $THD = 0.06\%$ (Typ.)
 - ($V_{CC} = 13.2V$, $f = 1kHz$, $P_{OUT} = 1W$, $R_L = 4\Omega$, $G_V = 52dB$)
- Low Noise
 - : $V_{NO} = 0.7mV_{rms}$ (Typ.)
 - ($V_{CC} = 13.2V$, $R_L = 4\Omega$, $G_V = 52dB$, $R_g = 10k\Omega$, $BW = 20Hz \sim 20kHz$)
- Protector Circuit
 - : Thermal Shut Down, Over Voltage Protection.
 - Out- V_{CC} short, Out-GND short and Out-Out Short Protection.
- Operating Supply Voltage Range
 - : $V_{CC} (opr.) = 9 \sim 18V$

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The circuit diagram shows a two-port network. The input port is labeled 'IN' with terminals marked with a minus sign on the left and a plus sign on the right. The output port is labeled 'OUT' with terminals marked with a plus sign on the left and a minus sign on the right. Inside the network, there are two dependent current sources: a $5i_1$ source and a $4i_2$ source. A resistor R_f is connected in series with the $4i_2$ source. A resistor $R_1 = 60\Omega$ is connected between the output of the $5i_1$ source and the non-inverting input of an operational amplifier. The inverting input of the op-amp is connected to ground through a resistor $R_2 = 24k\Omega$. The output of the op-amp is connected to the output port of the network. The current i_1 is the current flowing out of the $5i_1$ source, and the current i_2 is the current flowing out of the $4i_2$ source.

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3. MEASURES AGAINST OSCILLATION

C7, C8, C9 : The capacitor of polyester film having small variation of the temperature characteristics is recommended as the capacitor for oscillation prevention.

R5 : Increases the oscillation allowance at output clipping of the low range frequency (100Hz or less).

Since the oscillation allowance varies according of the following items, carry out the temperature test to confirm the oscillation allowance.

- (1) Gain to be used (G_V setting)
- (2) Capacity of capacitor
- (3) Kinds of capacitor
- (4) Layout of printed board

It is recommended to use the capacitor having the capacity exceeding the oscillation stopping value. At using with the voltage gain G_V lowered or with the high range frequency and the oscillation becomes liable to be produced.

Therefore, Application with $G_V = 40\text{dB}$ or over is advisable.

Especially for using with the gain lowered in DUAL operation, insert 1000pF between NF (2 pin and 4 pin) and GND.

This capacitor reduces the gain of the high range frequency and is effective for oscillation prevention.

4. OUTPUT WAVEFORM AT POWER SUPPLY ON/OFF (REFERENCE)

Amplifier DC output waveforms in the condition of $V_{CC} = 13.2\text{V}$, $R_L = 4\Omega$ at non-signal (input short) are shown in Fig.3.

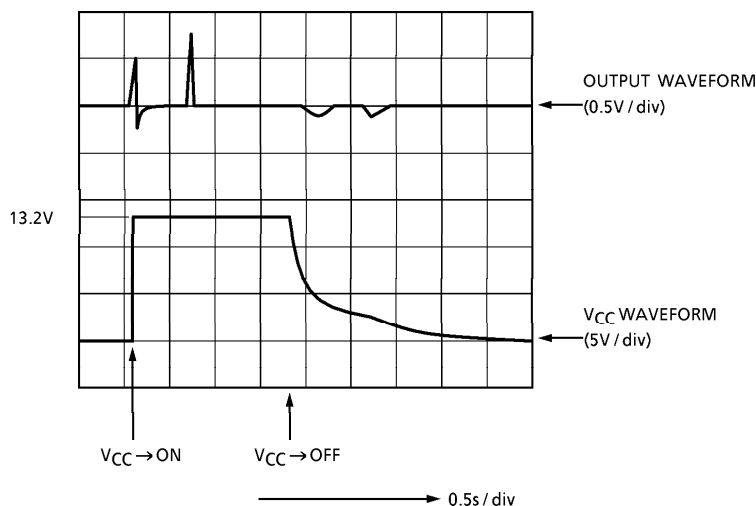


Fig.3

The popping time at power supply ON/OFF varies according to the rise and fall times.

