

# TA8211AH

## Dual Audio Power Amplifier

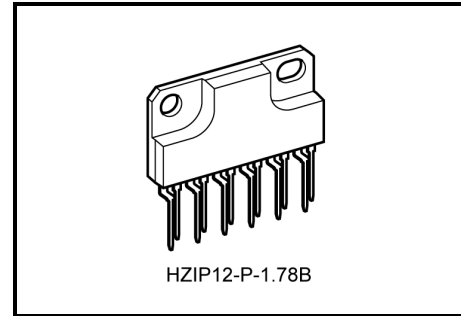
The TA8211AH is dual audio power amplifier for consumer applications.

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.

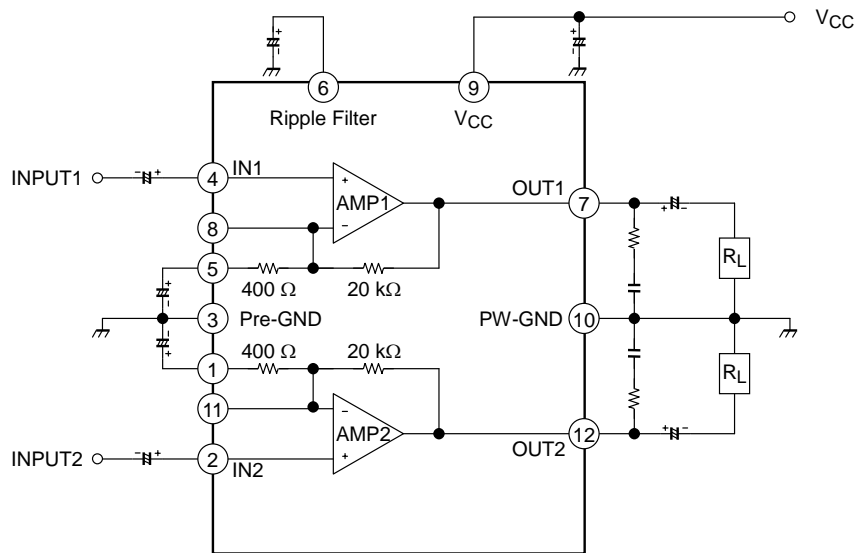
### Features

- High output power:  $P_{\text{out}} = 6\text{ W/channel}$  (Typ.)  
( $V_{CC} = 20\text{ V}$ ,  $R_L = 8\ \Omega$ ,  $f = 1\text{ kHz}$ ,  $\text{THD} = 10\%$ )
- Low noise:  $V_{\text{no}} = 0.14\text{ mVrms}$  (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



## Application Information

### Voltage gain

The closed loop voltage gain is determined by R<sub>1</sub>, R<sub>2</sub>.

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

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

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

(a) Amplifier with gain > 34dB

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

When R<sub>3</sub> = 400 Ω

$$G_V \approx 40 \text{ (dB)}$$

is given.

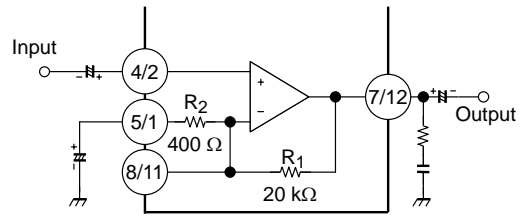
(b) Amplifier with gain < 34dB

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

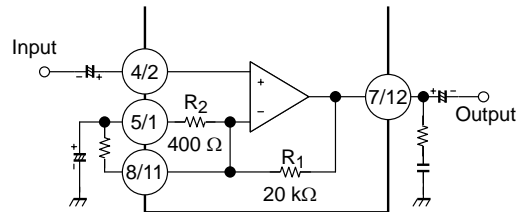
When R<sub>4</sub> = 220 Ω

$$G_V \approx 30 \text{ (dB)}$$

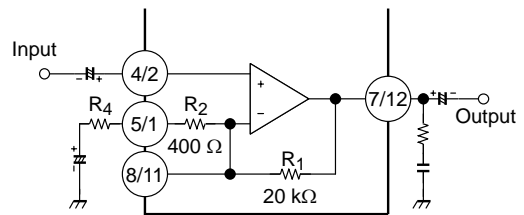
is given.



