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# HA13157

33 W × 4-Channel BTL Power IC

# HITACHI

ADE-207-242  
1st. Edition

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## Description

The HA13157 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

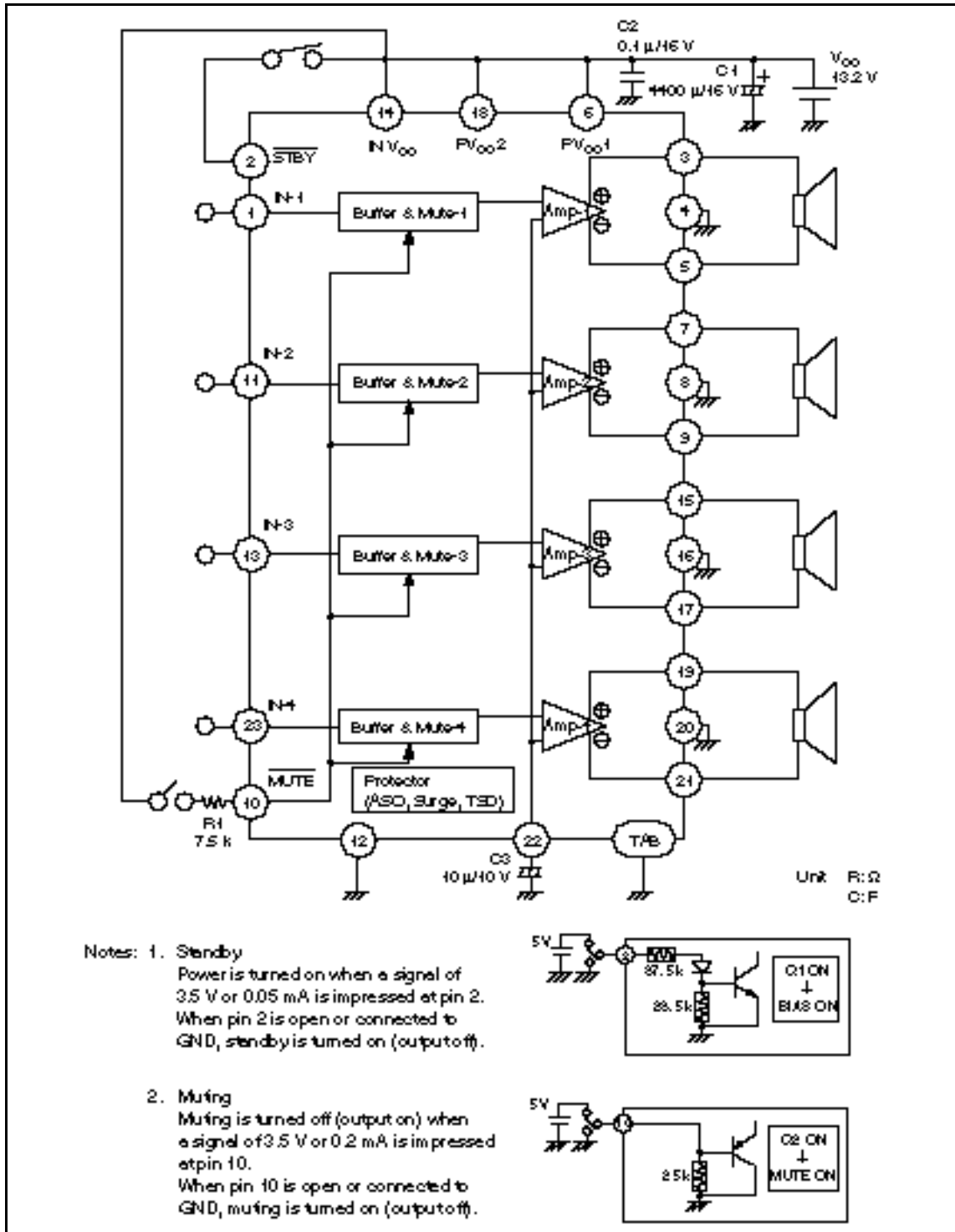
- 4 ch BTL power amplifiers
- Built-in standby circuit
- Built-in muting circuit
- Built-in protection circuit (surge, T.S.D, and ASO)

