
HA13155

33 W × 4-Channel BTL Power IC

HITACHI

ADE-207-187A (Z)

2nd Edition

Jul. 1999

Description

The HA13155 is four-channel BTL amplifier IC designed for car audio, featuring high output and low distortion, and applicable to digital audio equipment. It provides 33 W output per channel, with a 13.7 V power supply and at Max distortion.

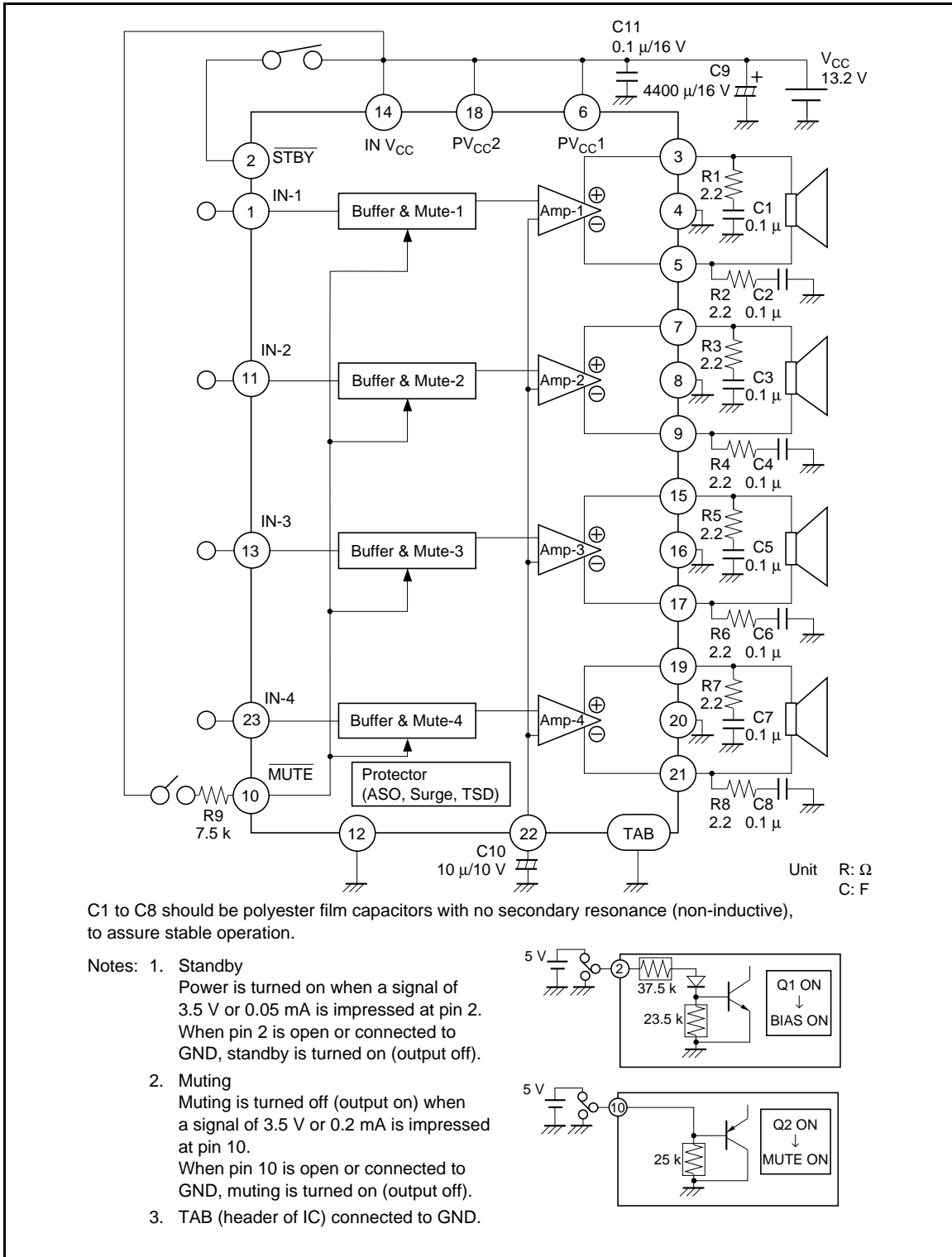
Functions

- 4 ch BTL power amplifiers
- Built-in standby circuit
- Built-in muting circuit
- Built-in protection circuit (surge, T.S.D, and ASO)

Features

- Requires few external parts
- Popping noise minimized
- Low output noise
- Built-in high reliability protection circuit
- Pin to pin with HA13150A/HA13151/HA13152/HA13153

