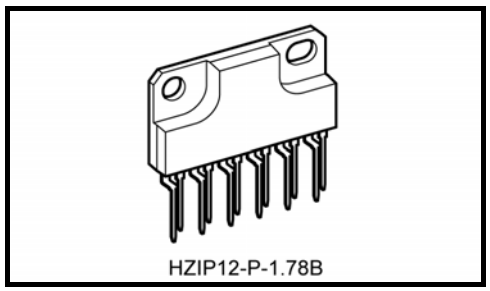
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

TA8246AHQ

Dual Audio Power Amplifier 6 W × 2 Ch

TA8246AHQ is dual power amplifier for Consumer applications.
This IC provides an output power of 6 watts per channel
(at V_{CC} = 20 V, f = 1 kHz, THD = 10%, R_L = 8 Ω).
It is suitable for power amplifier of TV and home Stereo.

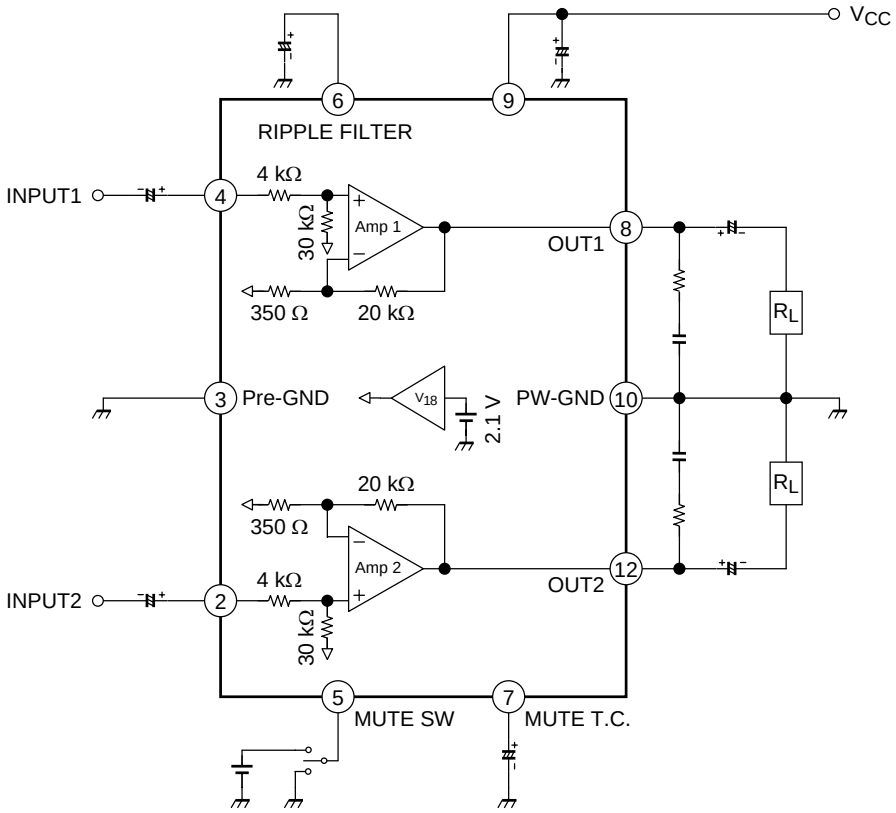


Weight: 4.04 g (typ.)