## 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/HA13155

# HA13157

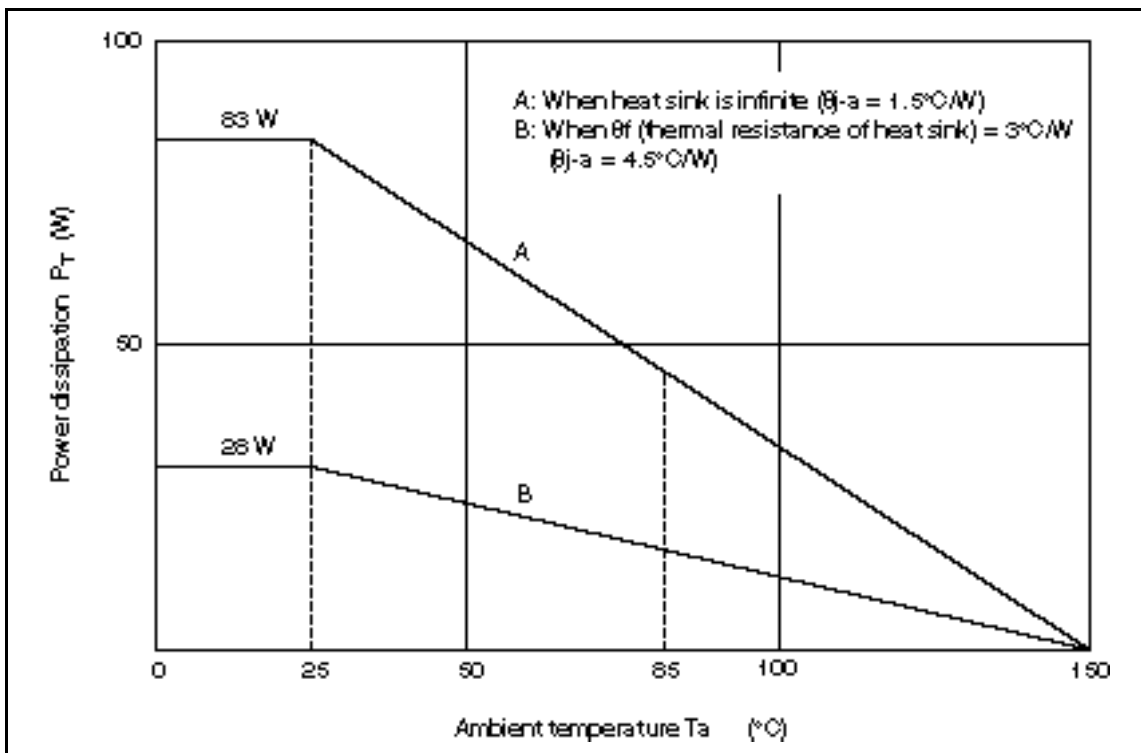
## Block Diagram



**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

- Note:
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.