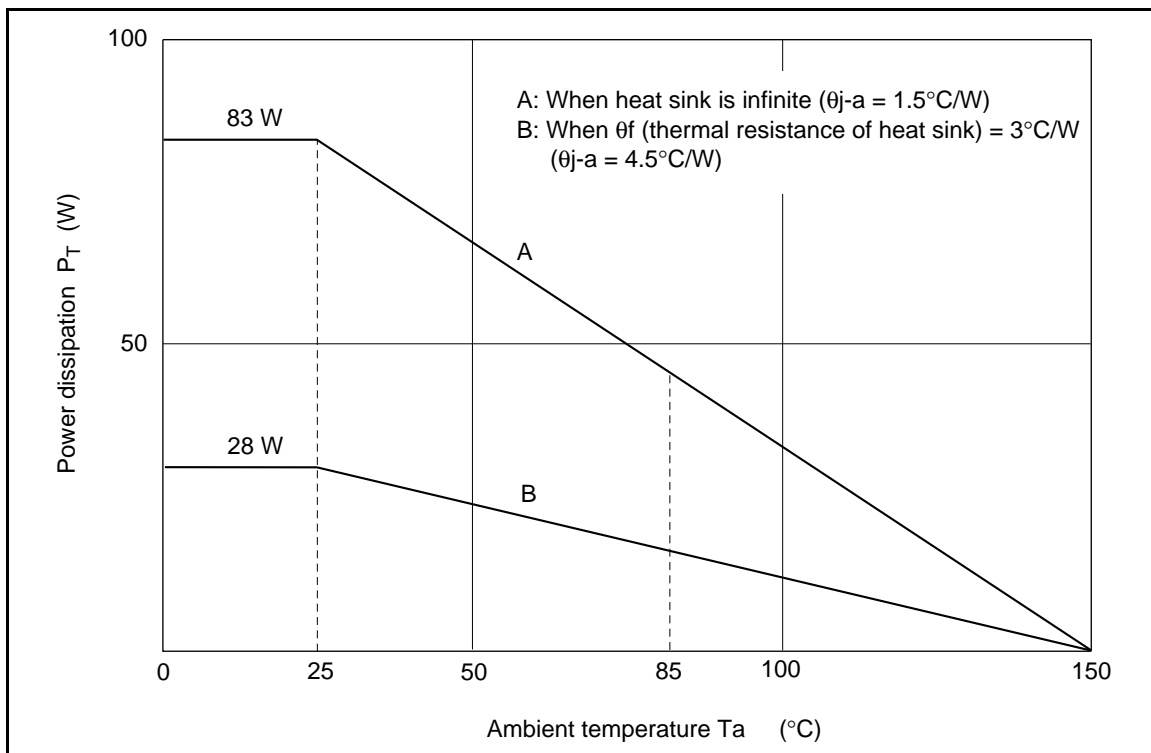
Block Diagram



Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Operating supply voltage	V_{CC}	18	V
Supply voltage when no signal*1	V_{CC} (DC)	26	V
Peak supply voltage*2	V_{CC} (PEAK)	50	V
Output current*3	I_O (PEAK)	4	A
Power dissipation*4	P_T	83	W
Junction temperature	T_j	150	°C
Operating temperature	T_{opr}	-30 to +85	°C
Storage temperature	T_{stg}	-55 to +125	°C

- Notes: 1. Tolerance within 30 seconds.
 2. Tolerance in surge pulse waveform.
 3. Value per 1 channel.
 4. Value when attached on the infinite heat sink plate at $T_a = 25\text{ °C}$.
 The derating curve is as shown in the graph below.



