

# TA8211AH

## DUAL AUDIO POWER AMPLIFIER

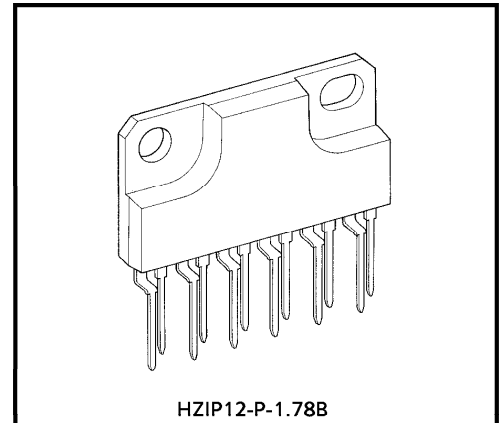
The TA8211AH is dual audio power amplifier for consumer applications.

This IC provides an output power of 6 watts per channel (at  $V_{CC} = 20\text{ V}$ ,  $f = 1\text{ kHz}$ ,  $\text{THD} = 10\%$ ,  $R_L = 8\ \Omega$ ).

It is suitable for power amplifier of TV and home stereo.

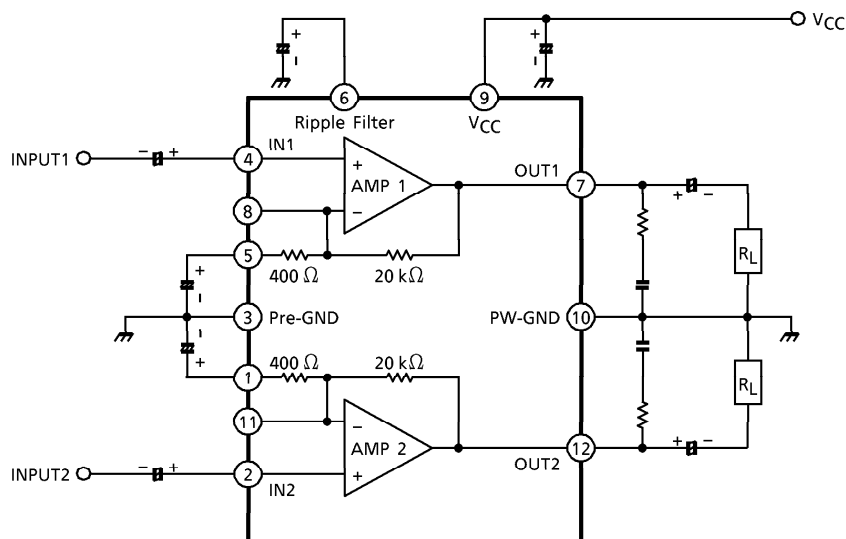
### FEATURES

- High Output Power :  $P_{out} = 6\text{ W/channel (Typ.)}$   
( $V_{CC} = 20\text{ V}$ ,  $R_L = 8\ \Omega$ ,  $f = 1\text{ kHz}$ ,  $\text{THD} = 10\%$ )
- Low Noise :  $V_{NO} = 0.14\text{ mV}_{rms}$  (Typ.)  
( $V_{CC} = 28\text{ V}$ ,  $R_L = 8\ \Omega$ ,  $G_V = 34\text{ dB}$ ,  $R_g = 10\text{ k}\Omega$ ,  $\text{BW} = 20\text{ Hz}\sim 20\text{ kHz}$ )
- Very Few External Parts
- Built In Thermal Shut Down Protector Circuit
- Operating Supply Voltage Range :  $V_{CC}(\text{opr}) = 10\sim 30\text{ V}$  ( $T_a = 25^\circ\text{C}$ )



Weight : 4.04 g (Typ.)

### BLOCK DIAGRAM



980910EBA2

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**APPLICATION INFORMATION**

(1) Voltage gain

The closed loop voltage gain is determined by  $R_1, R_2$ .

$$G_V = 20 \log \frac{R_1 + R_2}{R_2} \text{ (dB)}$$

$$= 20 \log \frac{20 \text{ k}\Omega + 400 \Omega}{400 \Omega}$$

$$\cong 34 \text{ (dB)}$$

(a) Amplifier with gain  $> 34$  dB

$$G_V = 20 \log \frac{R_1 + R_2 // R_3}{R_2 // R_3} \text{ (dB)}$$

When  $R_3 = 400 \Omega$

$G_V \cong 40$  (dB)  
is given.