**Figure 1**



**Figure 2**

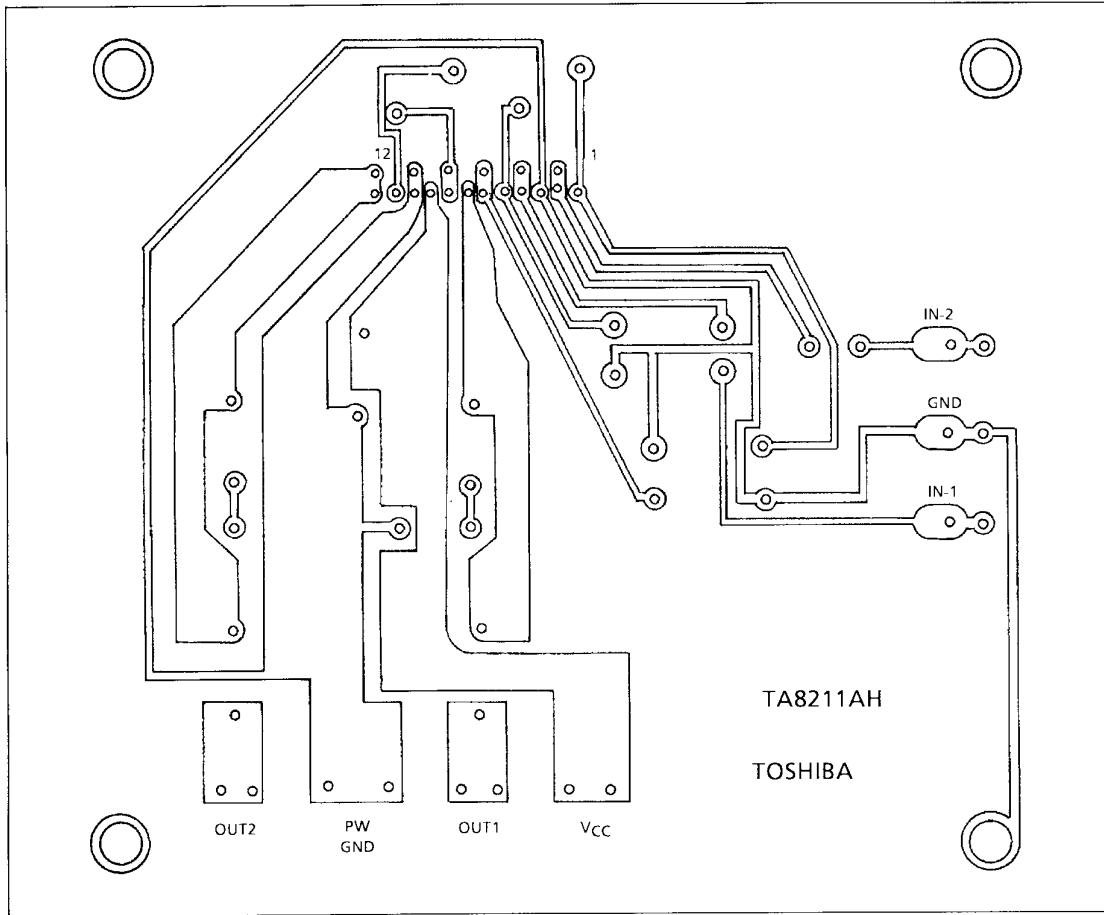


**Figure 3**

### Cautions

This IC is not proof enough against a strong E-M field by CRT which may cause malfunction such as leak. Please set the IC keeping the distance from CRT.

**Standard PCB**



(Bottom view)

## Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	30	V
Output current (Peak/ch)	I <sub>O</sub> (peak)	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

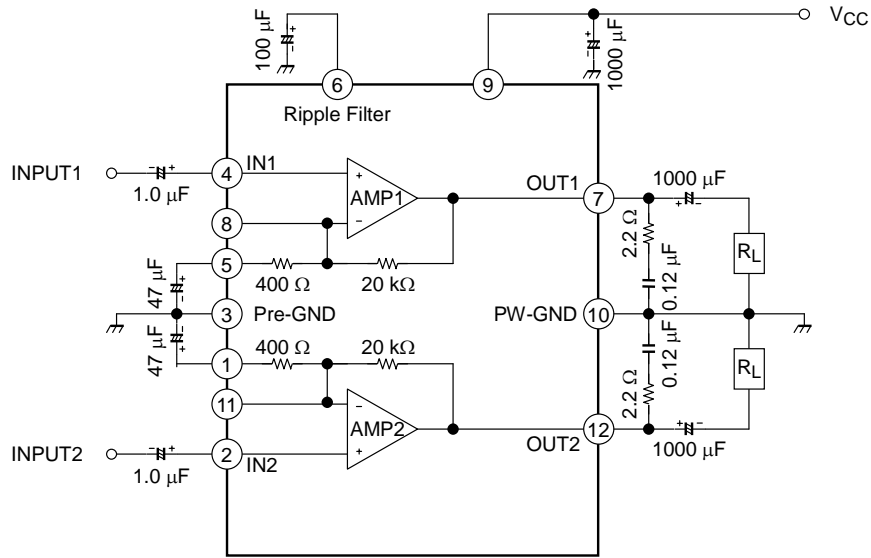
(unless otherwise specified, V<sub>CC</sub> = 20 V, R<sub>L</sub> = 600 Ω, R<sub>g</sub> = 600 Ω, f = 1 kHz, Ta = 25°C)