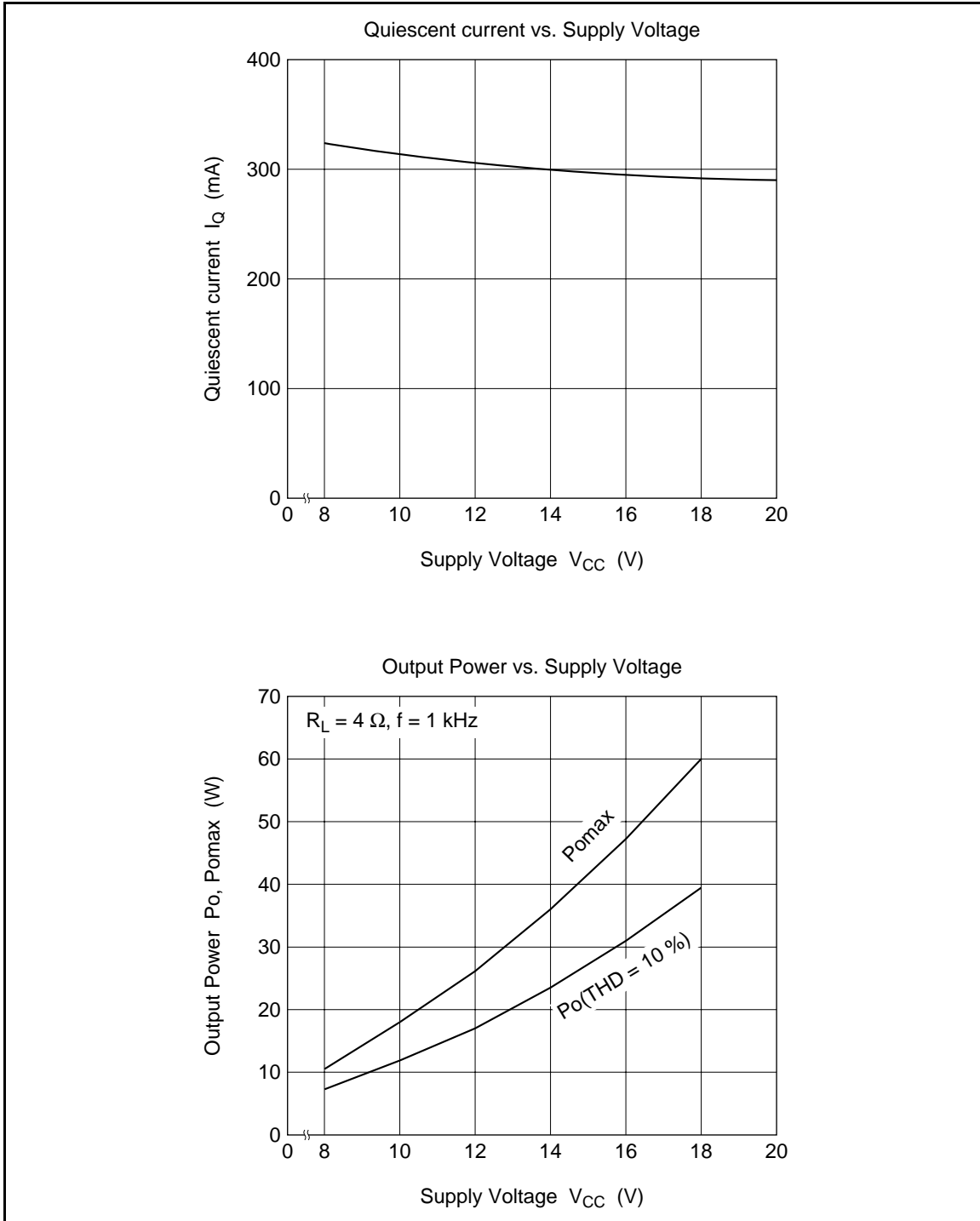
Electrical Characteristics ($V_{CC} = 13.2\text{ V}$, $f = 1\text{ kHz}$, $R_L = 4\text{ }\Omega$, $R_g = 600\text{ }\Omega$, $T_a = 25\text{ °C}$)

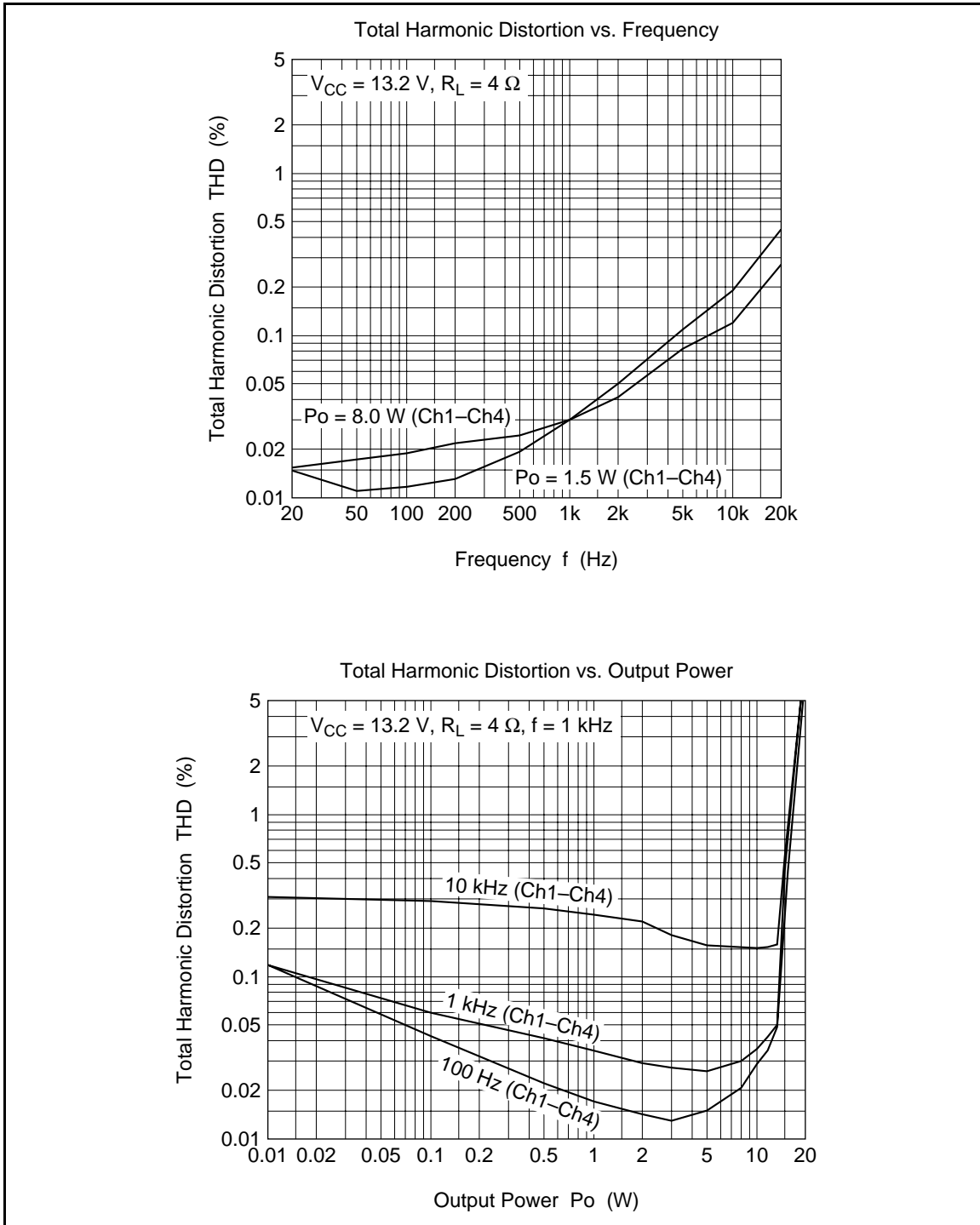
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Quiescent current	I_{Q1}	—	300	—	mA	$V_{in} = 0$
Output offset voltage	ΔV_Q	-250	0	+250	mV	
Gain	G_V	30.5	32	33.5	dB	