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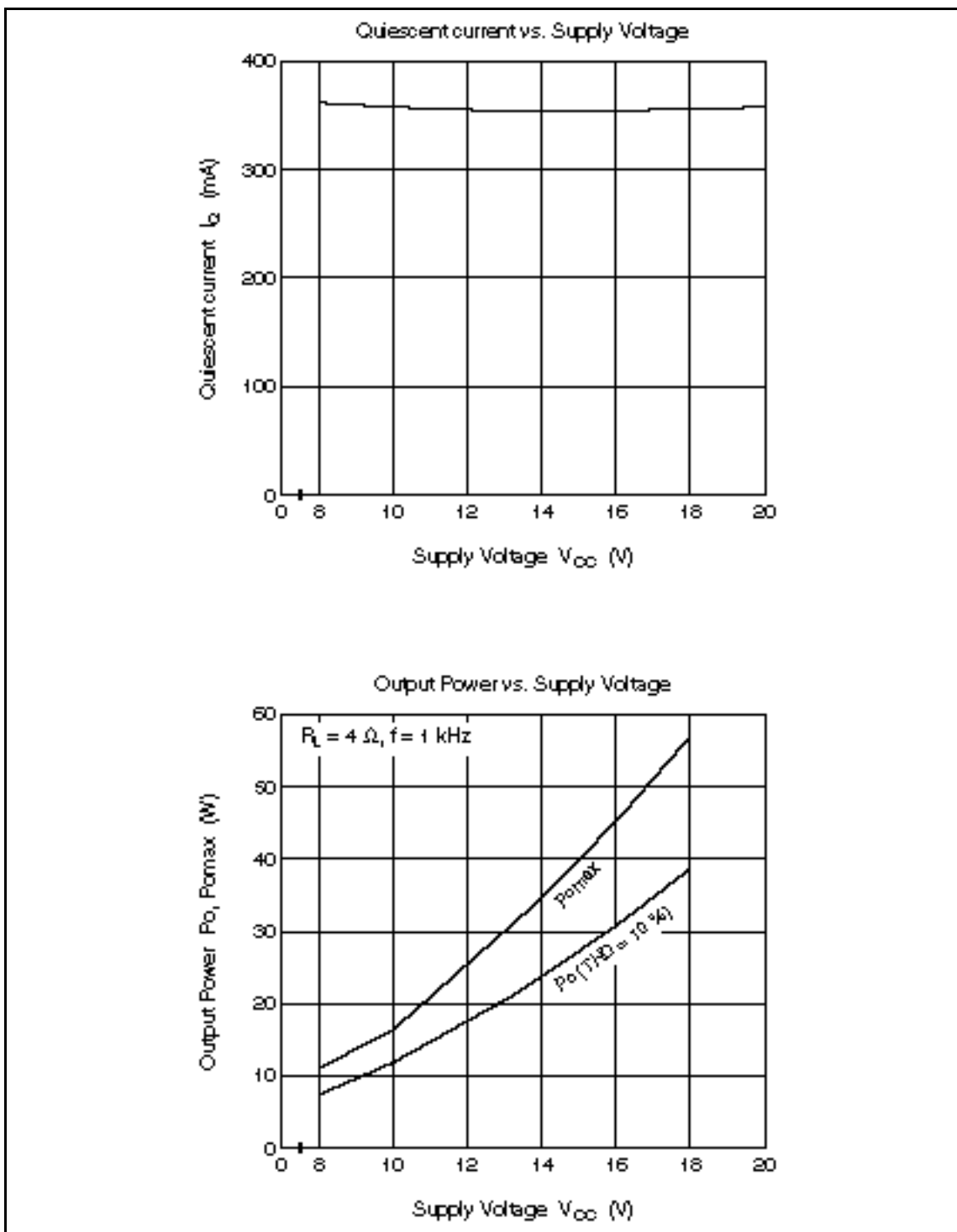
## HA13157