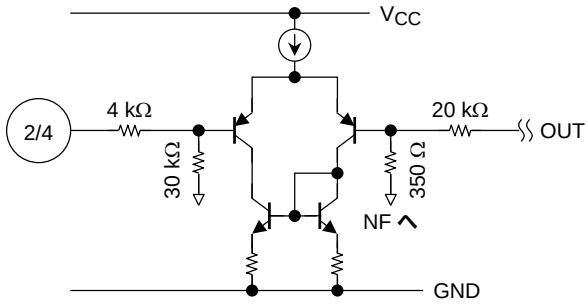
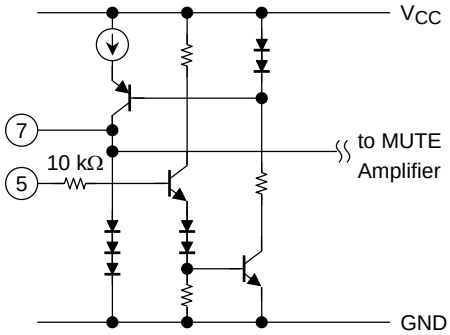
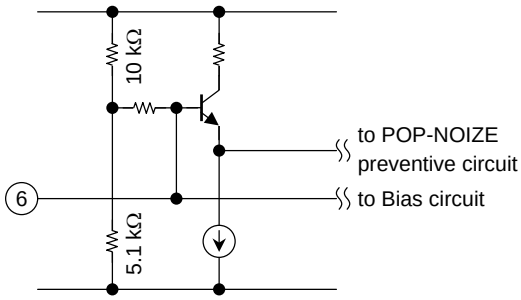
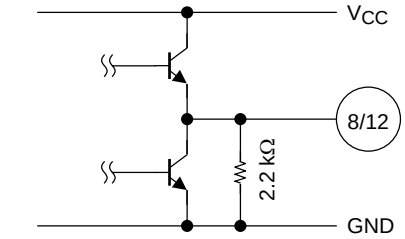
Features

- : High output power: P_{out} = 6 W (Typ.)
  (V_{CC} = 20 V, R_L = 8 Ω, f = 1 kHz, THD = 10%)
- Built-in audio muting circuit.
- NF terminal capacitor less
  : Fixed gain (G_V = 34dB), needless external capacitor.
- Protectors
  : Thermal shut down protection circuit, over voltage protection circuit
- Low poping noise
- High THD ratio
- High input dynamic range
- Available for using same PCB layout with 3 channel IC: TA8256BHQ
- Operating supply voltage range
  : $V_{CC\ (opr)}$ = 10~30 V (Ta = 25°C)

Block Diagram



Terminal Explanation

Terminal No.	Symbol	Function	Equivalent Circuit
2	IN2	Input	
4	IN1		
3	Pre-GND	GND terminal	—
5	MUTE SW	MUTE control terminal	
7	MUTE T.C.		
6	R/F	Ripple filter	
8	OUT1	Output	
12	OUT2		
9	V_{CC}	Supply voltage terminal	—
10	PW-GND	GND terminal	—

1, 11: NC

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.

Maximum Ratings (Ta = 25°C)

