
HA13157

33 W ¥ 4-Channel BTL Power IC

HITACHI

ADE-207-242
1st. Edition

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.

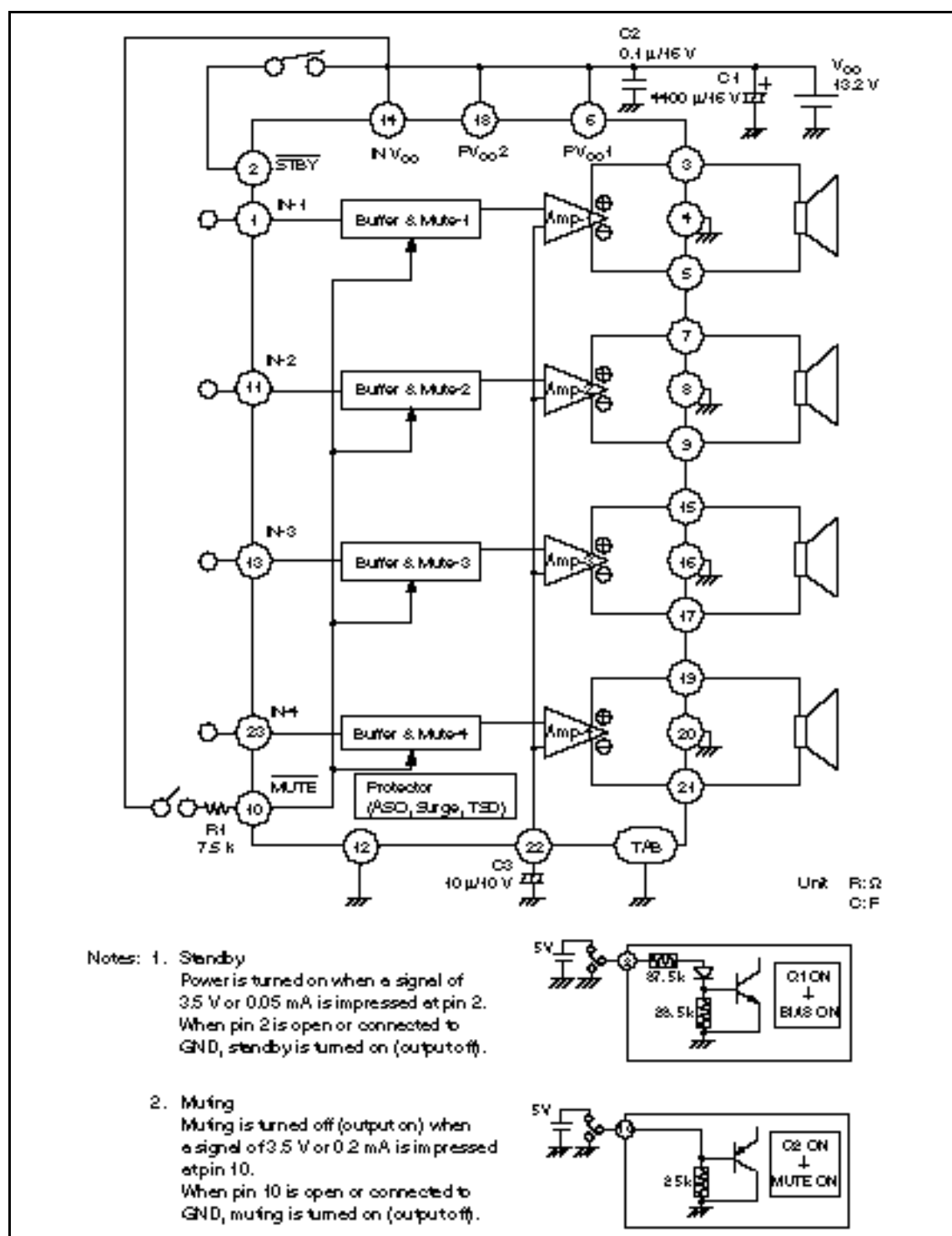
Functions

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

Features

- Σ Requires few external parts
- Σ Popping noise minimized
- Σ Low output noise
- Σ Built-in high reliability protection circuit
- Σ Pin to pin with HA13150A/HA13151/HA13152/HA13153/HA13155