The condition in which the power supply is rapidly and repeatedly made ON/OFF, that is, the condition in which the charge is made on the external capacitor of IC is different from the conditions shown in Fig.3.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Supply Voltage (0.2s)	V _{CC} (surge)	45	V
DC Supply Voltage	V _{CC} (DC)	25	V
Operating Supply Voltage	V _{CC} (opr)	18	V
Output Current (peak)	I _O (PEAK)	4.5	A
Power Dissipation	P _D	25	W
Operating Temperature	T _{opr}	– 30~85	°C
Storage Temperature	T _{stg}	– 55~150	°C

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, V_{CC} = 13.2V, R_L = 4Ω, R_g = 600Ω, f = 1kHz, Ta = 25°C)

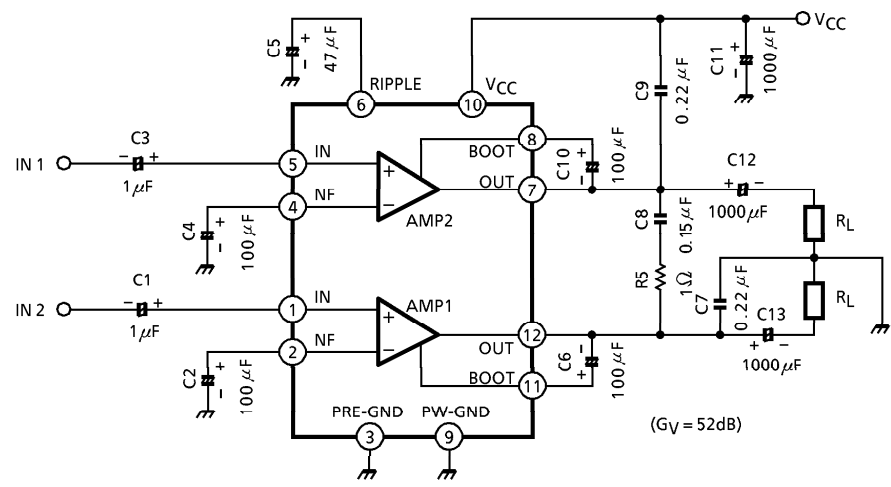
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I _{CCQ}	—	V _{IN} = 0	—	80	145	mA
Output Power	P _{OUT}	—	THD = 10%	5	5.8	—	W
Total Harmonic Distortion	THD	—	P _{OUT} = 1W	—	0.06	0.30	%
Voltage Gain	G _V	—	V _{OUT} = 0.775V _{rms} (0dBm)	50	52	54	dB
Voltage Gain Ratio	ΔG _V	—	V _{OUT} = 0.775V _{rms} (0dBm)	– 1	0	1	dB
Output Noise Voltage	V _{NO}	—	R _g = 10kΩ BW = 20Hz~20kHz	—	0.7	1.5	mV _{rms}
Ripple Rejection Ratio	R.R.	—	f _{ripple} = 100Hz V _{ripple} = 0.775V _{rms} (0dBm)	—	– 52	– 40	dB
Cross Talk	C.T.	—	V _{OUT} = 0.775V _{rms} (0dBm)	—	– 57	—	dB
Input Resistance	R _{IN}	—	f = 1kHz	—	33	—	kΩ