(b) Amplifier with gain  $< 34$  dB

$$G_V = 20 \log \frac{R_1 + R_2 + R_4}{R_2 + R_4} \text{ (dB)}$$

When  $R_4 = 220 \Omega$

$G_V \cong 30$  (dB)  
is given.

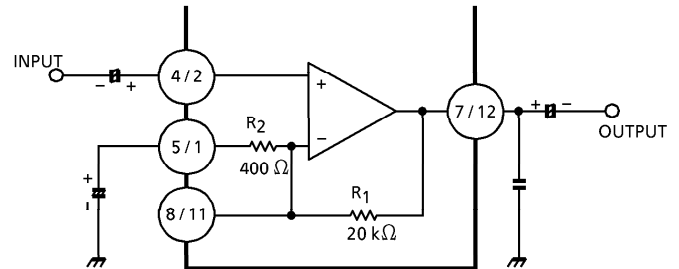


Fig.1

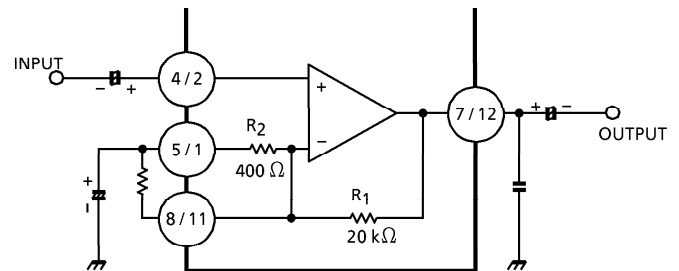


Fig.2

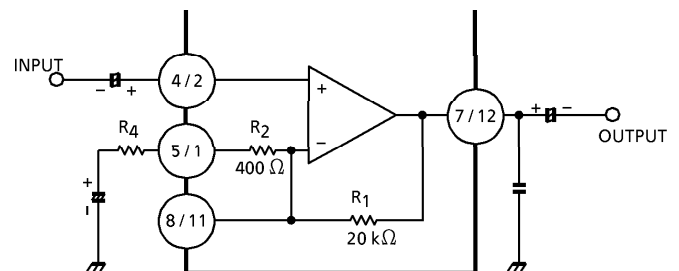
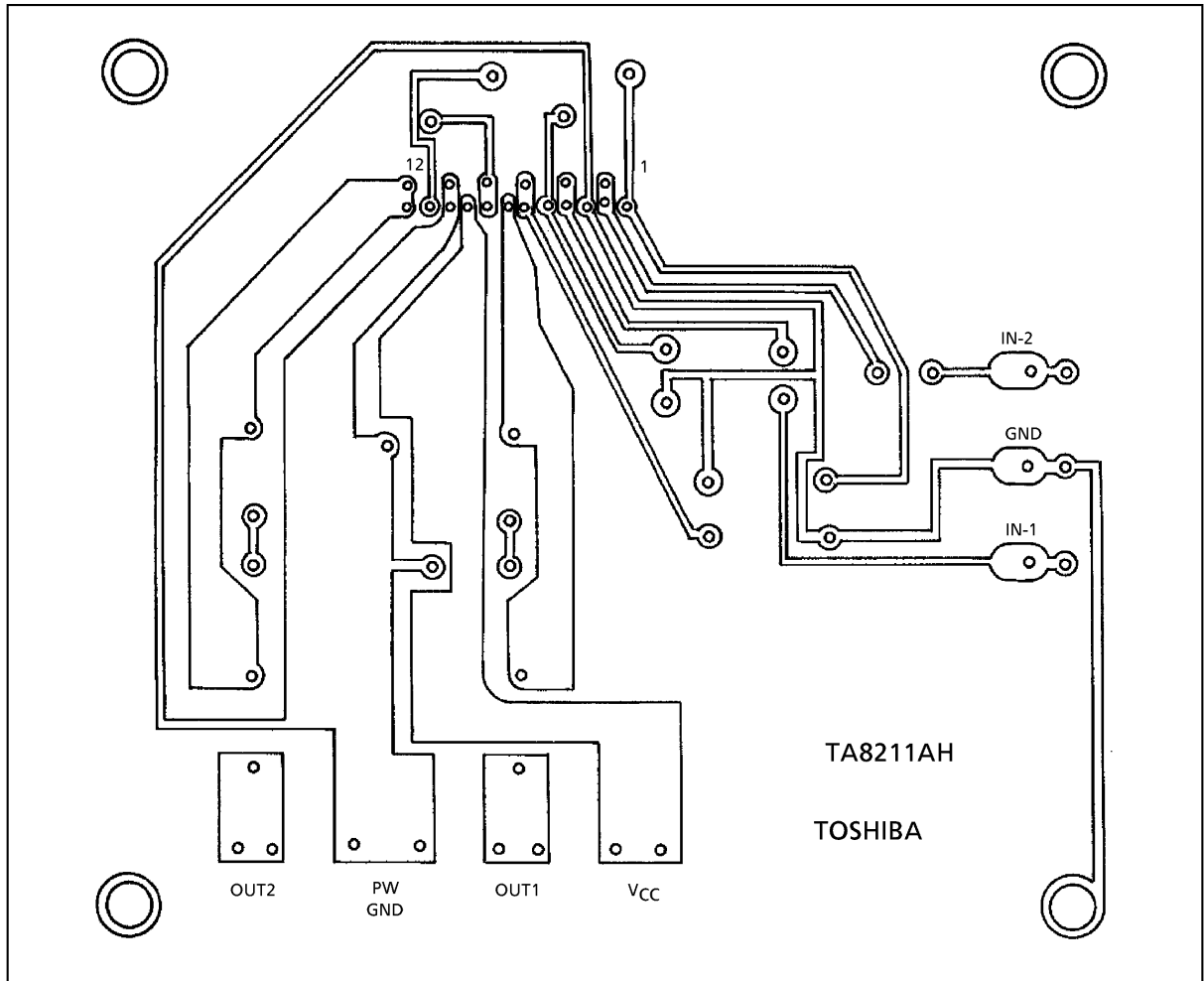


