

HA13118

18 W BTL Audio Power Amplifier

HITACHI

Description

The HA13118 is power IC designed for component car stereo amplifiers. At 13.2 V to 4 Ω load, this power IC provides an output power of 18W with 10% distortion.

It is easy to design as this IC employs internal each protection circuit and the new small package.

Features

- Small outline package, easy to mount
- Internal each protection circuits
 - Surge protection circuit
 - Thermal shut-down circuit
 - Ground fault protection circuit
 - Power supply fault protection circuit

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit	Note
Operating supply voltage	V _{CC}	18	V	
DC supply voltage	V _{CC} (DC)	26	V	1
Peak supply voltage	V _{CC} (peak)	50	V	2
Output current	I _o (peak)	4	A	
Power dissipation	P _T	15	W	
Thermal resistance	θ _{j-c}	3.5	°C/W	
Junction temperature	T _j	150	°C	
Operating temperature	T _{opr}	-30 to +80	°C	
Storage temperature	T _{stg}	-55 to +125	°C	

Notes: 1. Value at t = 30 sec.

2. Value at width tw = 200 ms and rise time tr = 1 ms.

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

Item	Symbol	Min	Typ	Max	Unit	Test Conditions	
Quiescent current	I_Q	40	80	160	mA	$V_{in} = 0$	
Input bias voltage	V_B	—	20	40	mV	$V_{in} = 0$	
Output offset voltage	ΔV_Q	—	—	+330	mV	$V_{in} = 0$	
Voltage gain	G_V	53	55	57	dB	$V_{in} = -55 \text{ dBm}$	
Output power	P_{out}	15	18	—	W	THD = 10 %	$R_L = 4$
		—	11	—			$R_L = 8$
Total harmonic distortion	THD	—	0.2	1.0	%	$P_{out} = 1.5 \text{ W}$	
Output noise voltage	WBN	—	1.0	2.0	mV	$R_g = 10 \text{ k}$, BW = 20 Hz 20 kHz	
Supply voltage rejection ratio	SVR	33	44	—	dB	$f = 500 \text{ Hz}$	
Input resistance	R_{in}	20	30	40	k		
Rolloff frequency	f_L	—	20	—	Hz	$\Delta G_V = -3 \text{ dB}$	Low
	f_H	10	20	40	kHz	from $f = 1 \text{ kHz}$ Ref.	High