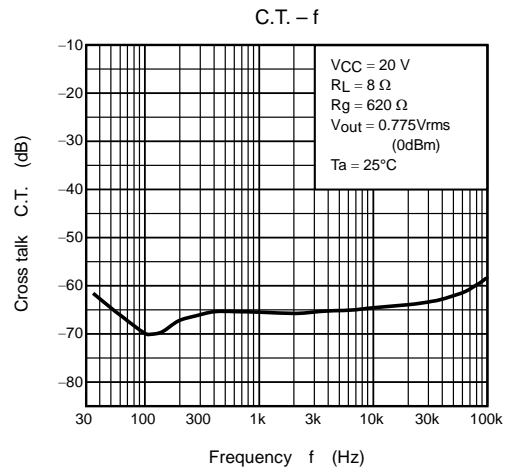
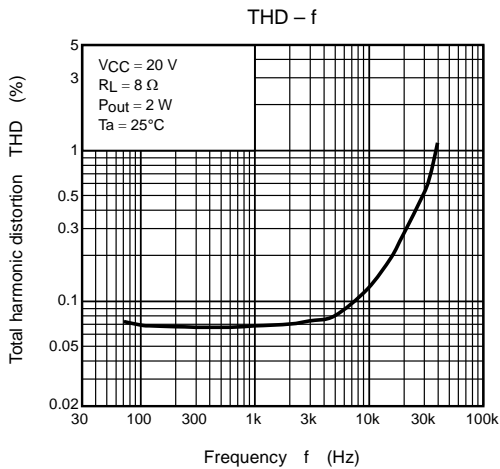
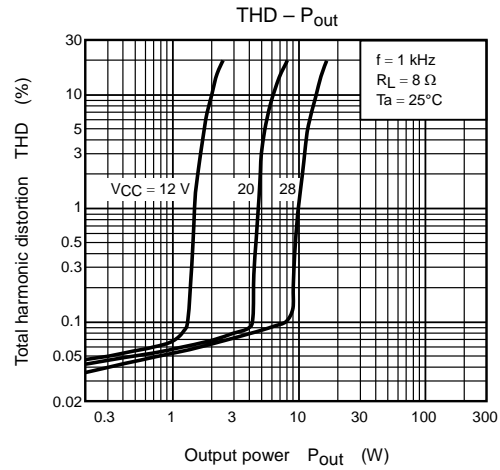
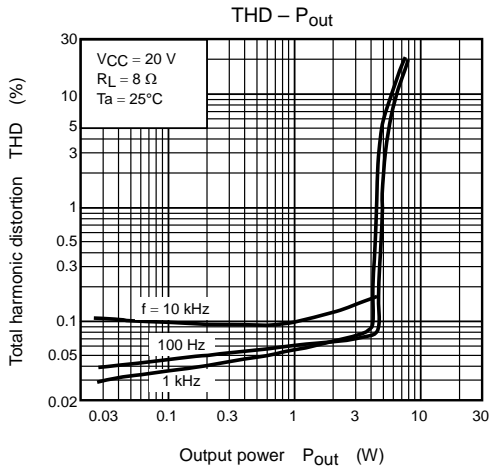
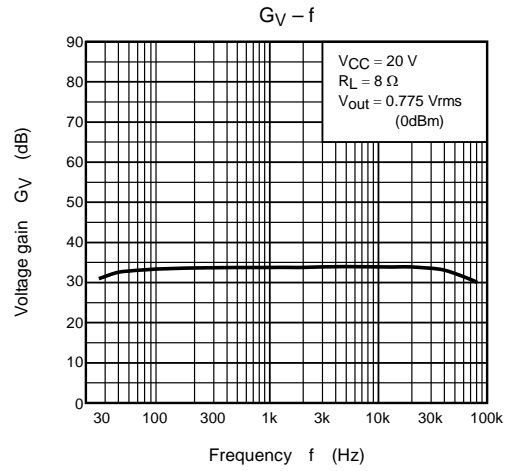
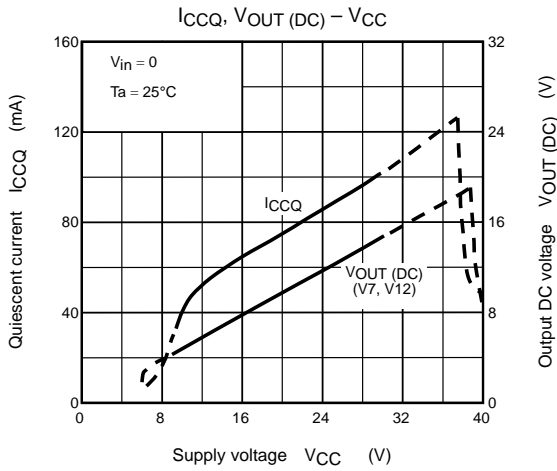
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Quiescent current	I <sub>CCQ</sub>	—	V <sub>in</sub> = 0	—	75	130	mA
Output power	P <sub>out</sub> (1)	—	THD = 10%	5.0	6.0	—	W
	P <sub>out</sub> (2)	—	THD = 1%	—	4.5	—	
Total harmonic distortion	THD	—	P <sub>out</sub> = 2 W	—	0.1	0.6	%
Closed loop voltage gain	G <sub>V</sub>	—	V <sub>out</sub> = 0.775 V <sub>rms</sub> (0dBm)	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> (0dBm)	-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>