Fig.3

980910EBA2'

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STANDARD P.C.B



(BOTTOM VIEW)

**MAXIMUM RATINGS** (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	30	V
Output Current (Peak / Ch)	I <sub>O(peak)</sub>	2	A
Power Dissipation	P <sub>D</sub> (Note)	25	W
Operating Temperature	T <sub>opr</sub>	-20~75	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

(Note) : Derated above Ta = 25°C in the proportion of 200 mW/°C.

**ELECTRICAL CHARACTERISTICS**

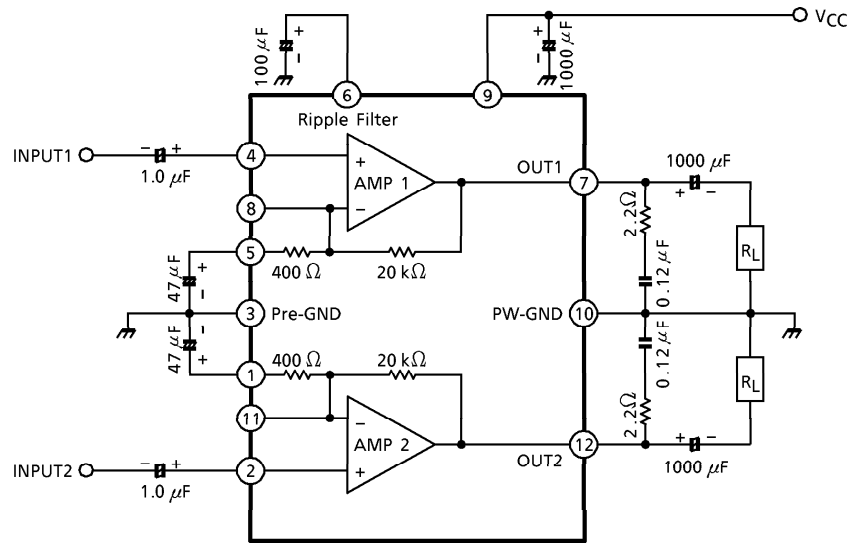
(Unless otherwise specified, V<sub>CC</sub> = 20 V, R<sub>L</sub> = 8 Ω, R<sub>g</sub> = 600 Ω, f = 1 kHz, Ta = 25°C)