Block Diagram

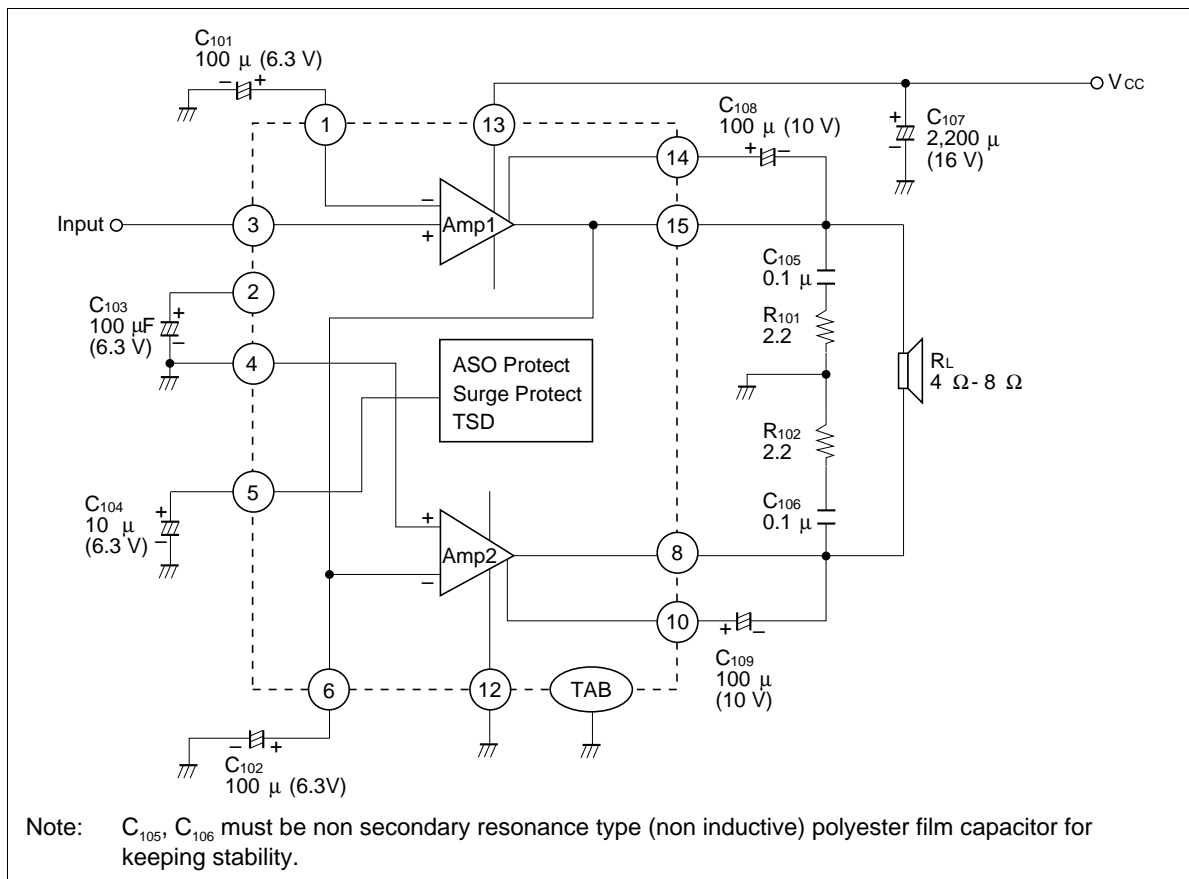


Figure 1 Typical Application Circuit

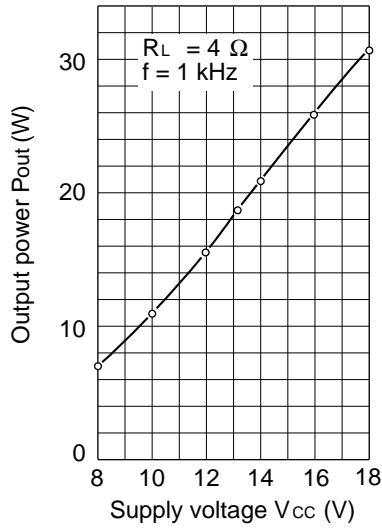


Figure 2 Output Power vs. Supply Voltage

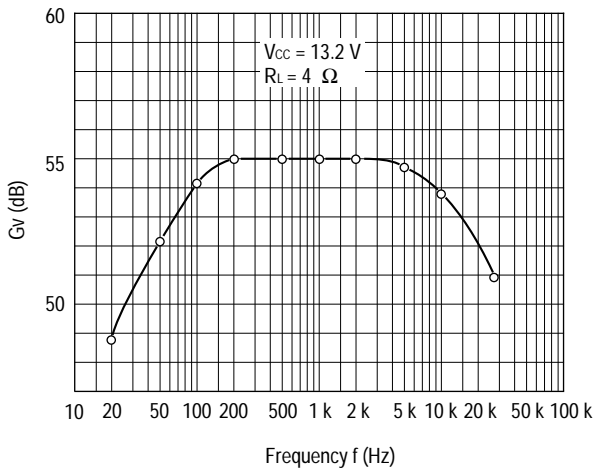


Figure 3 Voltage Gain vs. Frequency

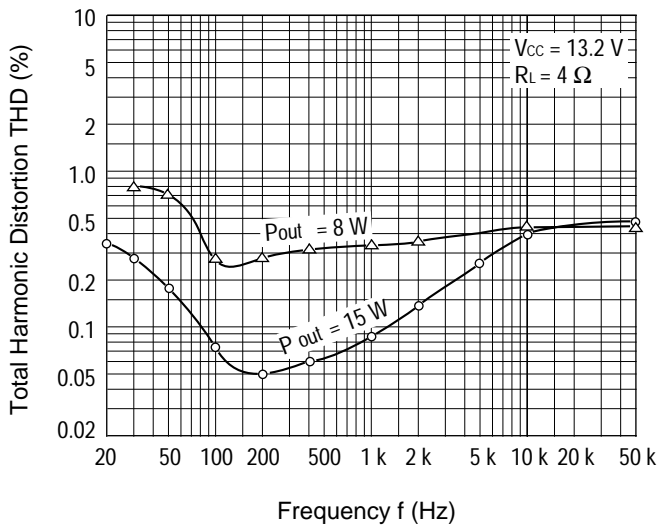


Figure 4 Total Harmonic Distortion vs. Frequency

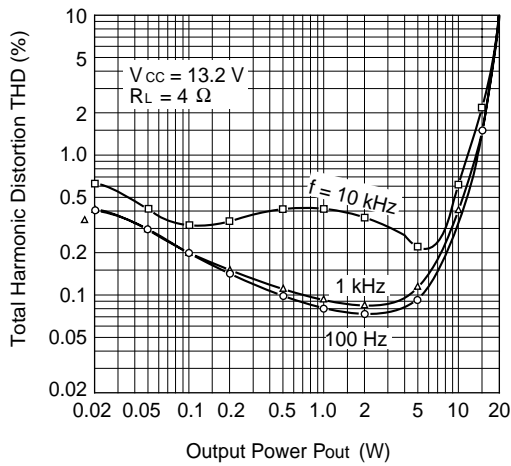


Figure 5 Total Harmonic Distortion vs. Output Power