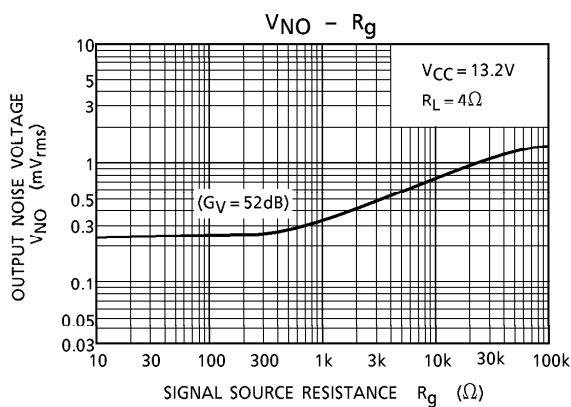
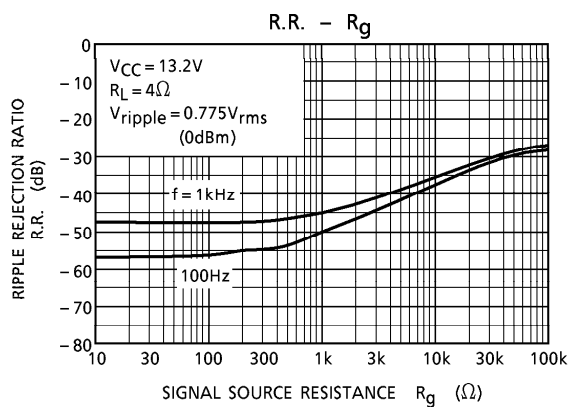
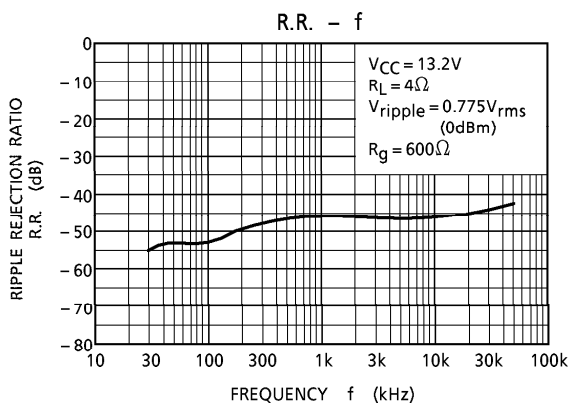
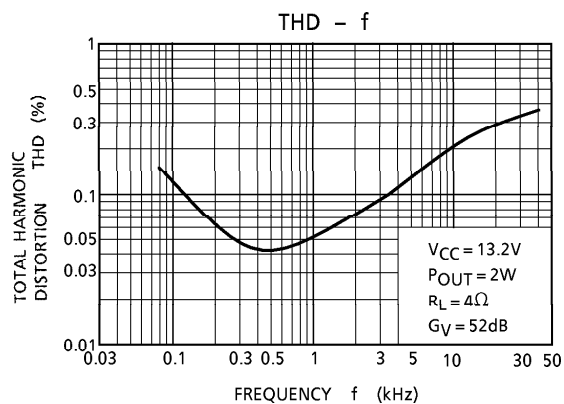
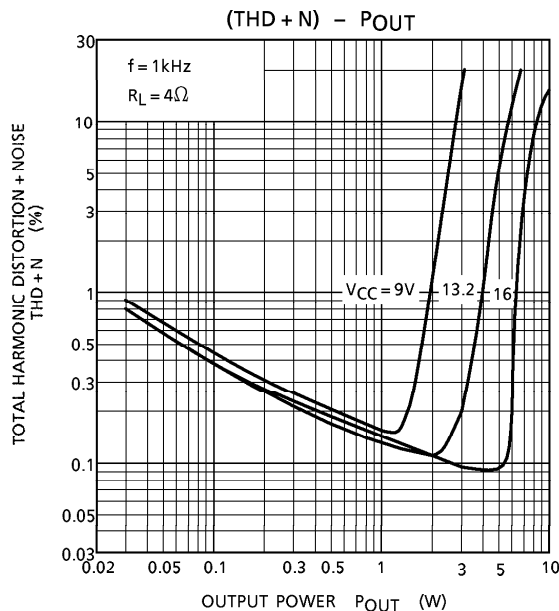
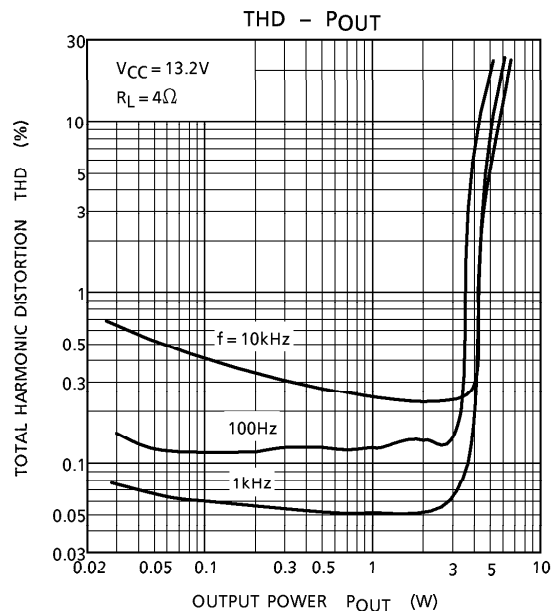
TYPICAL DC VOLTAGE OF EACH TERMINAL