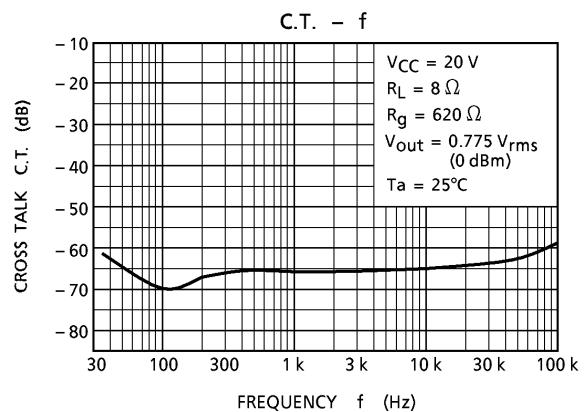
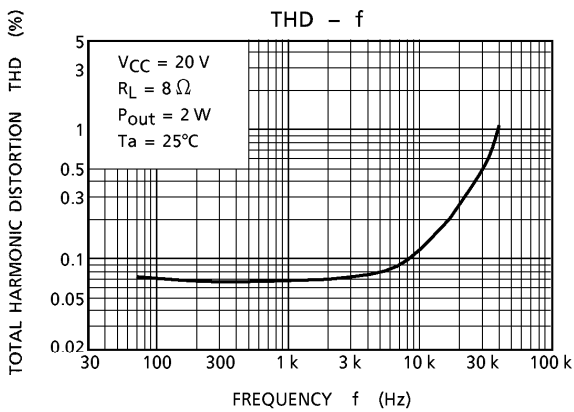
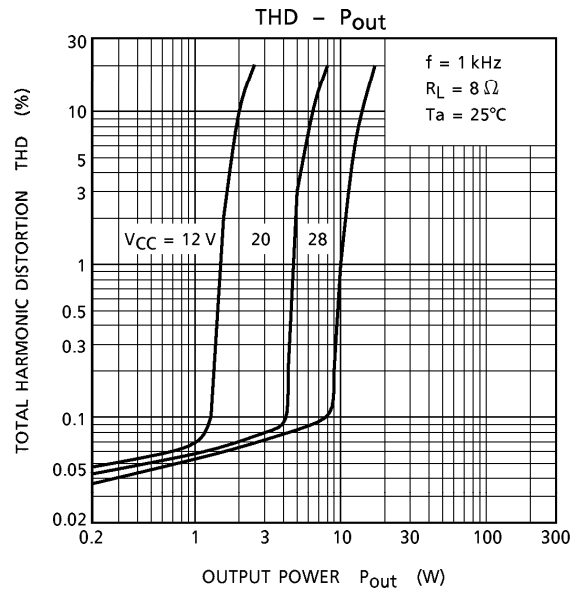
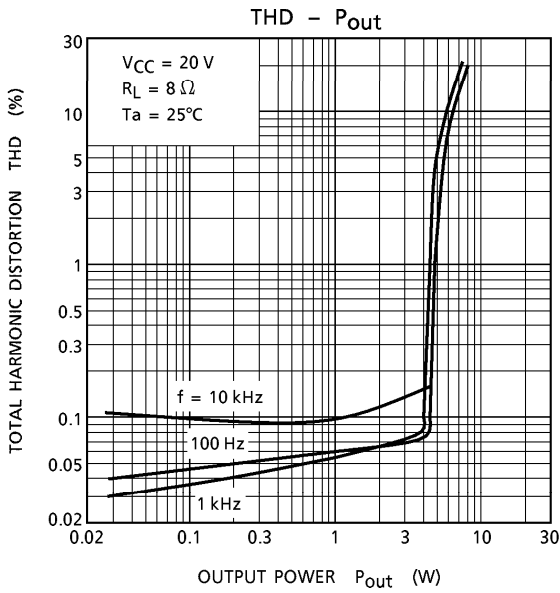
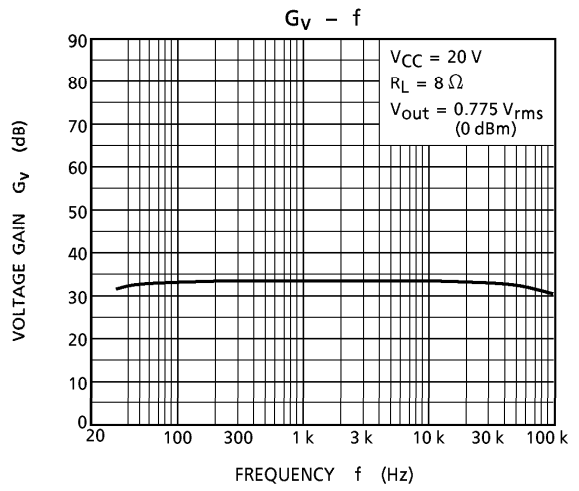
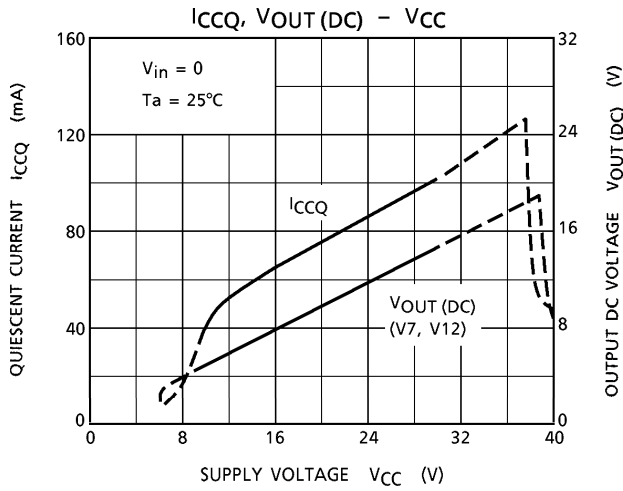
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I <sub>CCQ</sub>	—	V <sub>in</sub> = 0	—	75	130	mA
Output Power	P <sub>out</sub> (1)	—	THD = 10%	5.0	6.0	—	W
	P <sub>out</sub> (2)	—	THD = 1%	—	4.5	—	
Total Harmonic Distortion	THD	—	P <sub>out</sub> = 2 W	—	0.1	0.6	%
Closed Loop Voltage Gain	G <sub>v</sub>	—	V <sub>out</sub> = 0.775 V <sub>rms</sub> (0 dBm)	32.5	34.0	35.5	dB
Open Loop Voltage Gain	G <sub>vo</sub>	—		—	60	—	dB
Input Resistance	R <sub>IN</sub>	—		—	30	—	kΩ
Ripple Rejection Ratio	R.R.	—	R <sub>g</sub> = 0, f <sub>ripple</sub> = 100 Hz V <sub>ripple</sub> = 0.775 V <sub>rms</sub> (0 dBm)	-45	-57	—	dB
Output Noise Voltage	V <sub>no</sub>	—	R <sub>g</sub> = 10 kΩ, BW = 20 Hz~20 kHz	—	0.14	0.3	mV <sub>rms</sub>