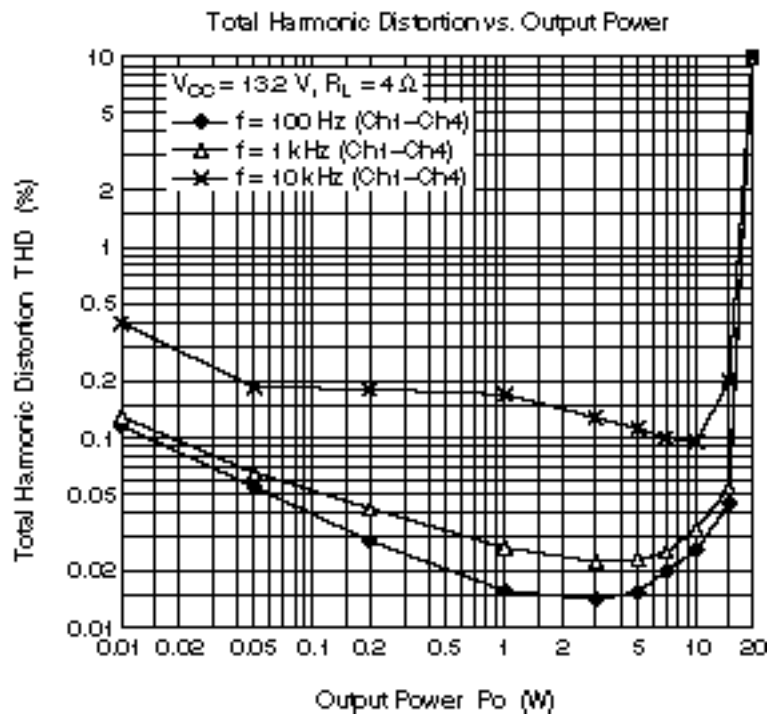
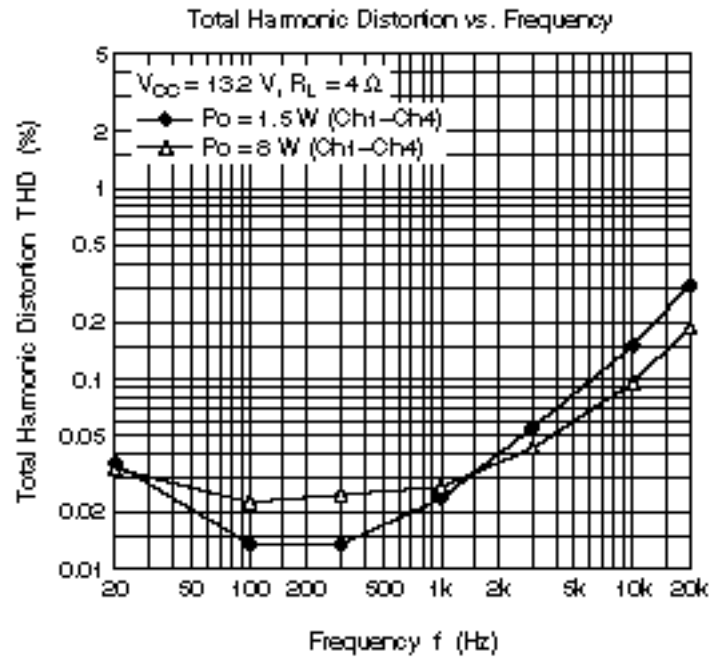
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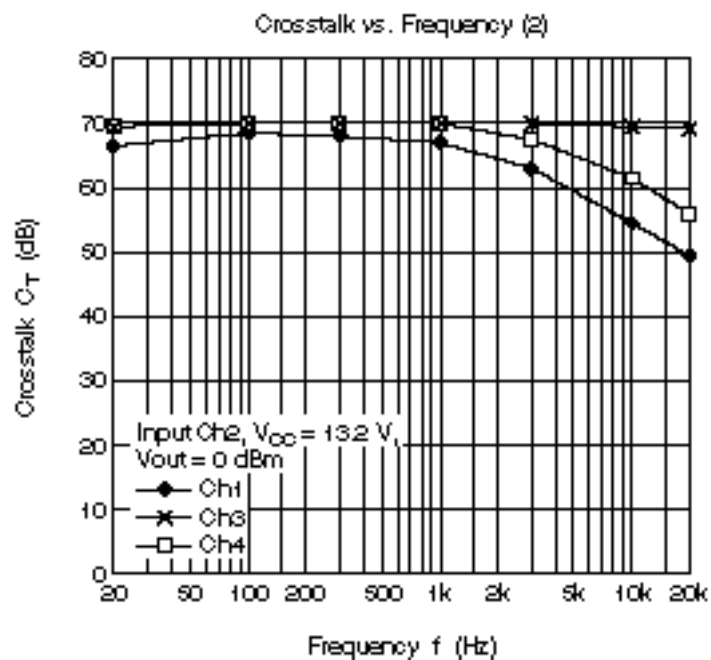
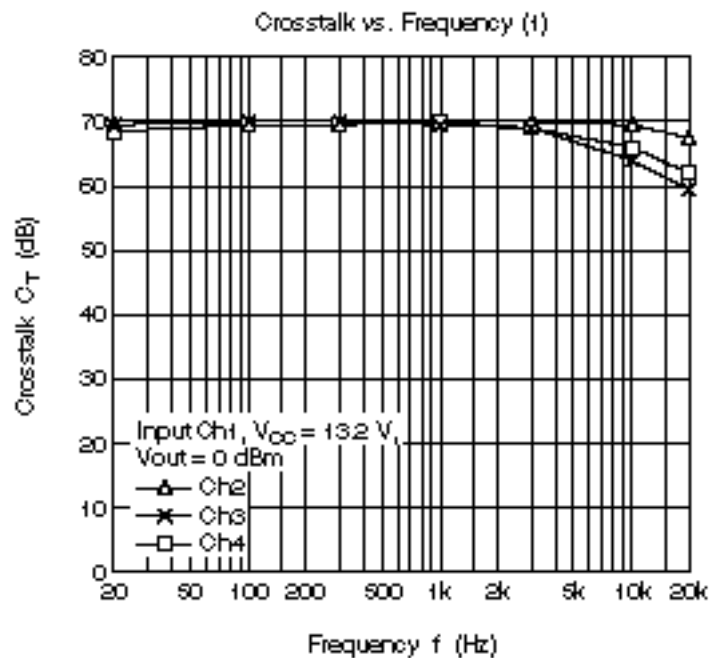
**Electrical Characteristics** ( $V_{CC} = 13.2$  V,  $f = 1$  kHz,  $R_L = 4$   $\Omega$ ,  $R_g = 600$   $\Omega$ ,  $T_a = 25^\circ\text{C}$ )