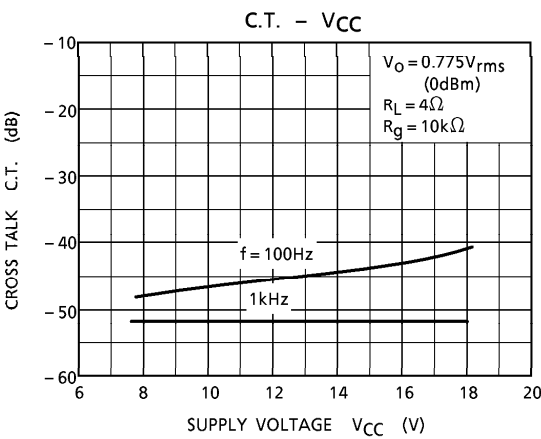
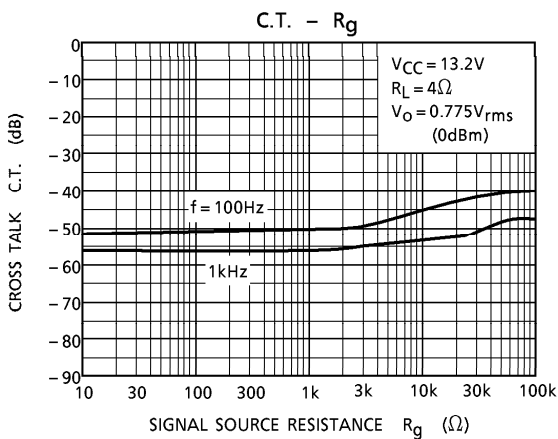
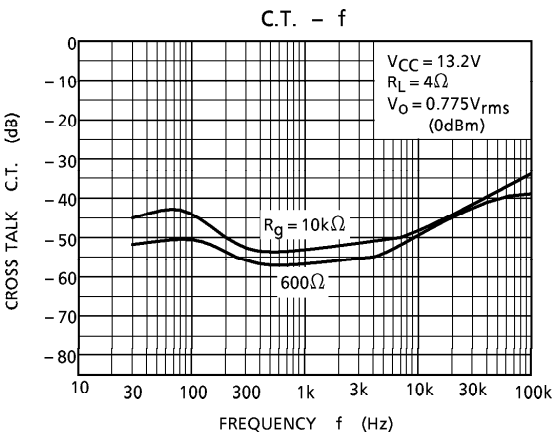
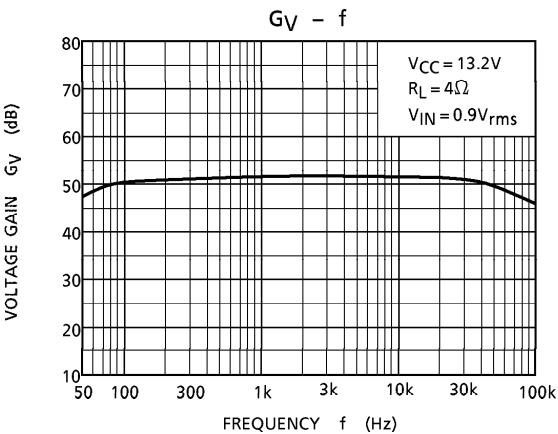
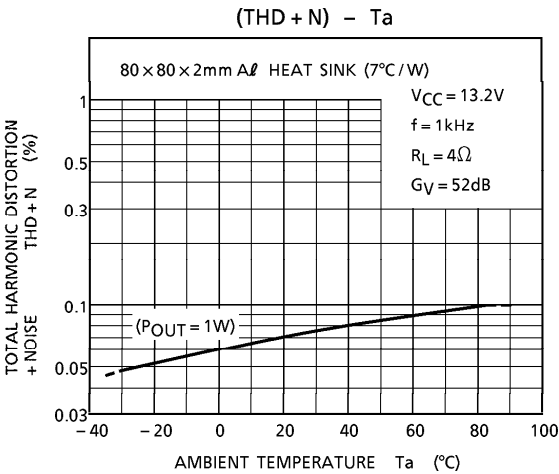
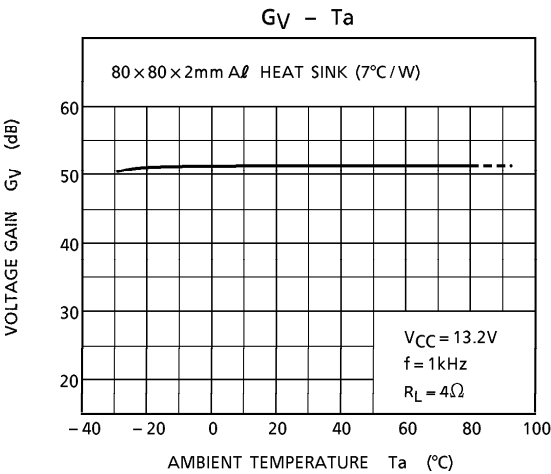
(V_{CC} = 13.2V, V_{IN} = 0V, Ta = 25°C)