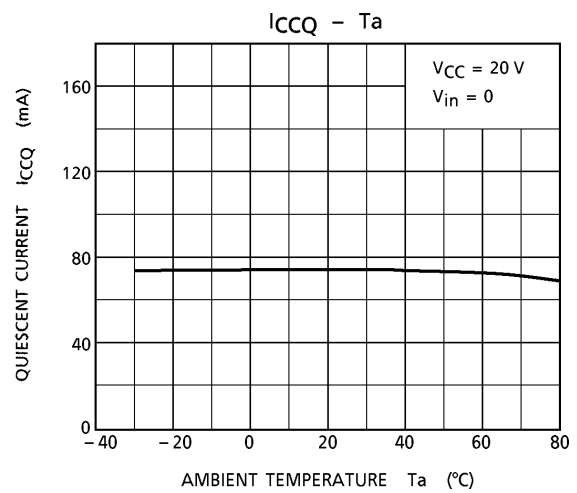
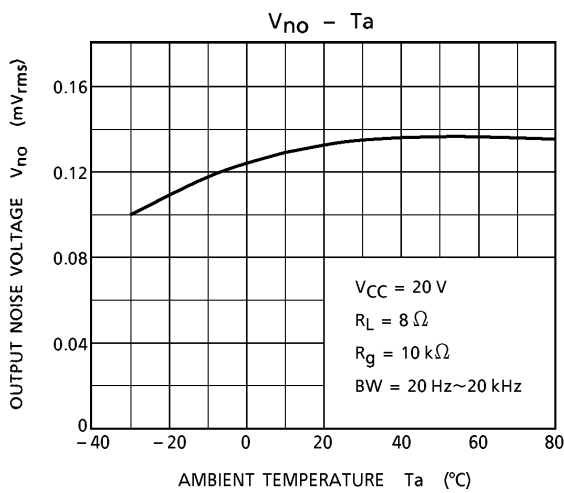
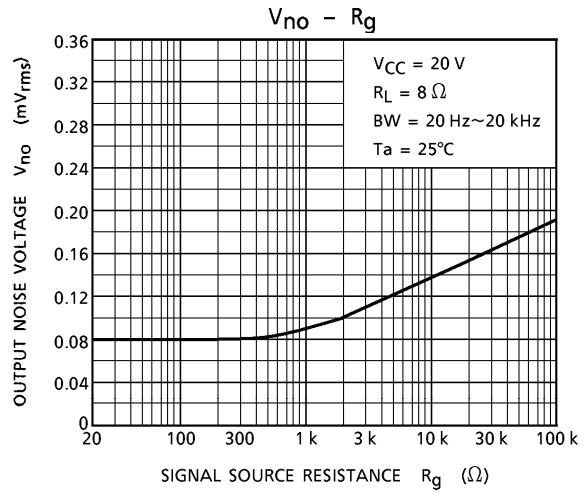
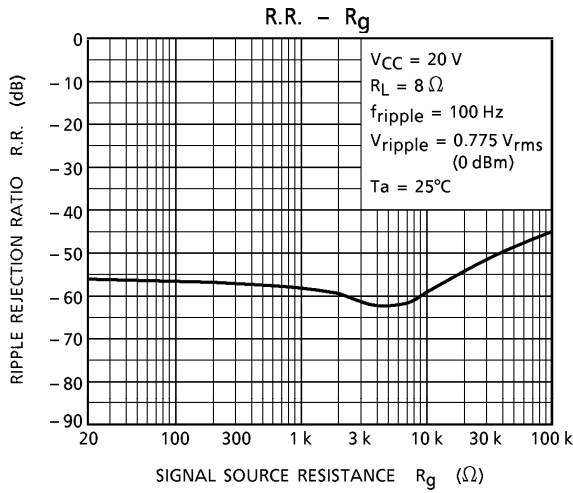
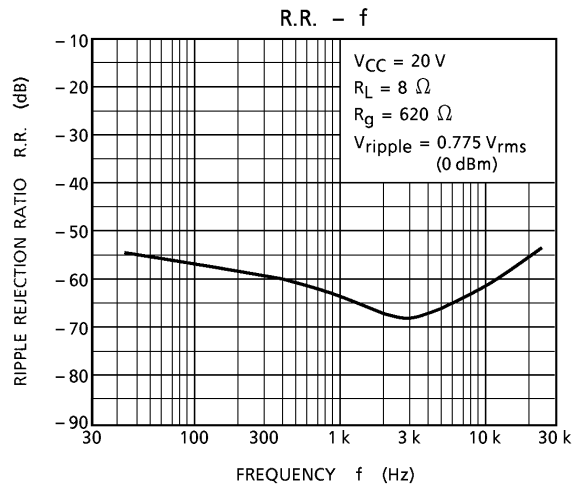
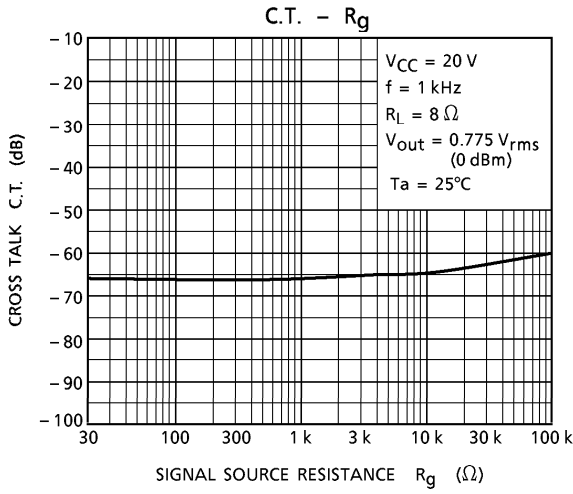
**TYP. DC VOLTAGE OF EACH TERMINAL** (V<sub>CC</sub> = 20 V, Ta = 25°C)