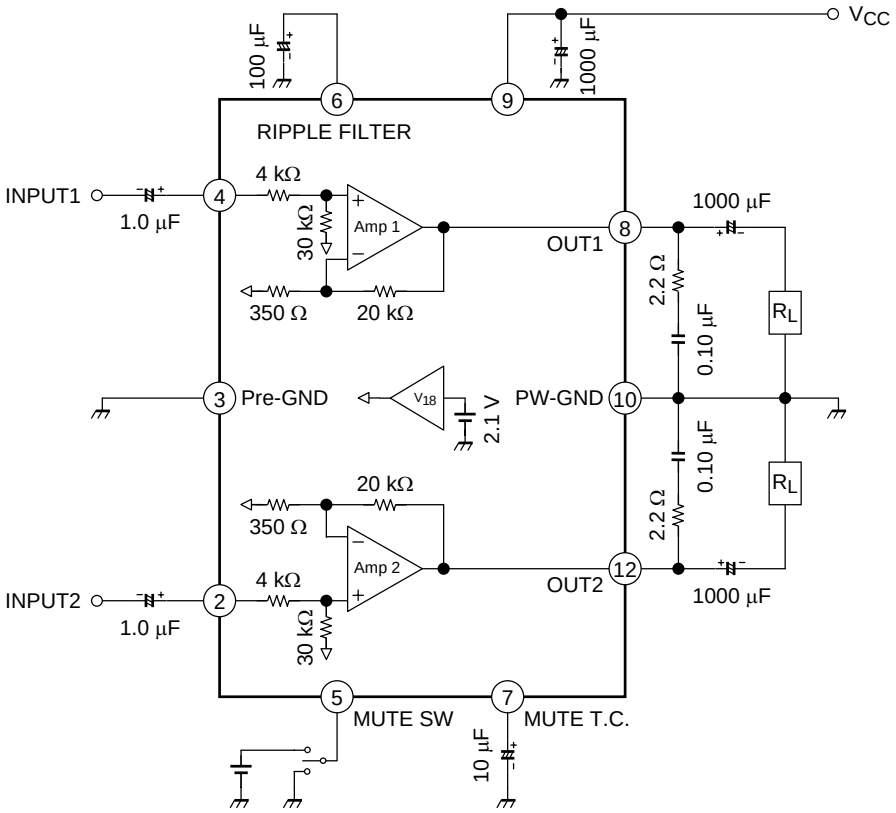
Characteristic	Symbol	Rating	Unit
Supply voltage	V_{CC}	30	V
Output current (peak/ch)	$I_{O\ (peak)}$	2	A
Power dissipation	P_D (Note)	25	W
Operating temperature	T_{opr}	−20~75	°C
Storage temperature	T_{stg}	−55~150	°C

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

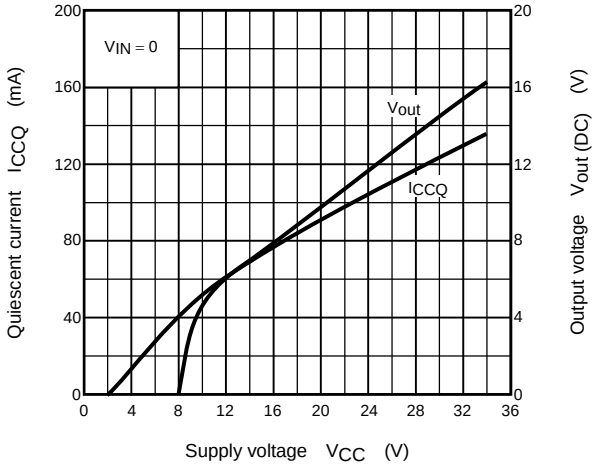
Electrical Characteristics
(Unless otherwise specified, V_{CC} = 20 V, R_L = 8 Ω, R_g = 620 Ω, f = 1 kHz, Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min.	Typ.	Max	Unit
Quiescent current	I_{CCQ}	—	V_{in} = 0	50	85	130	mA
Output power	P_{out} (1)	—	THD = 10%	5	6	—	W
	P_{out} (2)	—	THD = 1%	—	4.5	—	
Total harmonic distortion	THD (1)	—	P_{out} = 2 W	—	0.04	0.2	%
	THD (2)	—	P_{out} = 2 W, f = 10 kHz,	—	0.1	0.6	
Voltage gain	G_V	—	V_{out} = 0.775 Vrms	32.5	34	35.5	dB
Input resistance	R_{IN}	—	—	—	34	—	kΩ
Ripple rejection ratio	R.R.	—	f = 100 Hz	−40	−47	—	dB
Output noise voltage	V_{no}	—	Rg = 10 kΩ, BW = 20 Hz~20 kHz	—	0.14	0.3	mVrms
Cross talk	C.T.	—	Rg = 10 kΩ, V_{out} = 0.775 Vrms	—	−60	—	dB
Mute control voltage	$V_{th\ (ON)}$	—	MUTE ON	3.1	—	V_{CC}	V
	$V_{th\ (OFF)}$	—	MUTE OFF	0	—	2.5	
Mute attenuation level	ATT	—	V_{out} = 0.775 Vrms → Mute	−52	−60	—	dB