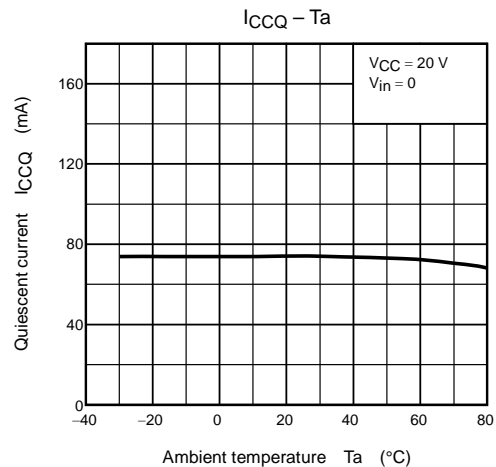
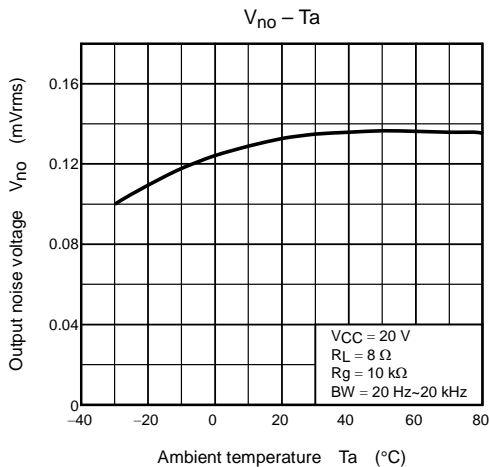
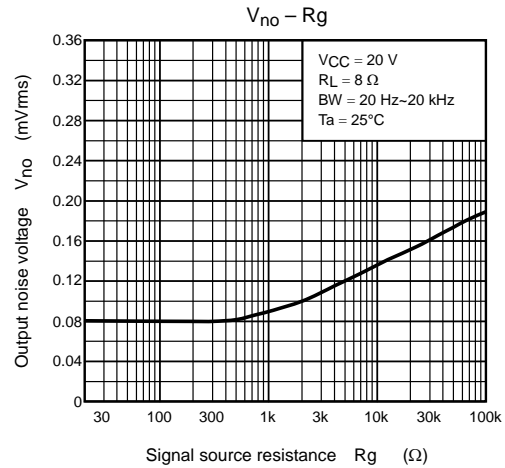
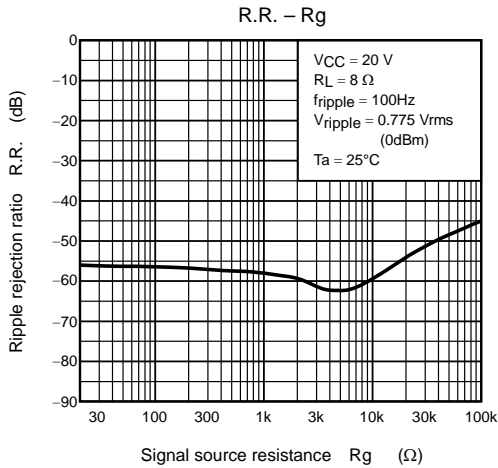
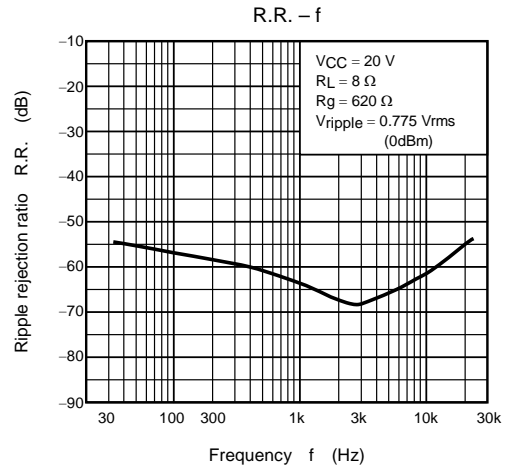
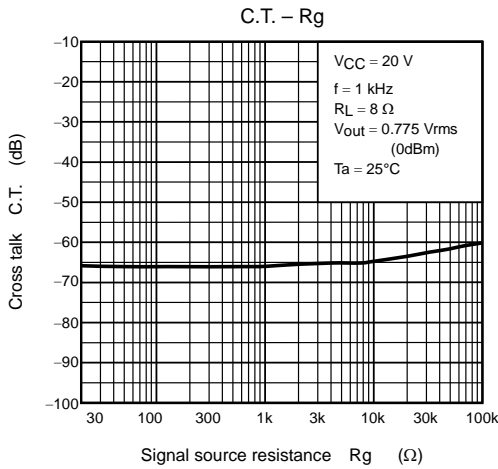
## Typ. DC Voltage of Each Terminal (V<sub>CC</sub> = 20 V, Ta = 25°C)

