
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

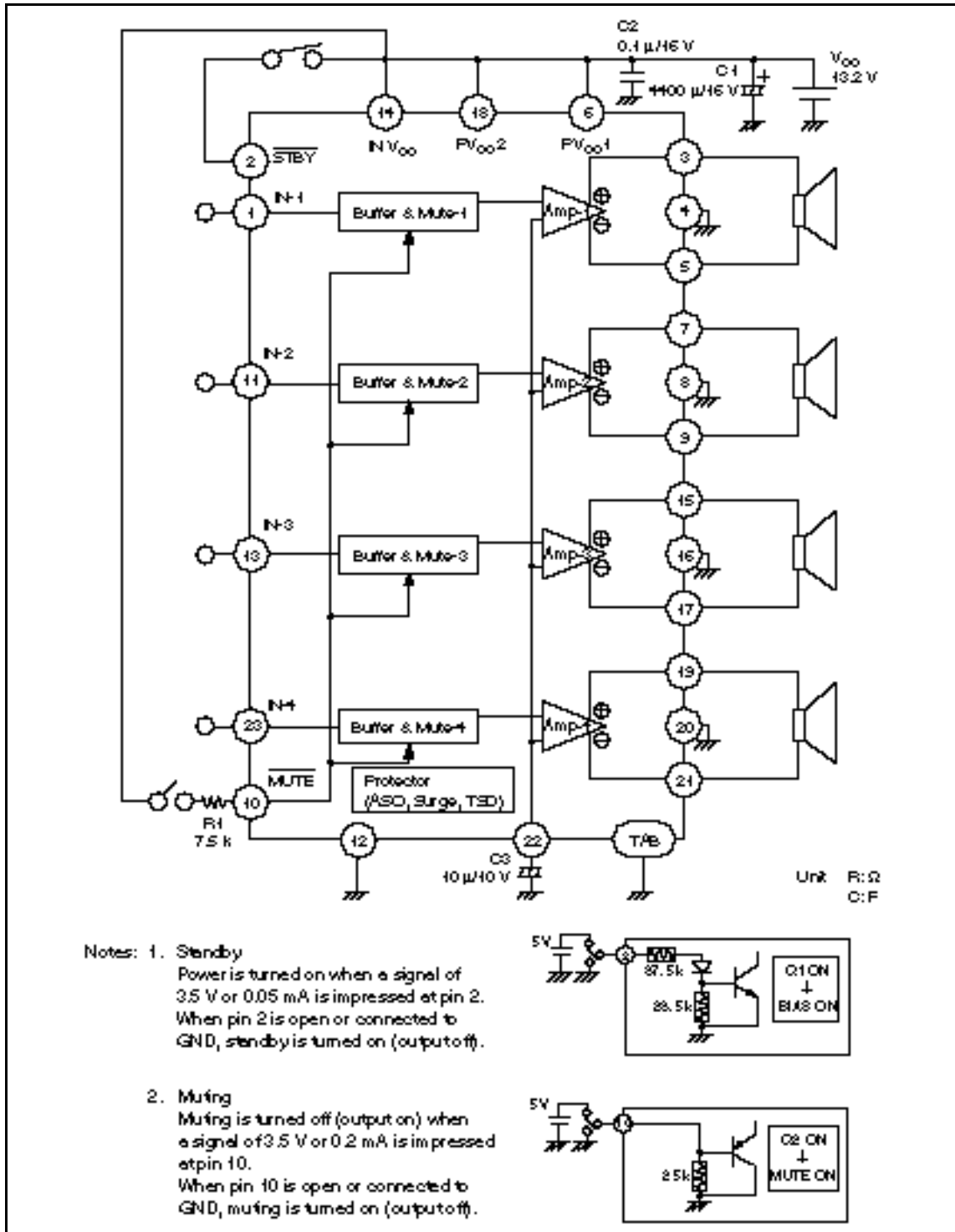
- 4 ch BTL power amplifiers
- Built-in standby circuit
- Built-in muting circuit
- Built-in protection circuit (surge, T.S.D, and ASO)

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

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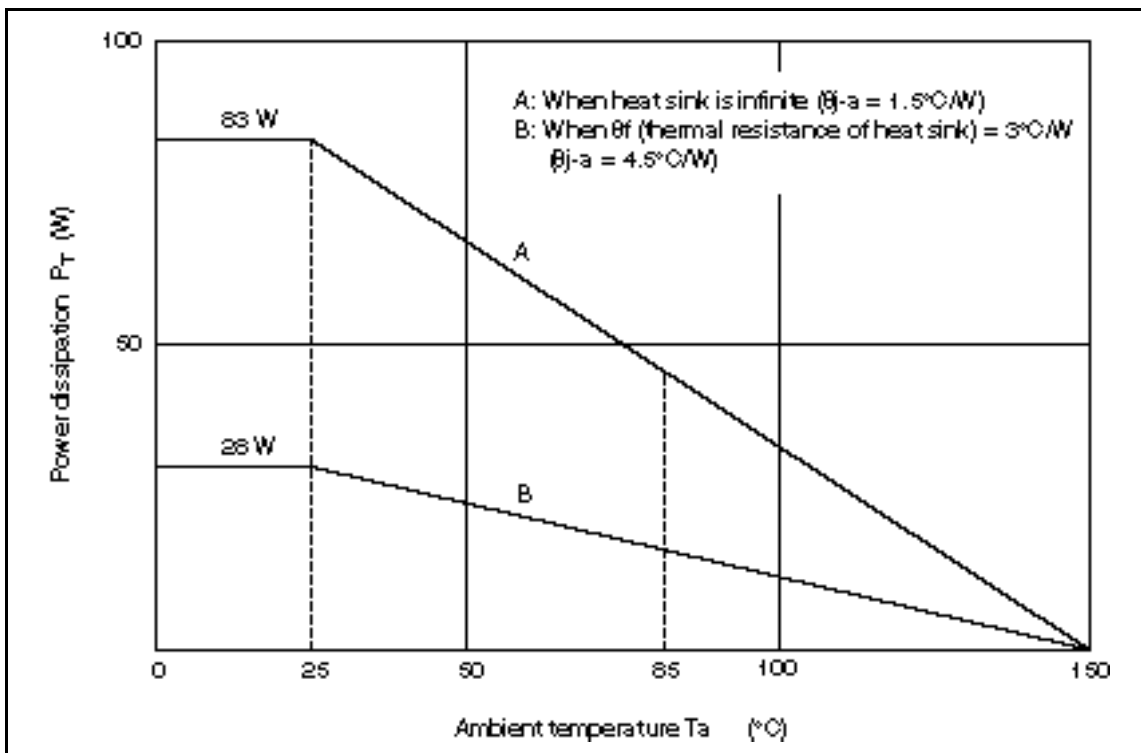
Block Diagram



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

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	$V_{CC} = 13.2\text{ V}$, THD = 10%, $R_L = 4\ \Omega$
Max output power	P_{OMAX}	—	33	—	W	$V_{CC} = 13.7\text{ V}$, $R_L = 4\ \Omega$
Total harmonic distortion	T.H.D.	—	0.02	—	%	$P_o = 3\text{ W}$
Output noise voltage	WBN	—	0.15	—	mVrms	$R_g = 0\ \Omega$, 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	—	k	
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	$V_{out} = 0\text{ dBm}$