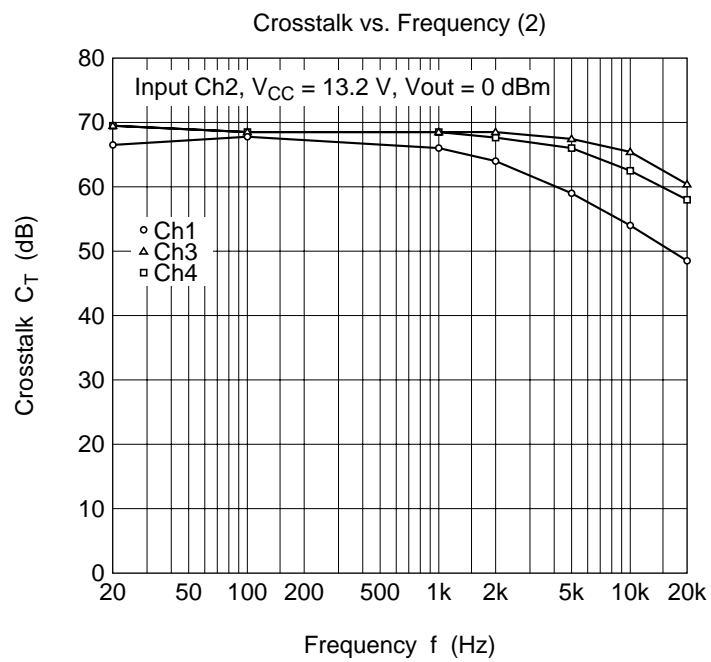
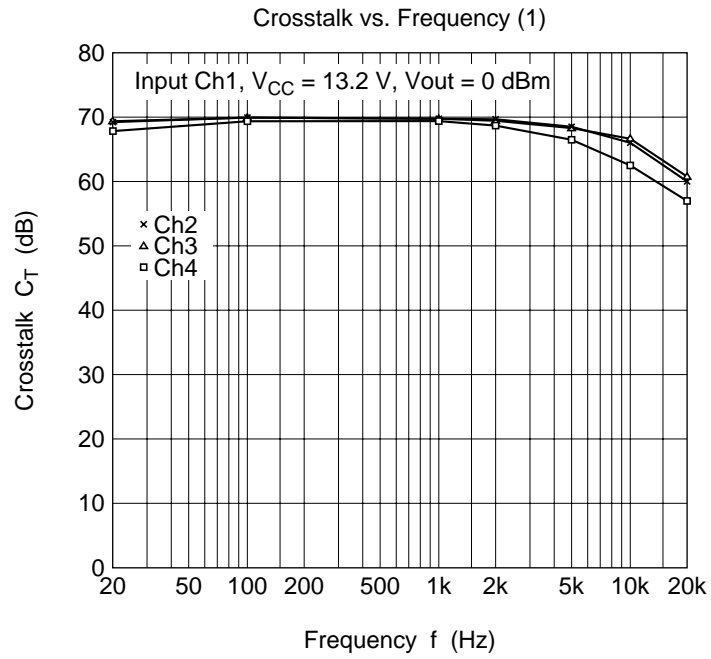
HA13155