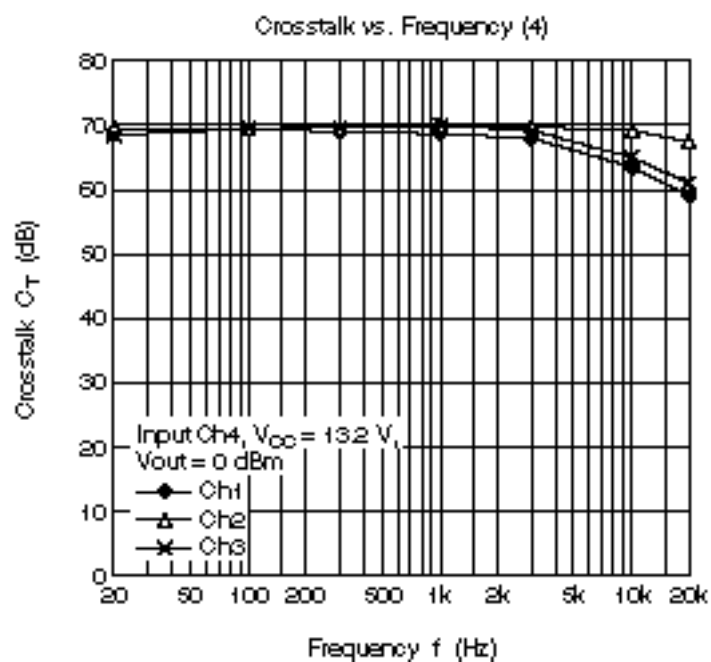
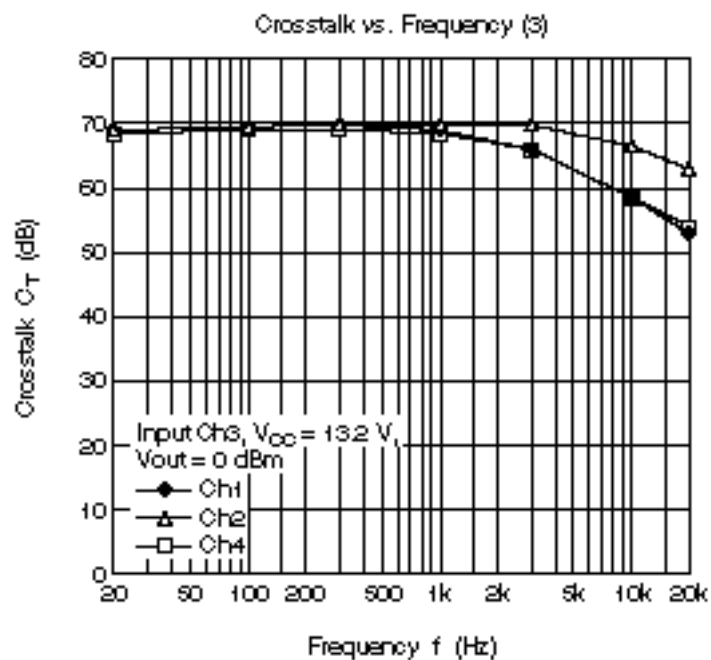
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Quiescent current	$I_{Q1}$	—	350	—	mA	$V_{in} = 0$
Output offset voltage	$V_O$	-250	0	250	mV	
Gain	$G_V$	30.5	32	33.5	dB	
Gain difference between channels	$G_V$	-1.5	0	1.5	dB	
Rated output power	$P_O$	—	20	—	W	$V_{CC} = 13.2$ V, THD = 10%, $R_L = 4$
Max output power	$P_{OMAX}$	—	33	—	W	$V_{CC} = 13.7$ V, $R_L = 4$
Total harmonic distortion	T.H.D.	—	0.02	—	%	$P_o = 3$ W
Output noise voltage	WBN	—	0.15	—	mVrms	$R_g = 0$ $\Omega$ , BW = 20 to 20 kHz
Ripple rejection	SVR	—	55	—	dB	$f = 120$ Hz
Channel cross talk	C.T.	—	70	—	dB	$V_{out} = 0$ dBm
Input impedance	$R_{in}$	—	25	—	k	
Standby current	$I_{Q2}$	—	—	10	$\mu\text{A}$	
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	$V_{out} = 0$ dBm