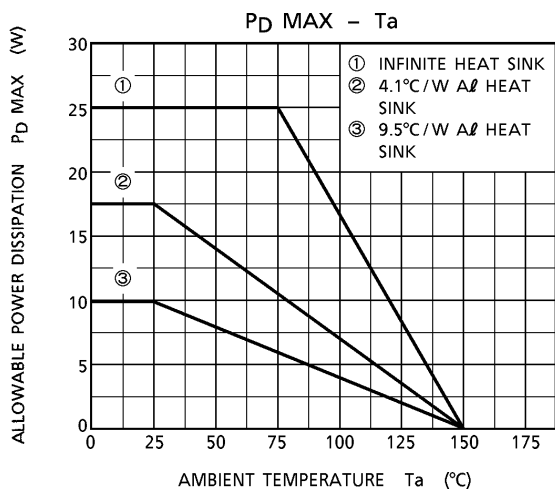
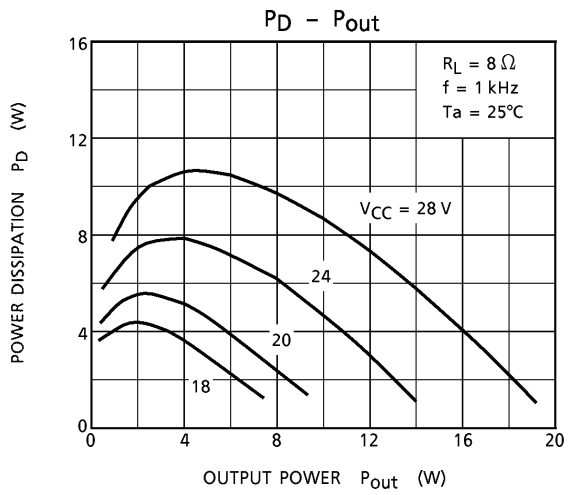
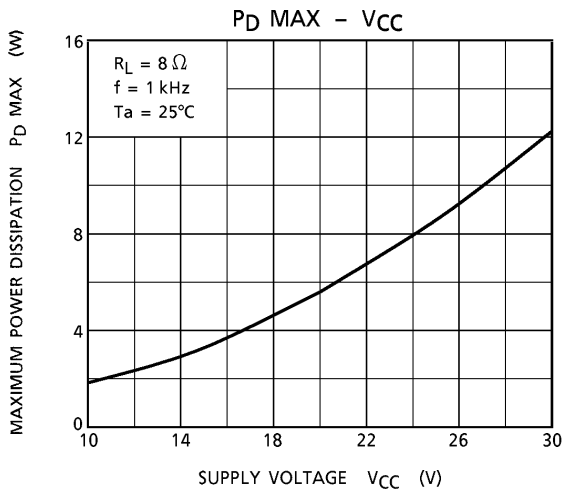
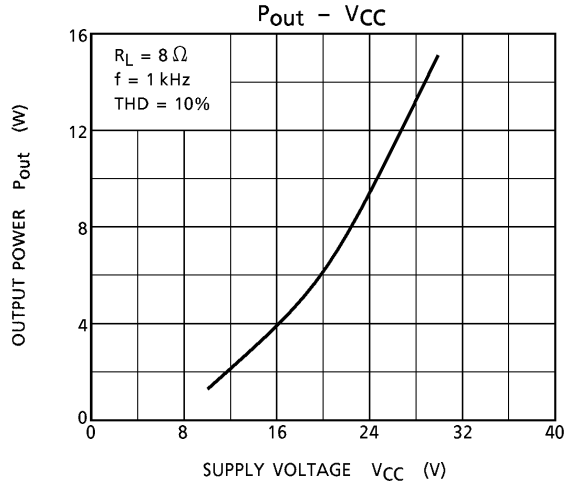
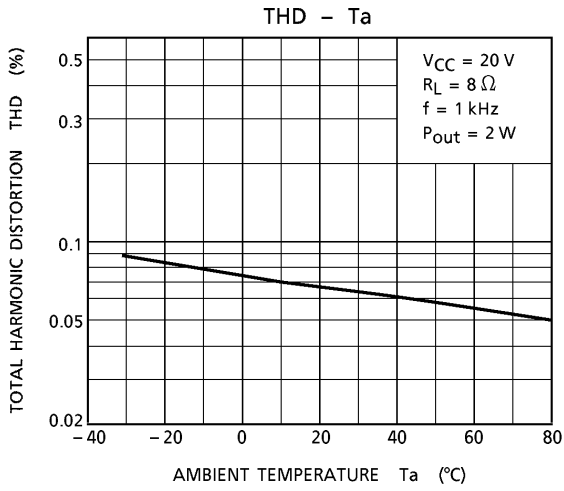
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12
DC Voltage (V)	2.1	2.25	GND	2.25	2.1	6.8	9.8	2.25	V <sub>CC</sub>	GND	2.25	9.8