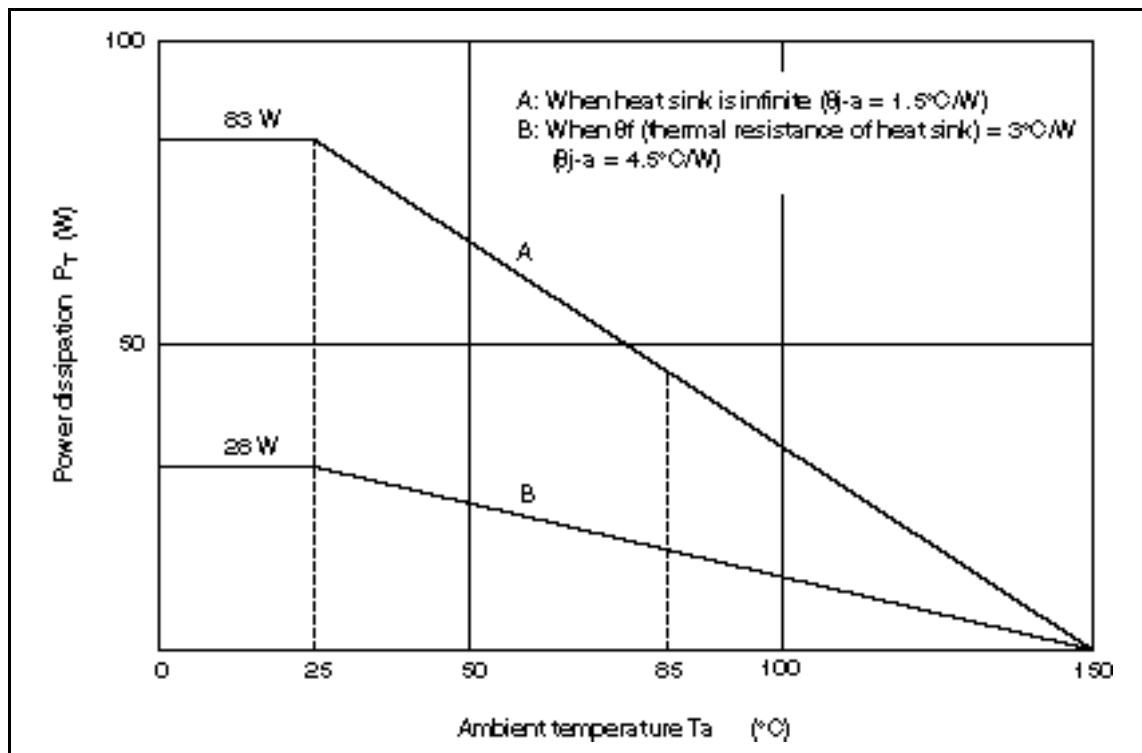
Block Diagram



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 $T_a = 25^\circ\text{C}$.
The derating curve is as shown in the graph below.



HA13157

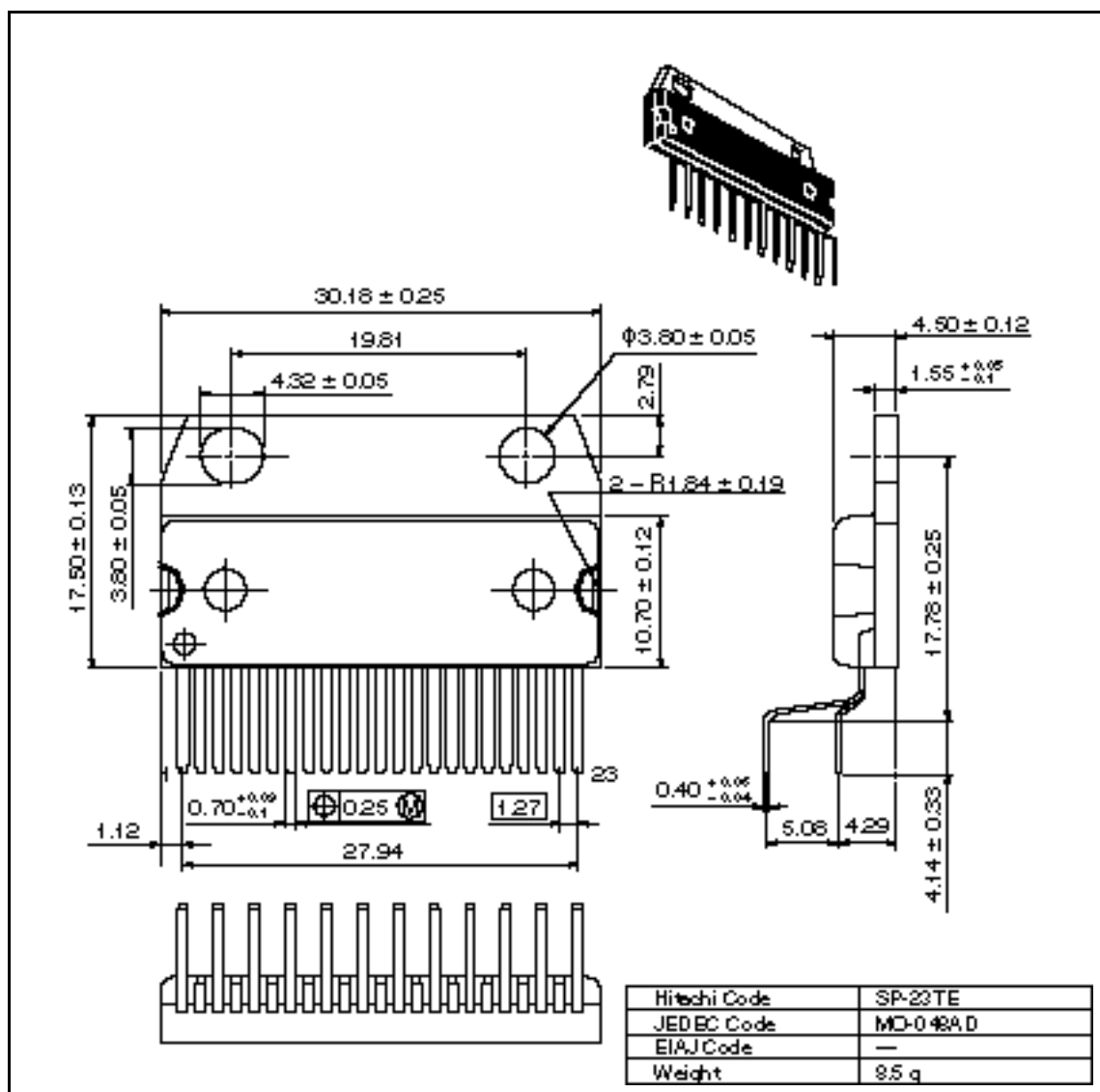
Electrical Characteristics ($V_{CC} = 13.2 \text{ V}$, $f = 1 \text{ kHz}$, $R_L = 4 \text{ W}$, $R_g = 600 \text{ W}$, $T_a = 25^\circ\text{C}$)

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

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Package Dimensions

Unit: mm



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