Characteristic Curves

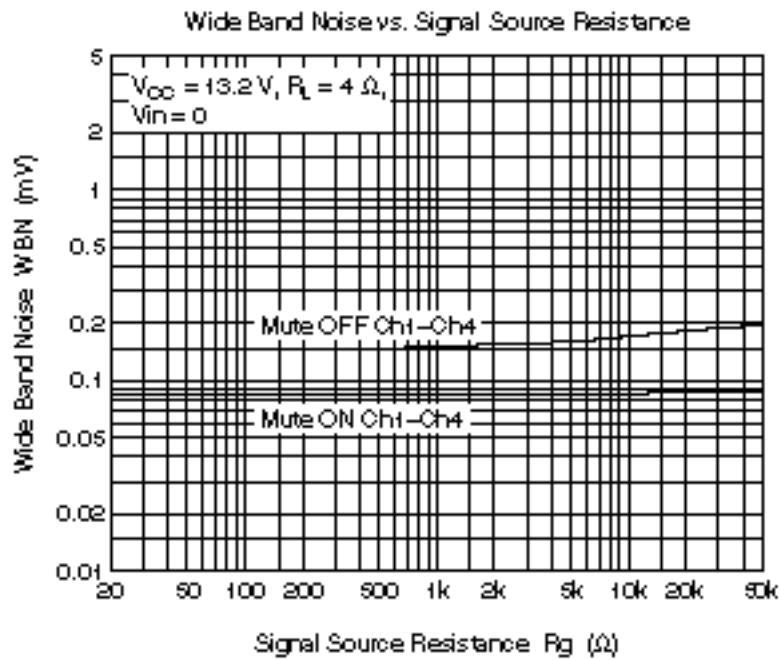
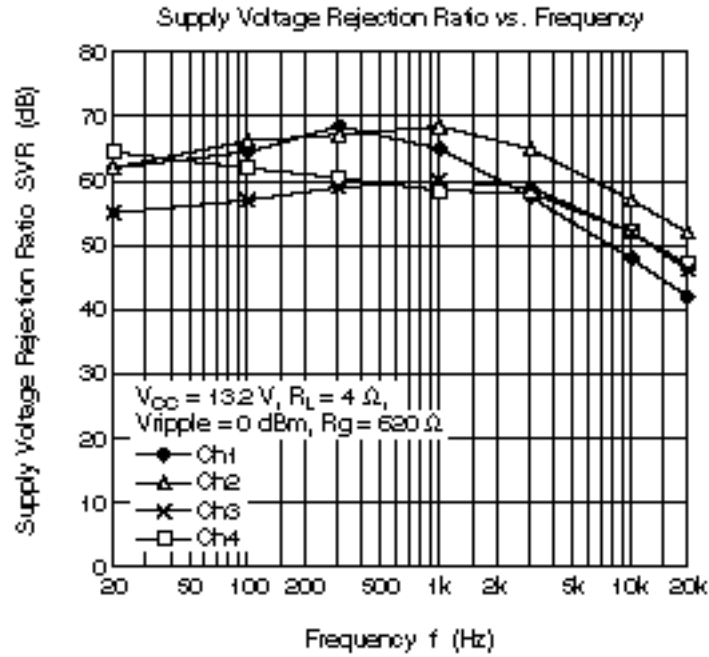