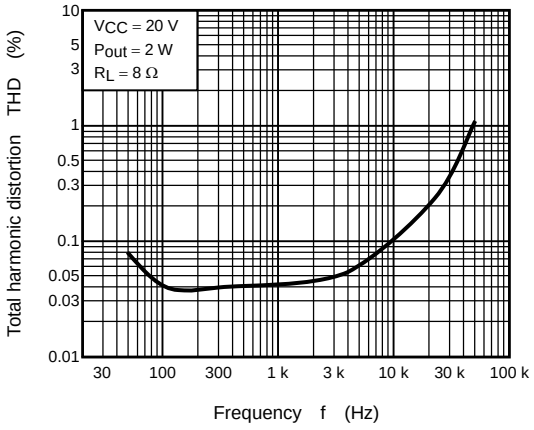
Test Circuit



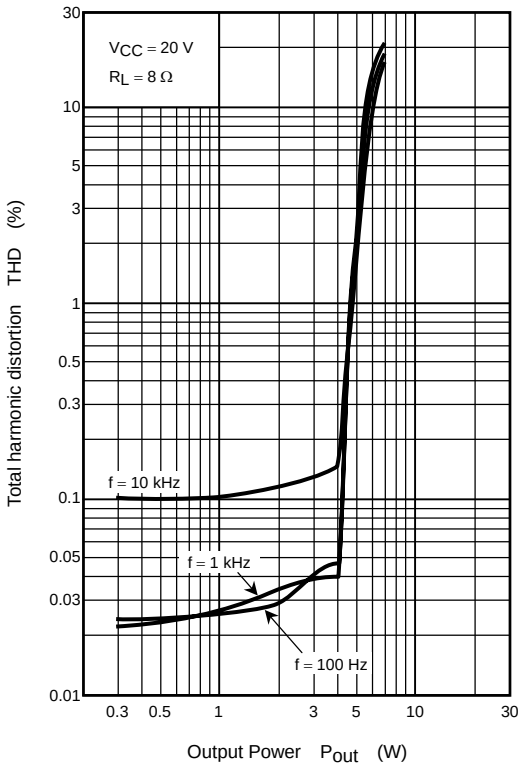
I_{CCQ}, $V_{out\ (DC)}$ – V_{CC}



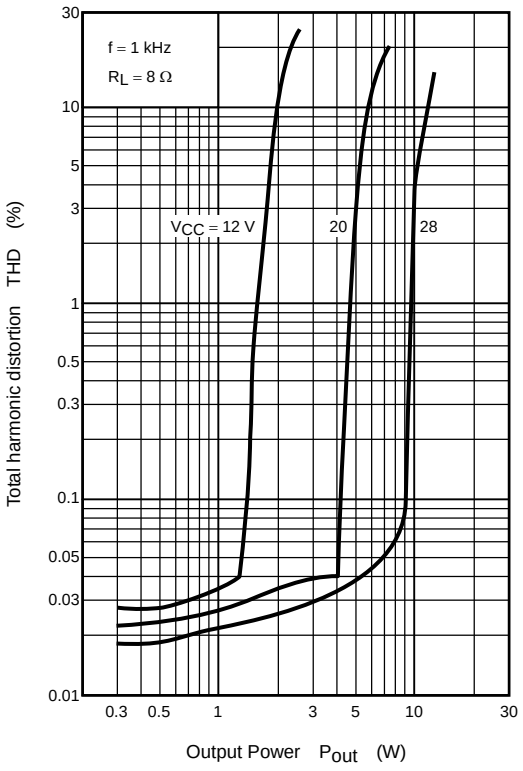
THD – f



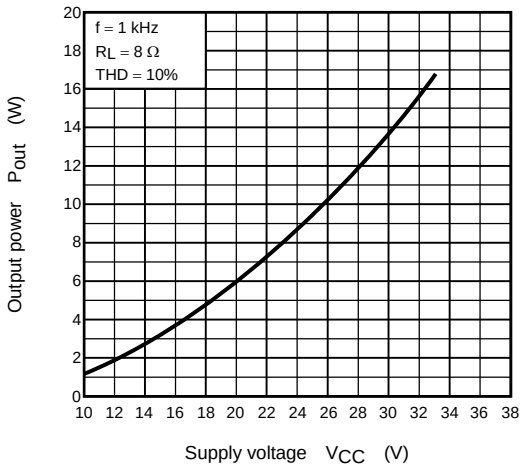
THD – P_{out}



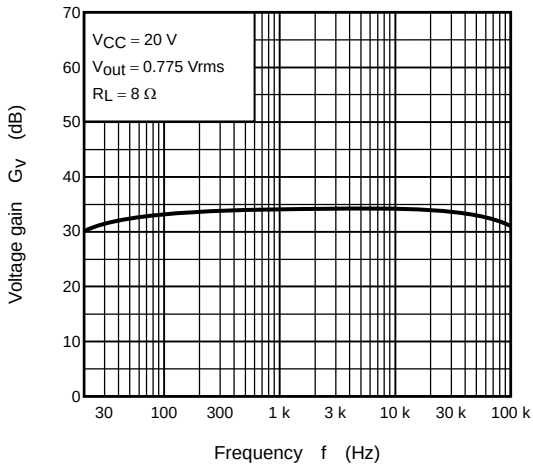
THD – P_{out}



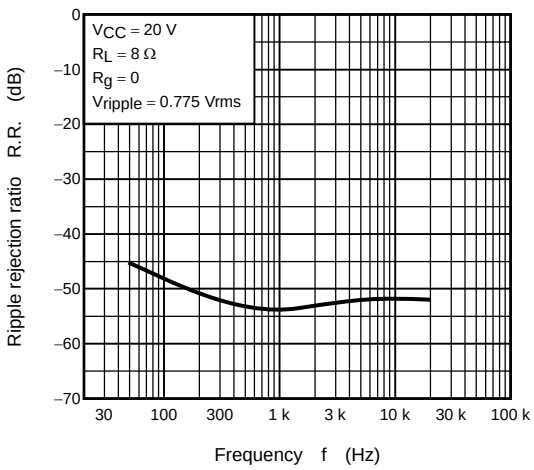
$P_{out} - V_{CC}$