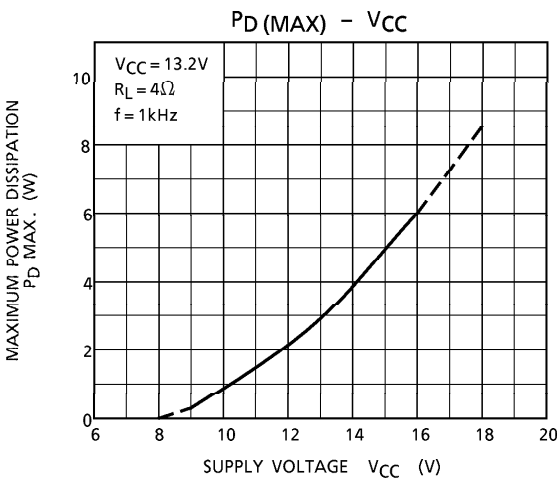
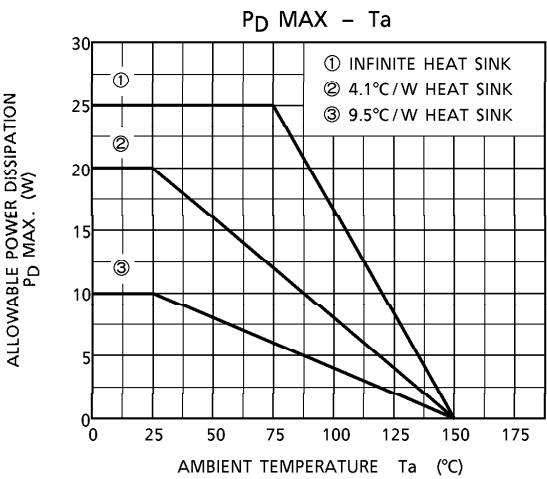
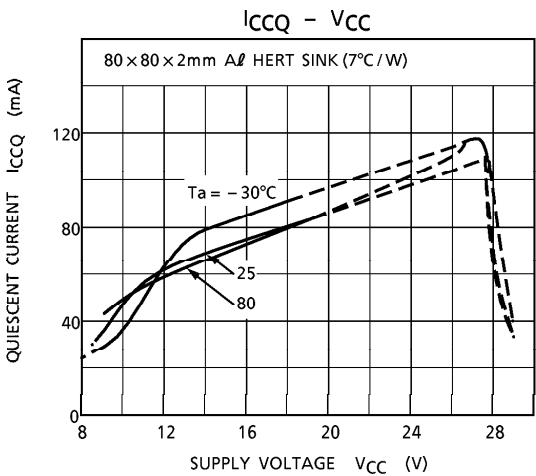
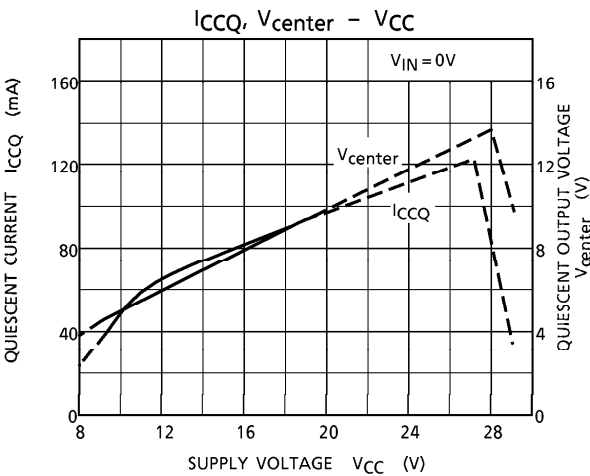
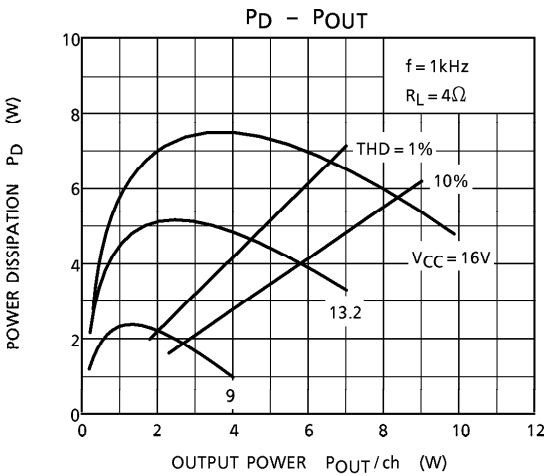
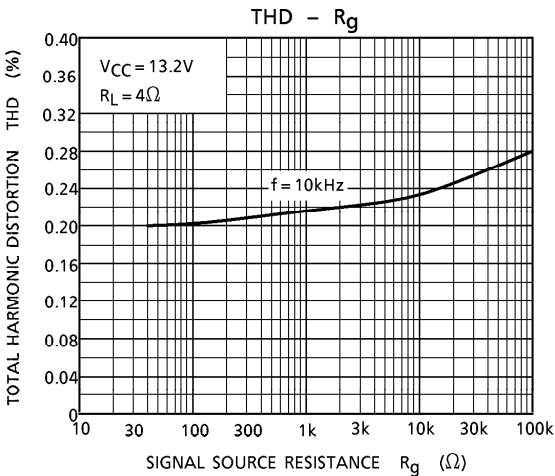
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12
DC Voltage (V)	1.5	1.5	GND	1.5	1.5	6.4	6.4	12.3	GND	V _{CC}	12.3	6.4