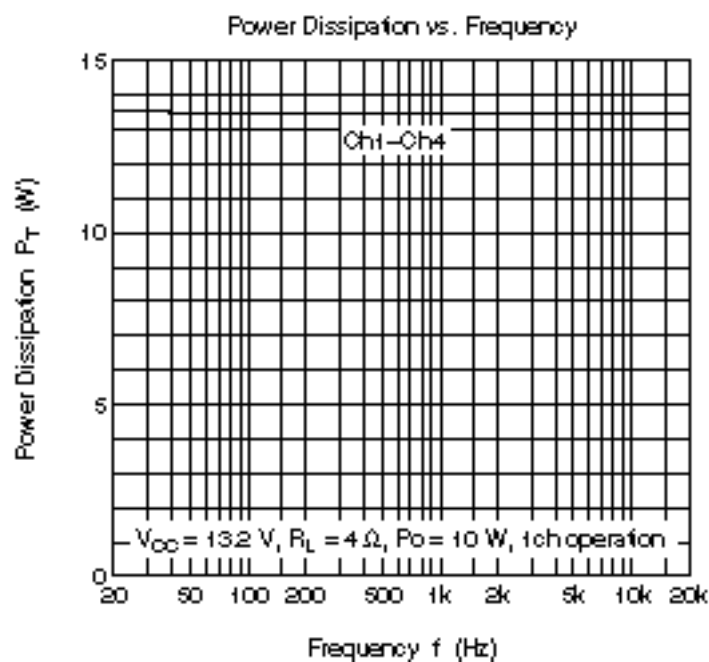
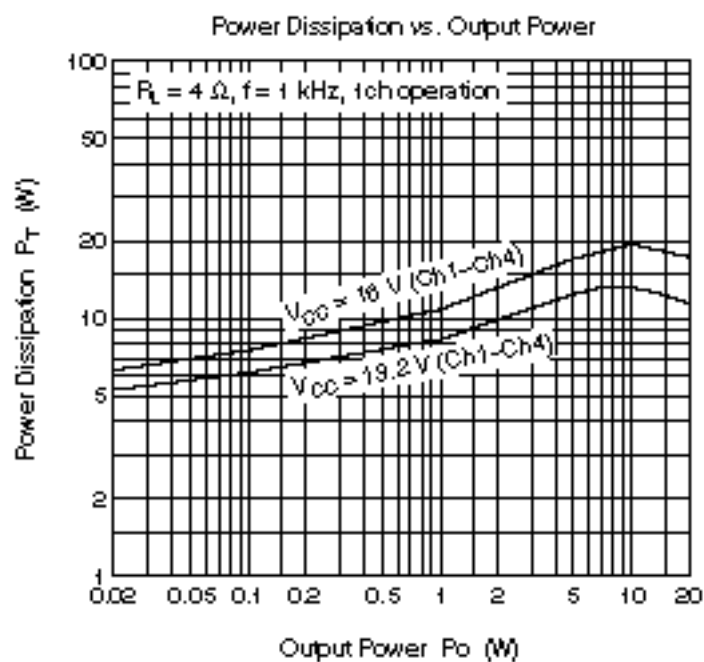