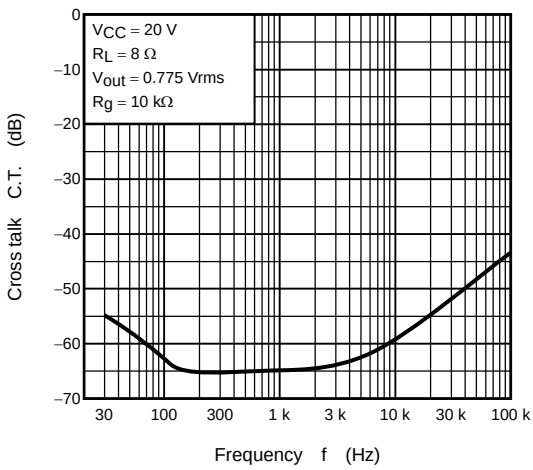
$G_V - f$



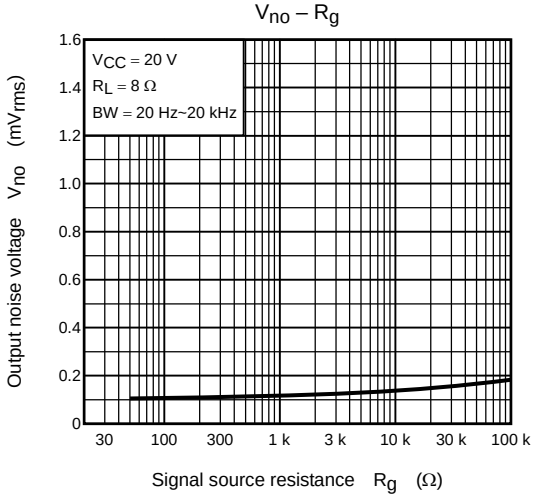
R.R. – f



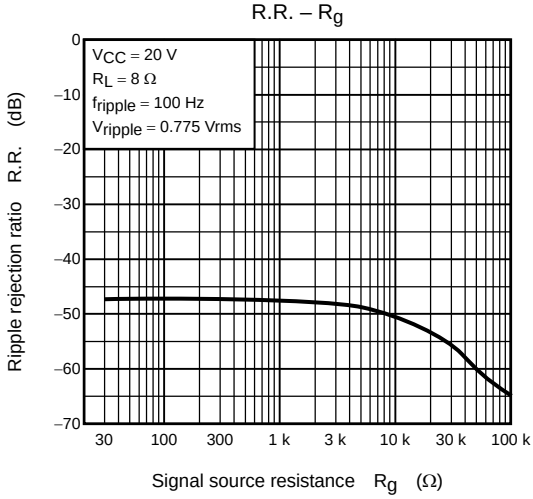
C.T. – f



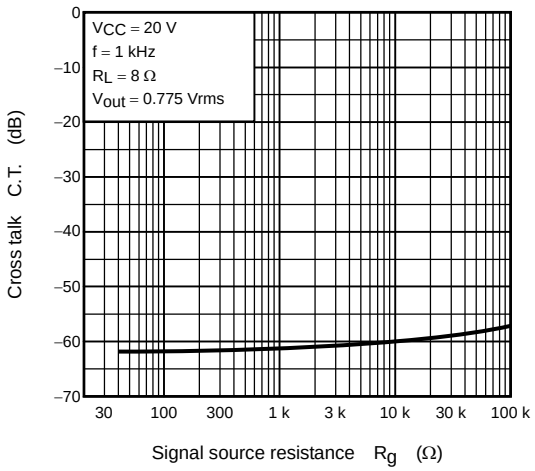
$V_{no} - R_g$



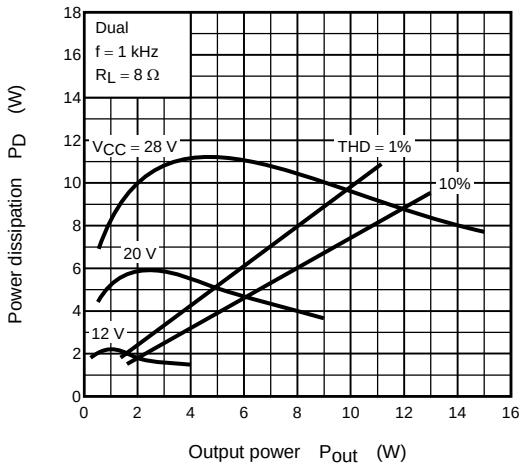
R.R. – R_g



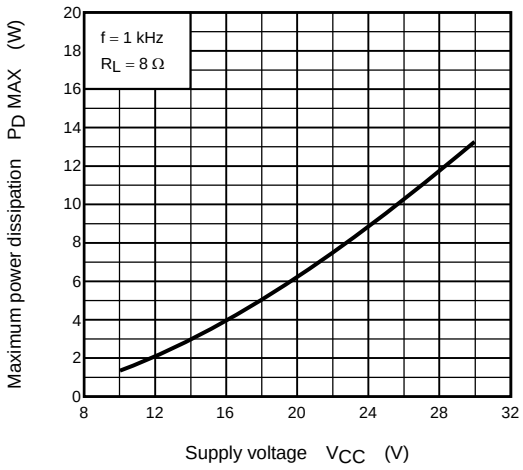
C.T. – R_g



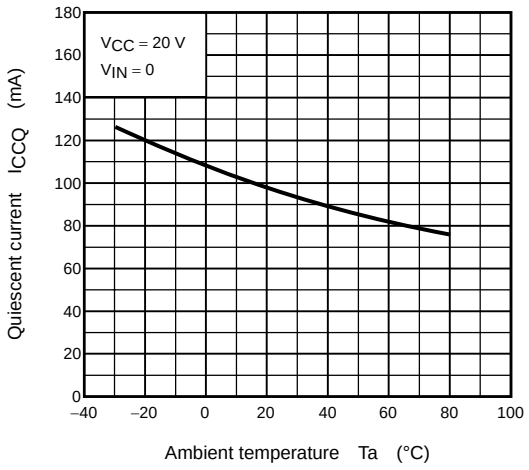
P_D – P_{out}