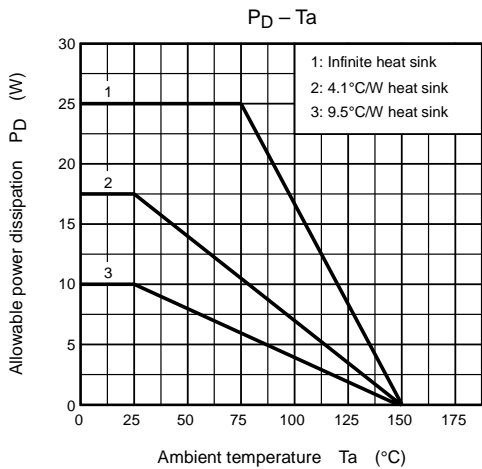
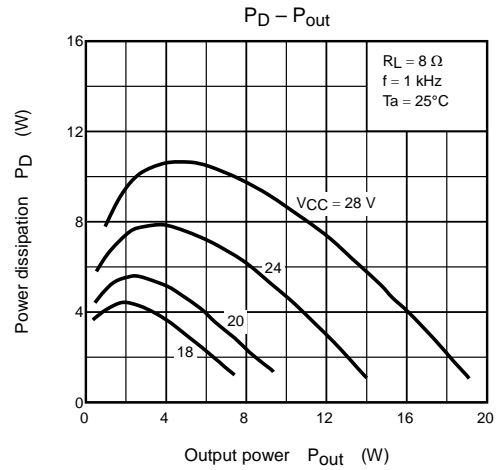
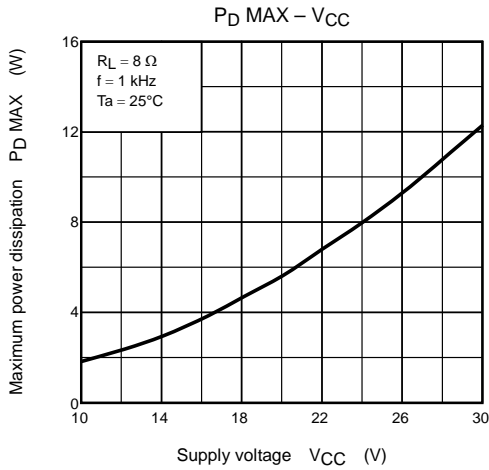
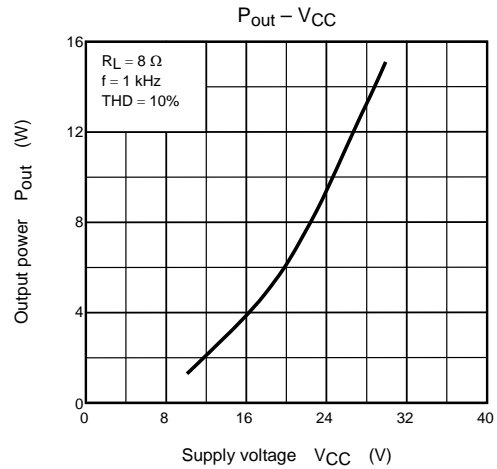
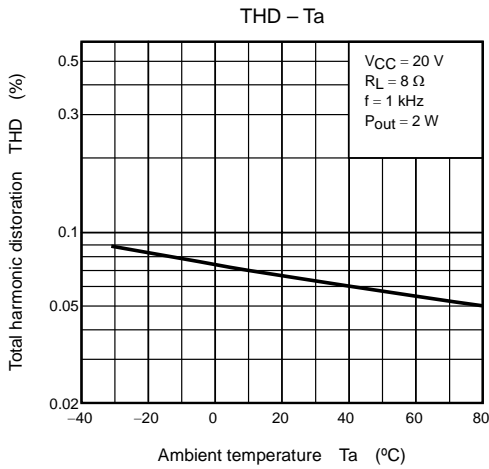
Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12
DC voltage (V)	2.1	2.25	GND	2.25	2.1	6.8	9.8	2.25	V <sub>CC</sub>	GND	2.25	9.8