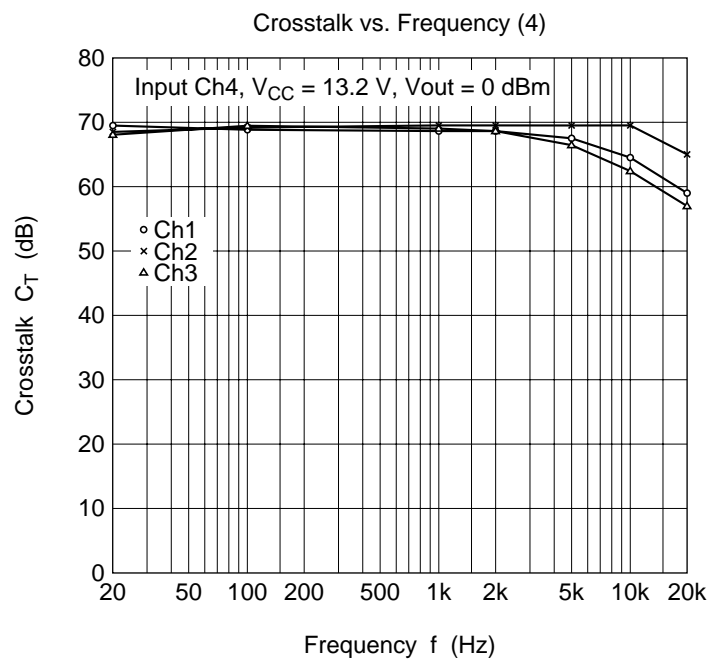
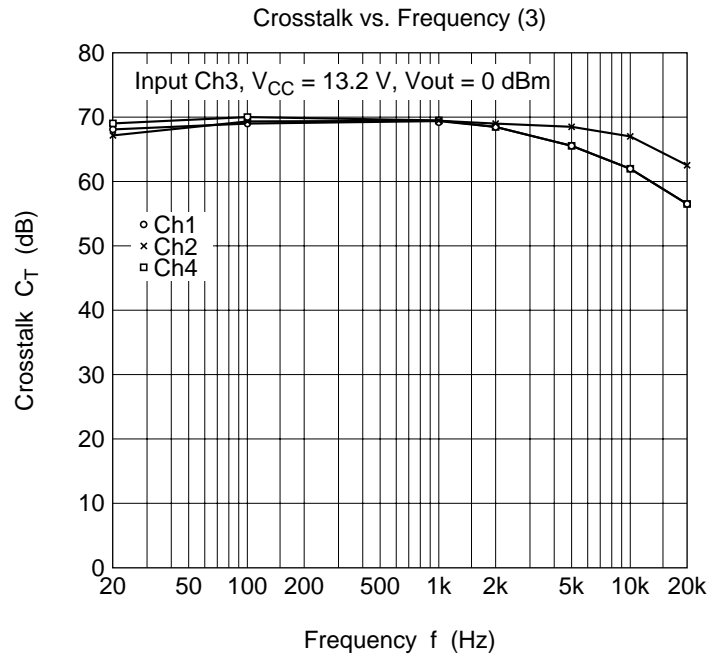
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Gain difference between channels	ΔG_V	-1.0	0	+1.0	dB	
Rated output power	Po	—	19	—	W	$V_{CC} = 13.2\text{ V}$ THD = 10%, $R_L = 4\ \Omega$
Max output power	Pomax	—	33	—	W	$V_{CC} = 13.7\text{ V}$, $R_L = 4\ \Omega$
Total harmonic distortion	T.H.D.	—	0.02	—	%	Po = 3 W
Output noise voltage	WBN	—	0.15	—	mVrms	$R_g = 0\ \Omega$ BW = 20 to 20 kHz
Ripple rejection	SVR	—	55	—	dB	$R_g = 600\ \Omega$, $f = 120\text{ Hz}$
Channel cross talk	C.T.	—	70	—	dB	$R_g = 600\ \Omega$ $V_{out} = 0\text{ dBm}$
Input impedance	Rin	—	25	—	k Ω	
Standby current	I_{Q2}	—	—	10	μA	
Standby control voltage (high)	V_{STH}	3.5	—	V_{CC}	V	
Standby control voltage (low)	V_{STL}	0	—	1.5	V	
Muting control voltage (high)	V_{MH}	3.5	—	V_{CC}	V	
Muting control voltage (low)	V_{ML}	0	—	1.5	V	
Muting attenuation	ATTM	—	70	—	dB	$V_{out} = 0\text{ dBm}$