**TEST CIRCUIT**





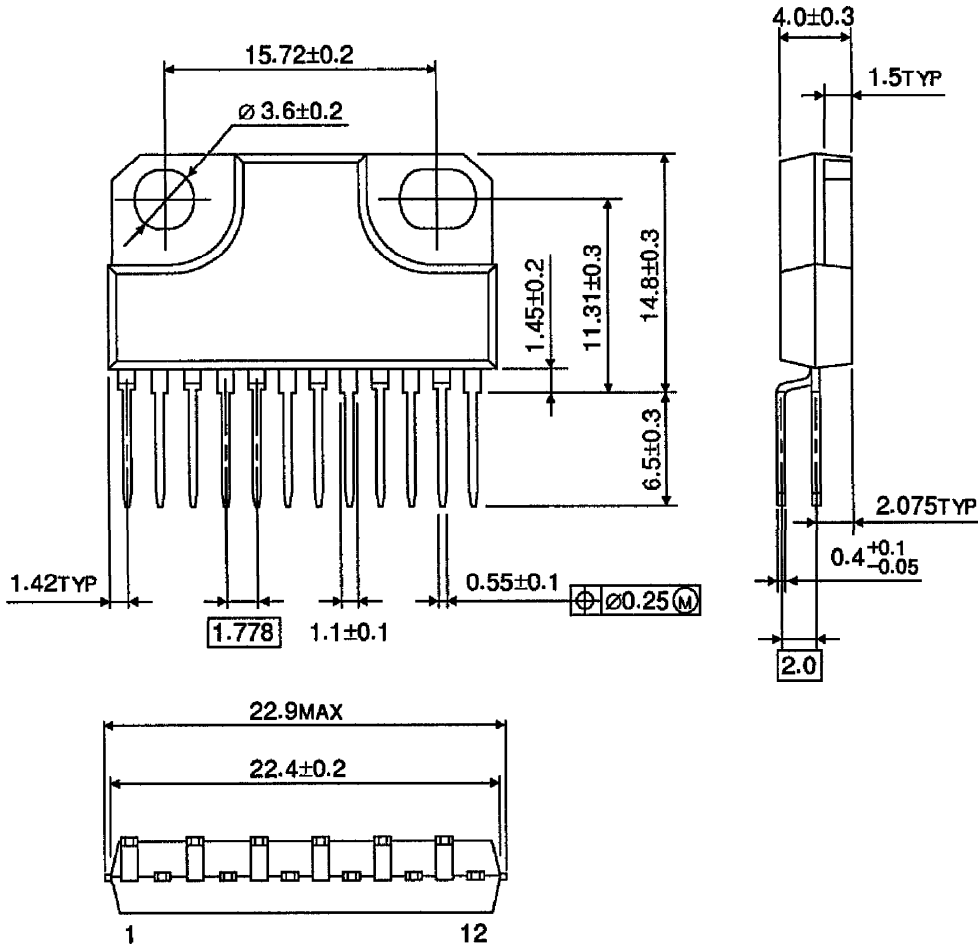






**PACKAGE DIMENSIONS**  
HZIP12-P-1.78B

Unit : mm



Weight : 4.04 g (Typ.)