## Test Circuit







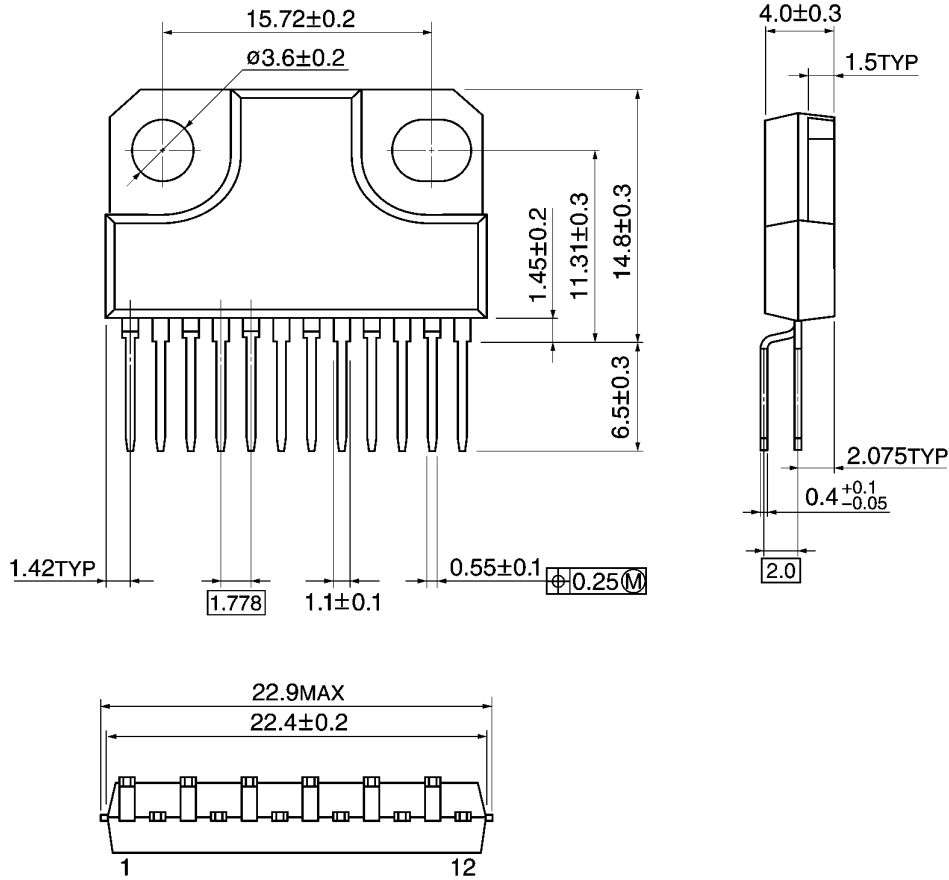




## Package Dimensions

HZIP12-P-1.78B

Unit: mm



Weight: 4.04 g (typ.)

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