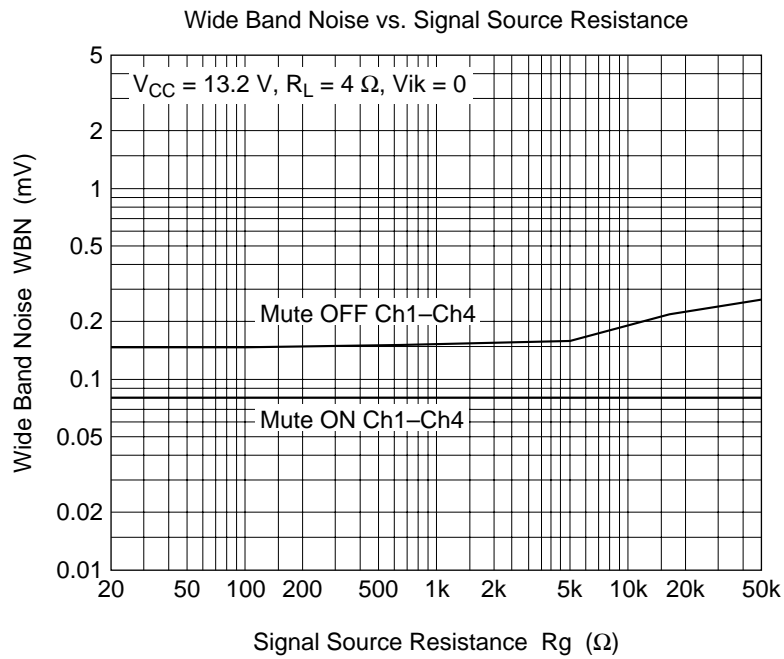
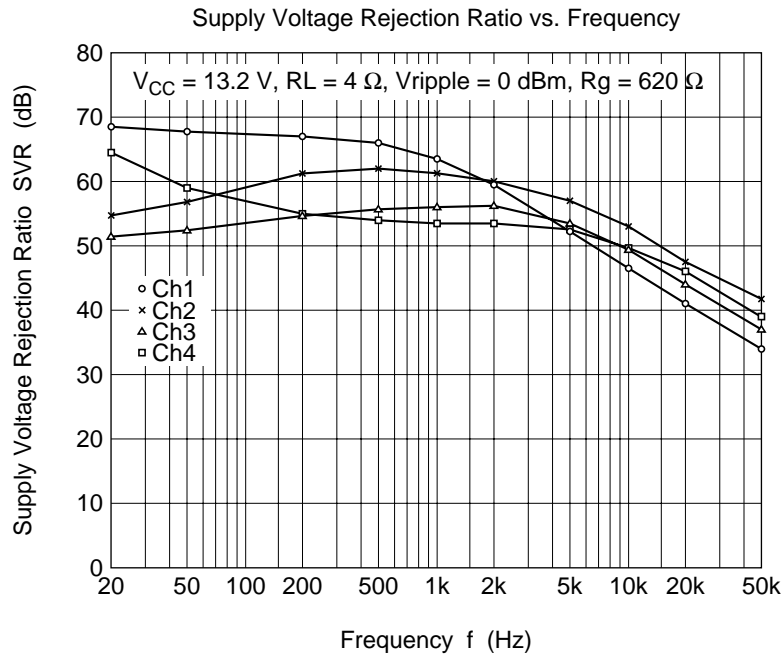
Characteristics Curve