TEST CIRCUIT / APPLICATION CIRCUIT



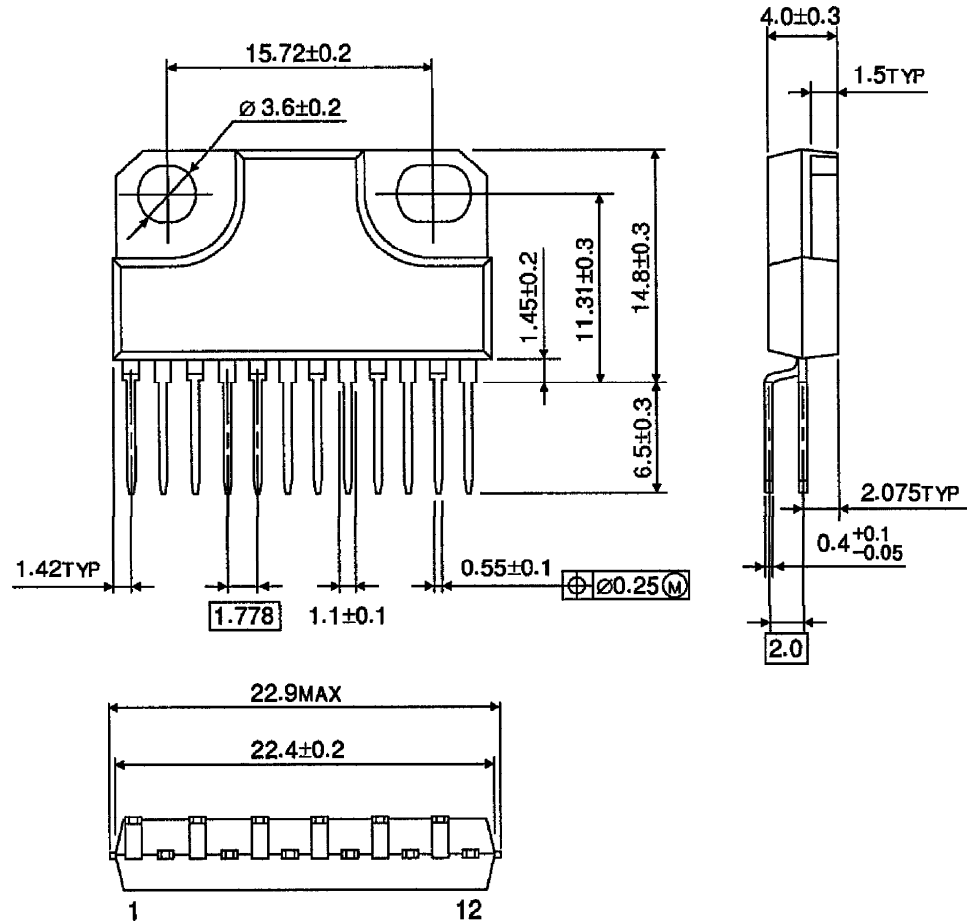






OUTLINE DRAWING
HZIP12-P-1.78B

Unit : mm



Weight : 4.04g (Typ.)