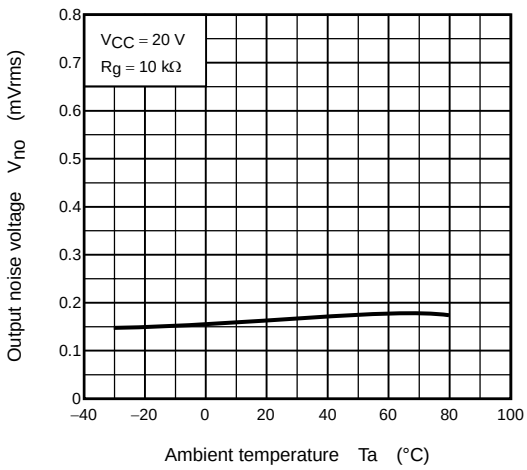
P_D MAX – V_{CC}



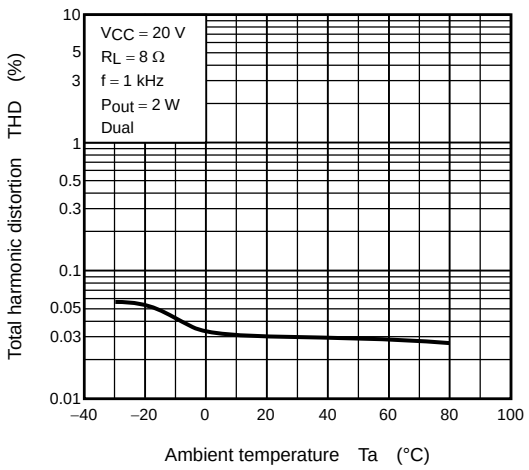
I_{CCQ} – Ta

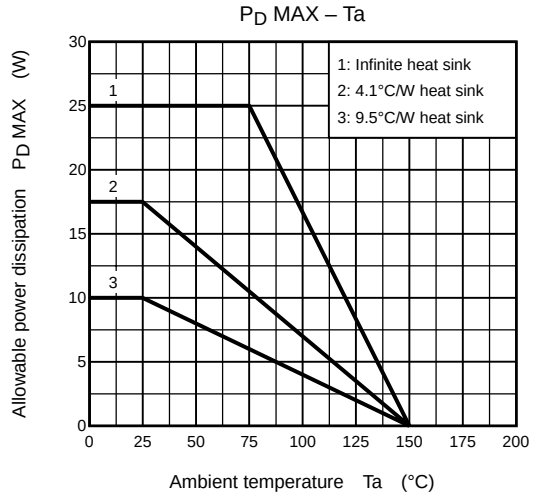


V_{no} – Ta



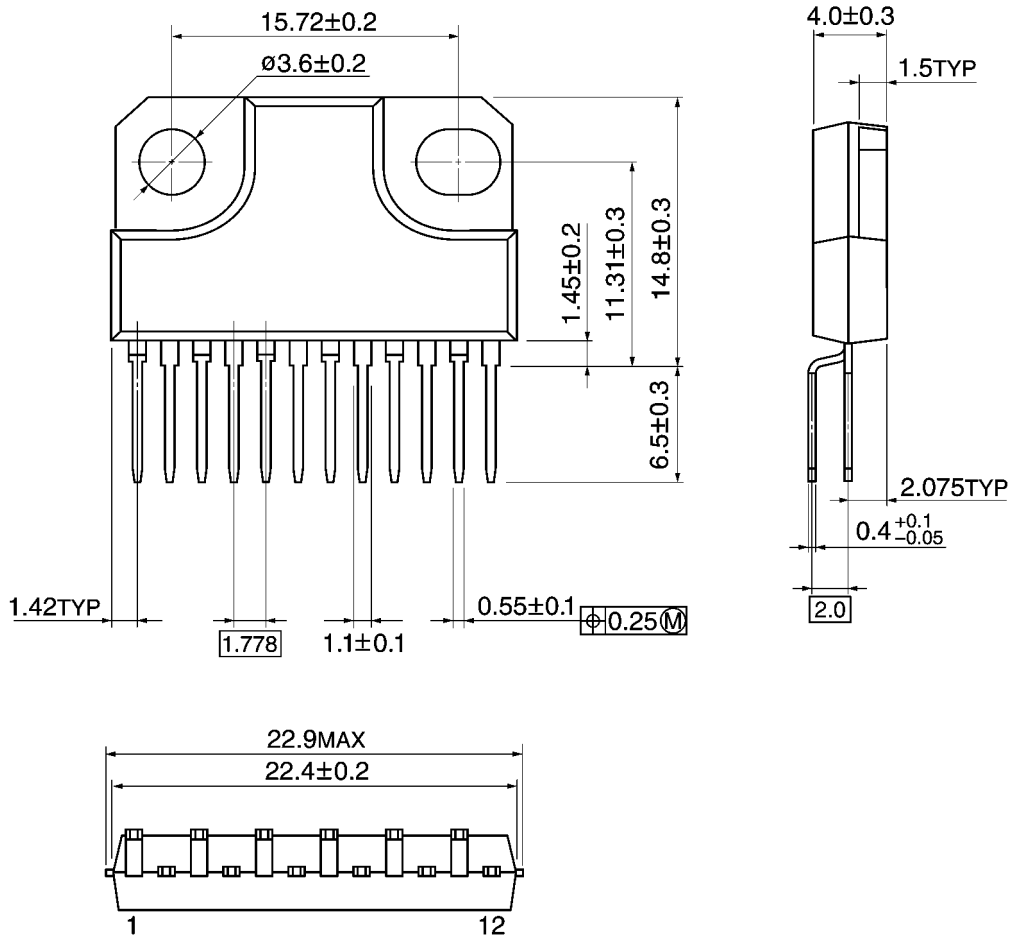
THD – Ta




P_D MAX – Ta
Allowable power dissipation P_D MAX (W)
30
25
20
15
10
5
0
0
25
50
75
100
125
150
175
200
1
2
3
1: Infinite heat sink
2: 4.1°C/W heat sink
3: 9.5°C/W heat sink
Ambient temperature Ta (°C)

Package Dimensions

HZIP12-P-1.78B Unit: mm



Weight: 4.04 g (typ.)

About solderability, following conditions were confirmed

- Solderability

  (1) Use of Sn-63Pb solder Bath
  - solder bath temperature = 230°C
  - dipping time = 5 seconds
  - the number of times = once
  - use of R-type flux

  (2) Use of Sn-3.0Ag-0.5Cu solder Bath
  - solder bath temperature = 245°C
  - dipping time = 5 seconds
  - the number of times = once
  - use of R-type flux

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  The product is often the final stage (the external output stage) of a circuit. Substandard performance or malfunction of the destination device to which the circuit supplies output may cause damage to the circuit or to the product.