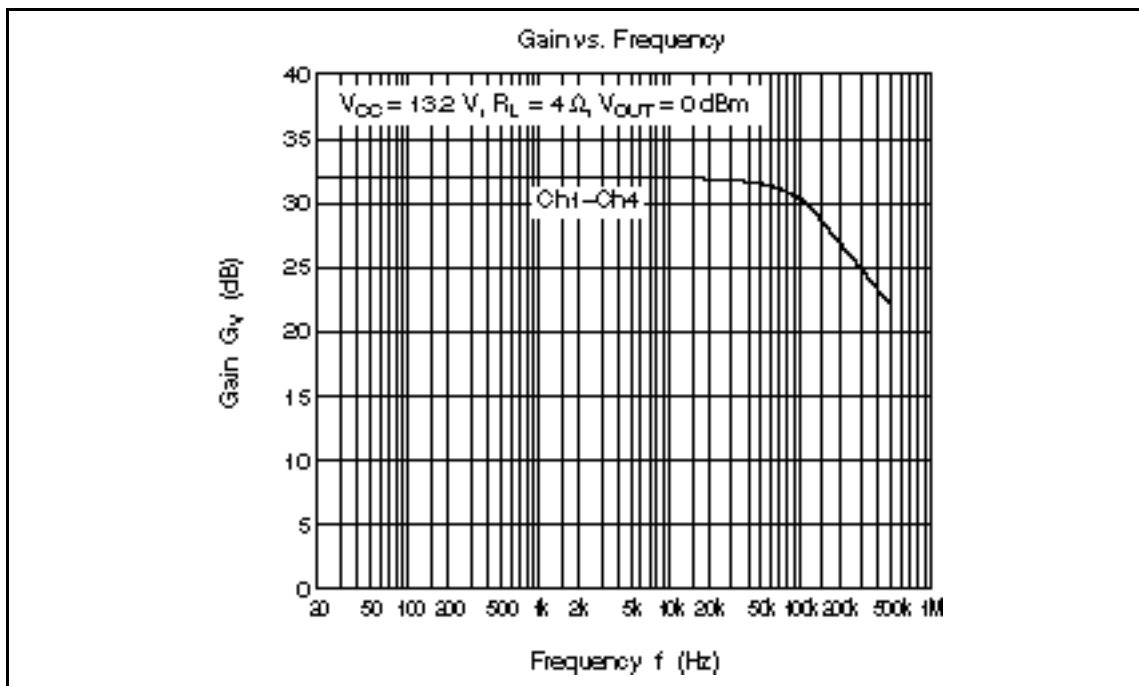








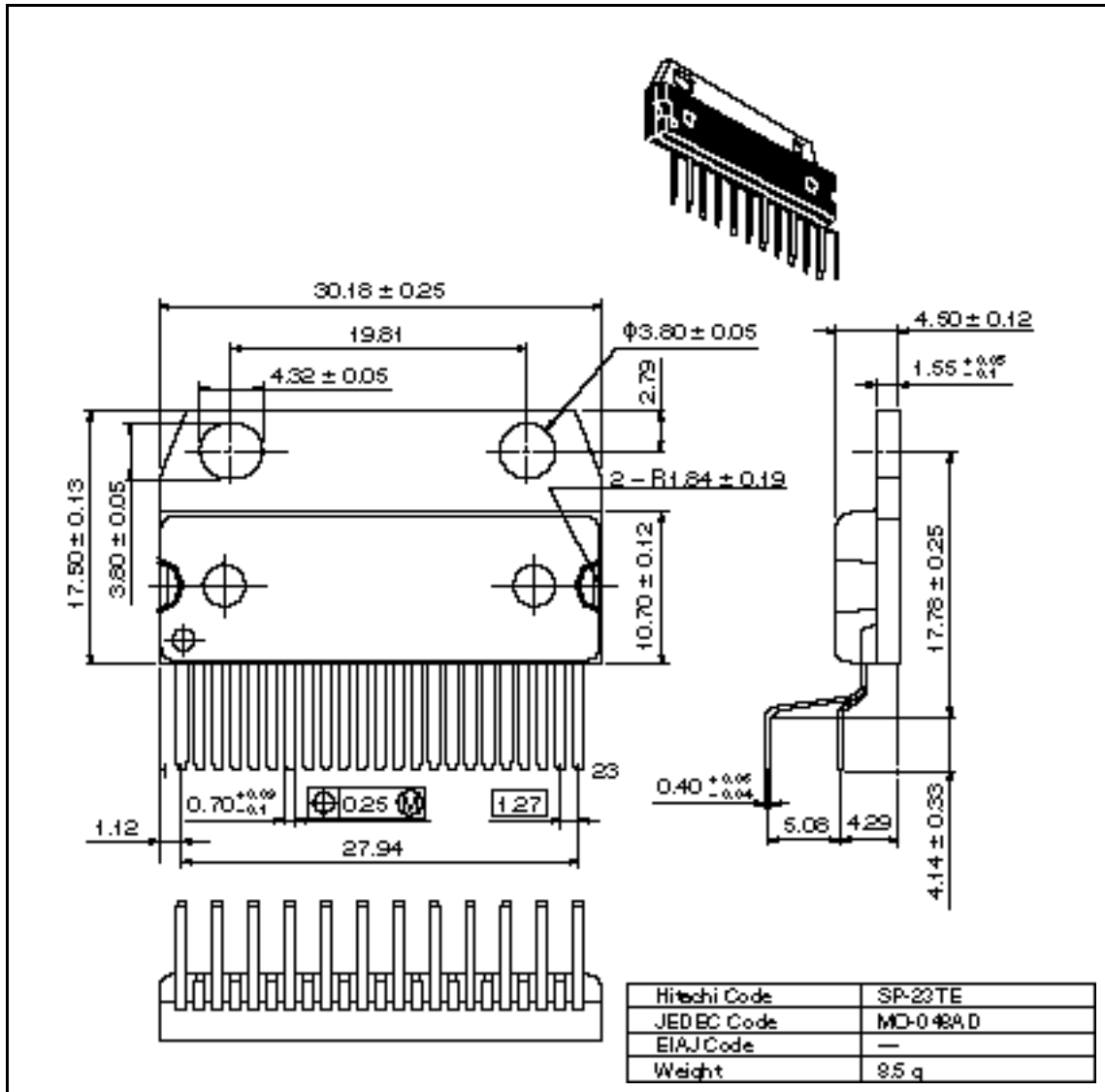




# HA13157

## Package Dimensions

Unit: mm



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