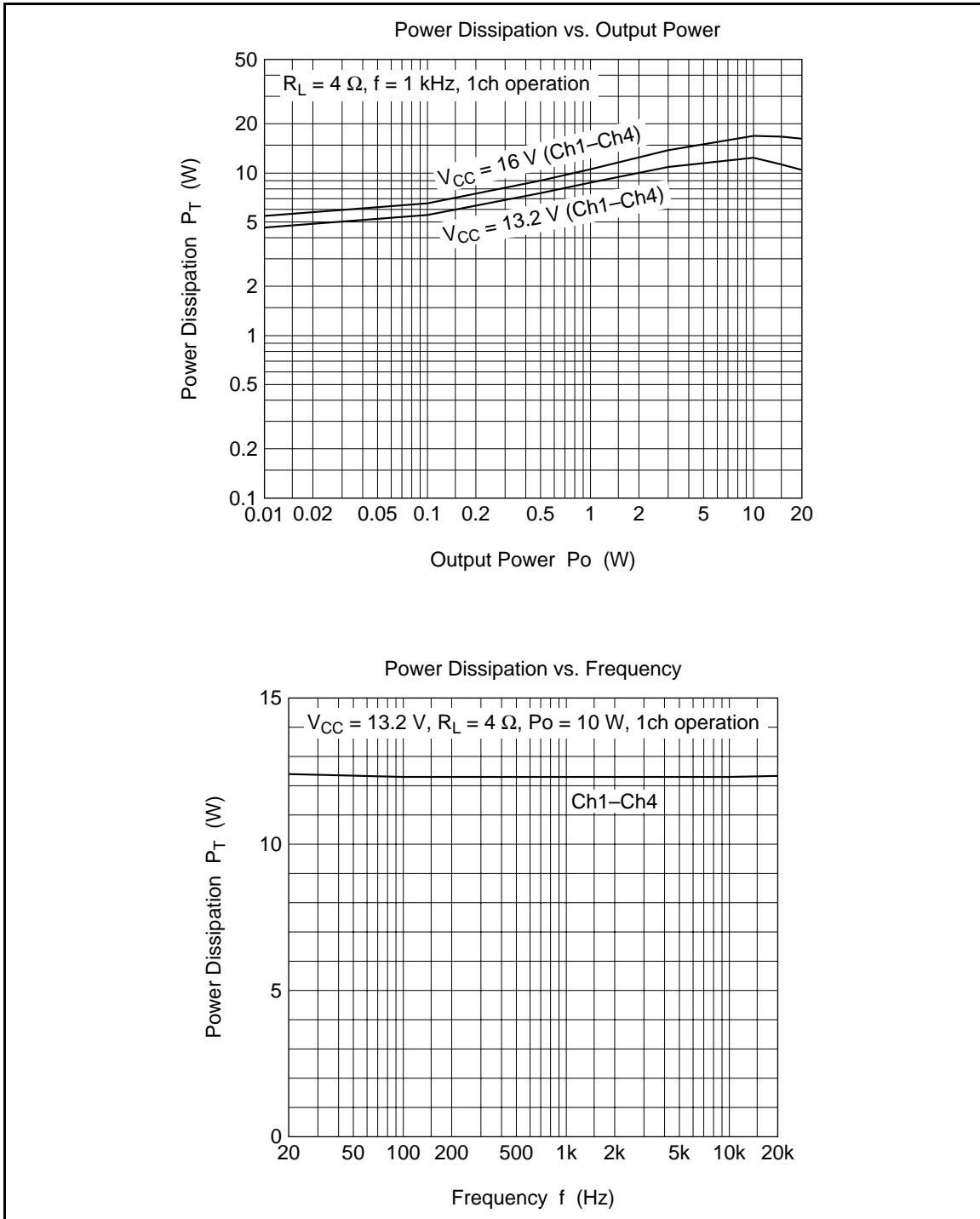


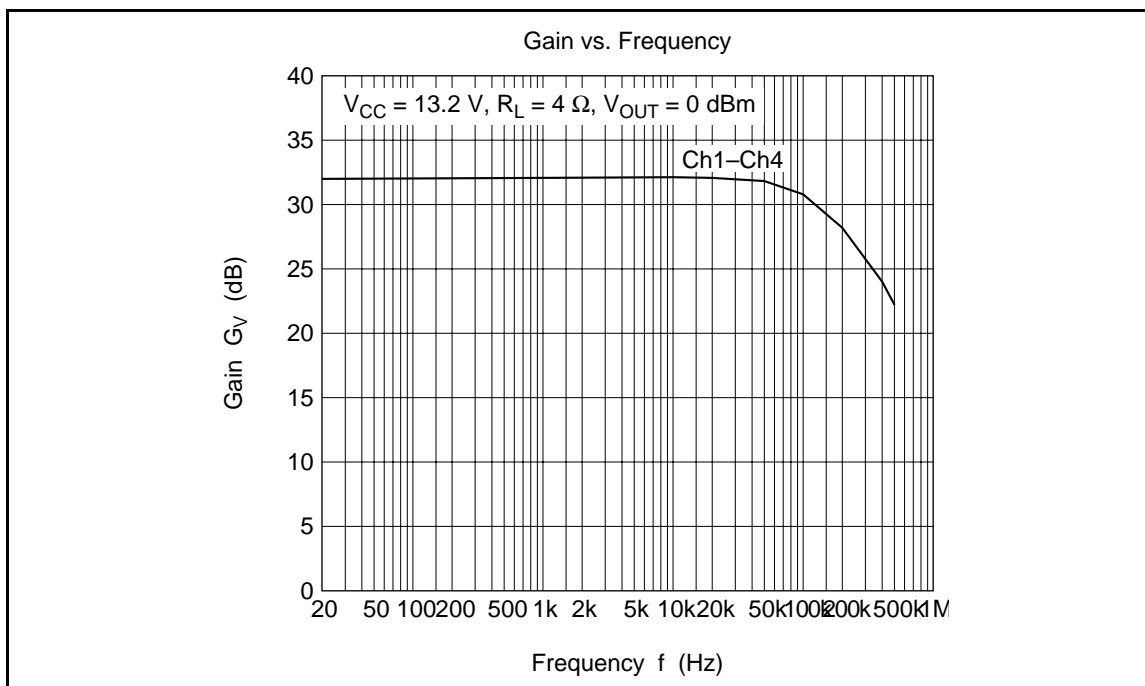




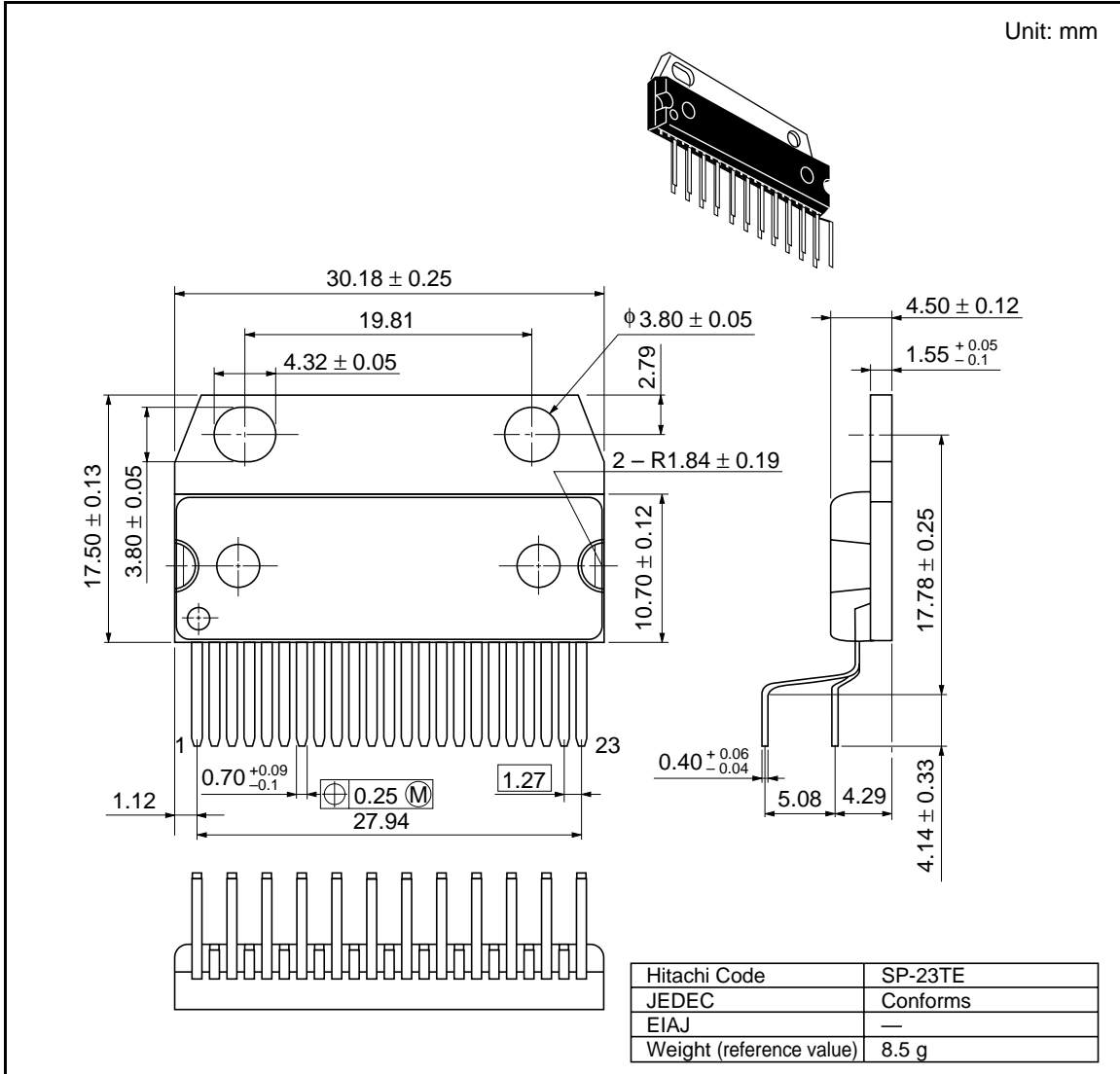








Package Dimensions



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HITACHI

Hitachi, Ltd.

Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL NorthAmerica : <http://semiconductor.hitachi.com/>
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For further information write to:

Hitachi Semiconductor
(America) Inc.
179 East Tasman Drive,
San Jose, CA 95134
Tel: <1> (408) 433-1990
Fax: <1> (408) 433-0223

Hitachi Europe GmbH
Electronic components Group
Dornacher Straße 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00
Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building, No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX

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