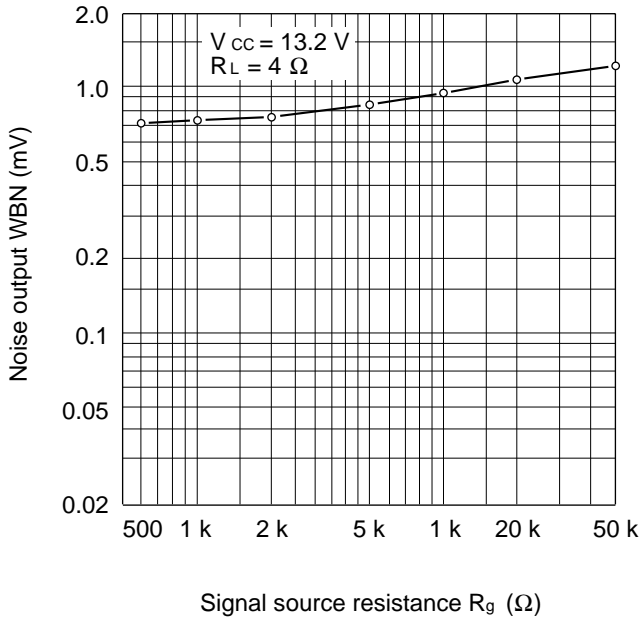


Figure 6 Noise Output vs. Signal Source Resistance

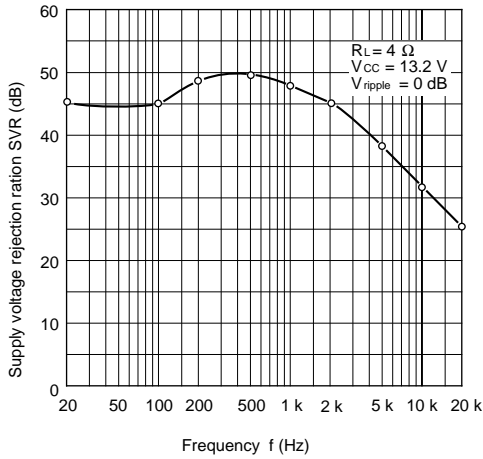
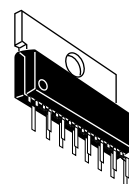
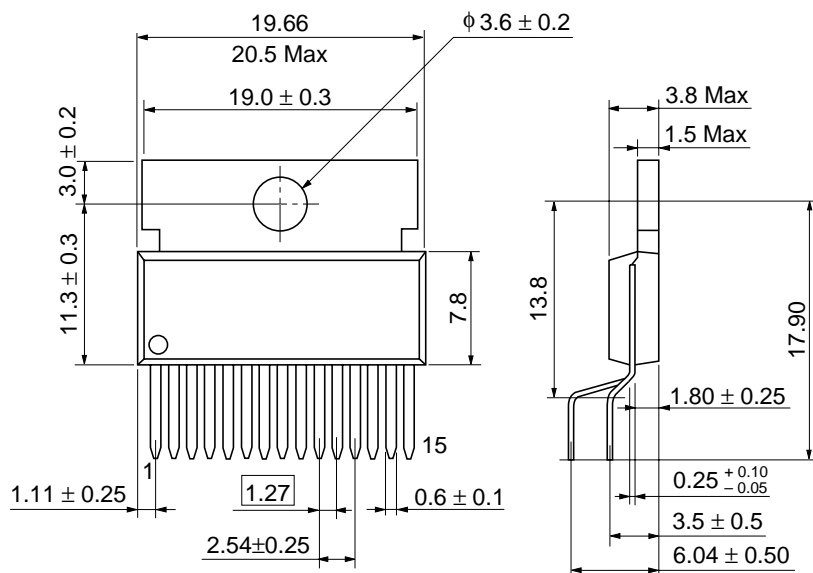


Figure 7 Supply Voltage Rejection Ratio vs. Frequency

Package Dimensions

Unit: mm



Hitachi Code	SP-15TA
JEDEC	—
EIAJ	—
Weight (reference value)	3.10 g

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