

HA13116

T-74-05-01

20 W BTL Audio Power Amplifier

The HA13116 is a high output and low distortion power IC designed for component car stereo amplifiers. At 13.2 V to 4 Ω load, this power IC provides an output power of 16 W with 1 % distortion and 20 W with 10 % distortion. It is easy to design as this IC employs internal each protection circuit and the new small package.

Features

- Low external components count
- Small outline package, easy to mount
- Internal each protection circuits
 - Surge protection circuit
 - Thermal shut-down circuit
 - Ground fault protection circuit

Ordering Information

Type No.	Package
HA13116	SP-15

Table 1 Absolute Maximum Ratings (Ta = 25 °C)

Item	Symbol	Rating	Unit	Note
Operating supply voltage	Vcc	18	V	
DC supply voltage	Vcc (DC)	26	V	1
Peak supply voltage	Vcc (peak)	50	V	2
Output current	Io (peak)	4	A	
Power dissipation	PT	15	W	
Thermal resistance	θj-c	3.5	°C/W	
Junction temperature	Tj	150	°C	
Operating temperature	Topr	-30 to +80	°C	
Storage temperature	Tstg	-55 to +125	°C	

- Notes: 1. Value at t = 30 sec.
 2. Value at width tw = 200 ms and rise time tr = 1 ms.

Table 2 Electrical Characteristics (Vcc = 13.2 V, f = 1 kHz, RL = 4 Ω, Ta = 25 °C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Quiescent current	IQ	40	80	180	mA	Vin = 0
Input bias voltage	VB	—	20	70	mV	Vin = 0
Output offset voltage	ΔVQ	—	—	+330	mV	Vin = 0
Voltage gain	GV	37.5	40	42.5	dB	Vin = -30 dBm



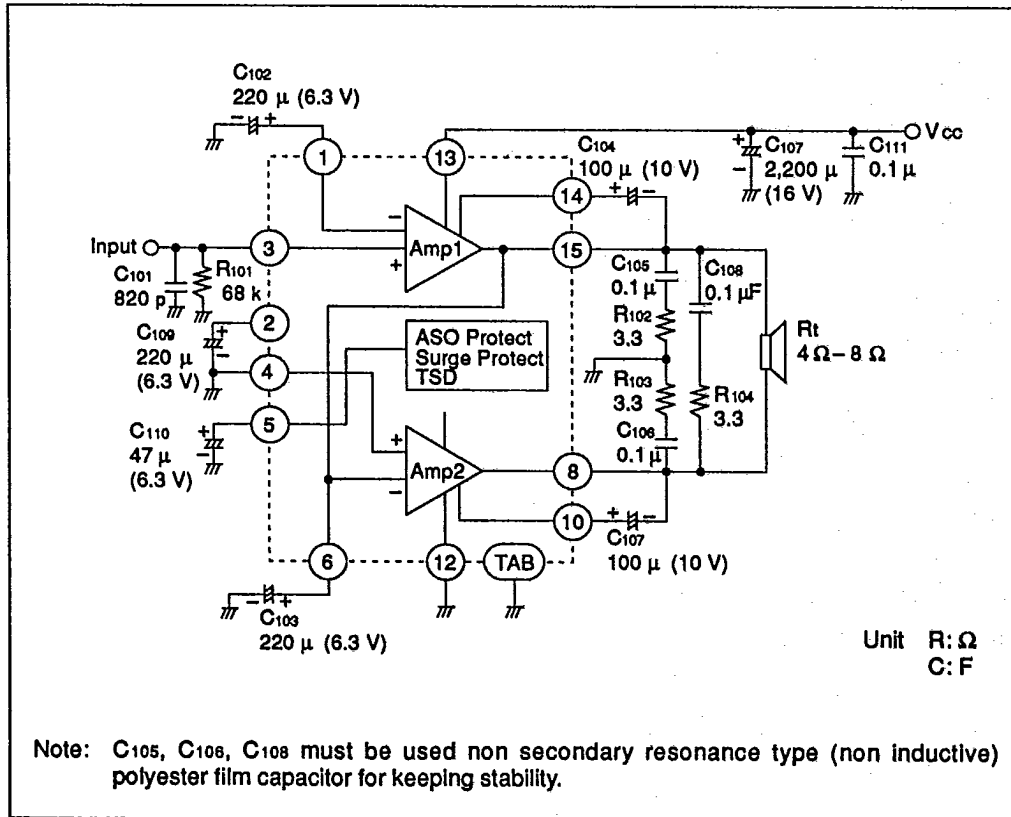
334 Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300

HA13116

Electrical Characteristics (Vcc = 13.2 V, f = 1 kHz, RL = 4 Ω, Ta = 25 °C) (cont) T-74-05-01

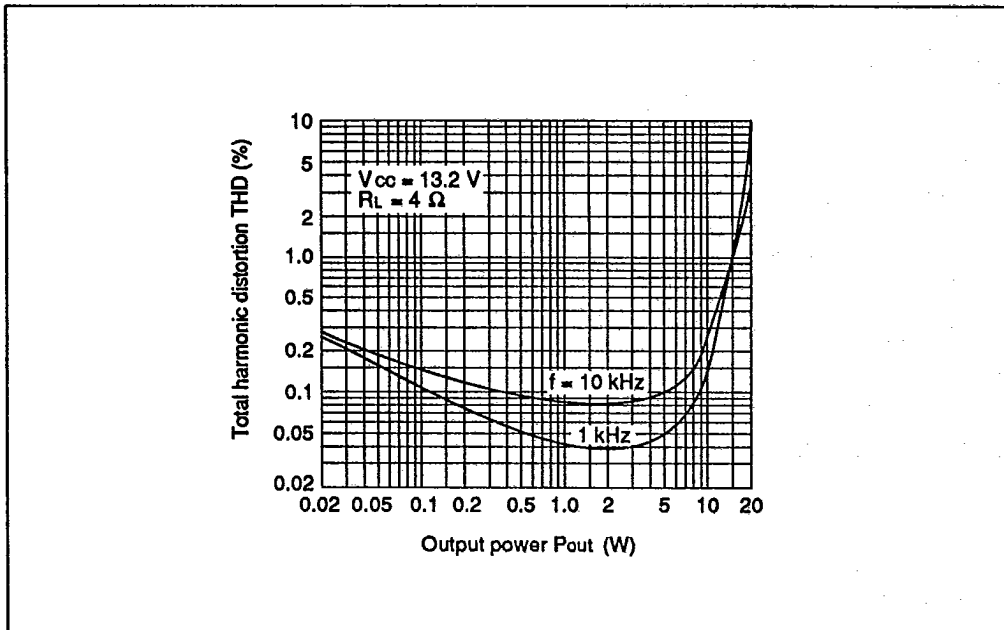
Output power	Pout	10	16	—	W	THD = 1 %
		—	20	—		THD = 10 %
Total harmonic distortion	THD	—	0.05	0.12	%	Pout = 1.5 W
Output noise voltage	WBN	—	0.25	0.5	mV	Rg = 10 kΩ, BW = 20 Hz 20 kHz
Supply voltage rejection ratio	SVR	40	50	—	dB	f = 500 Hz, Rg = 4.7 kΩ
Input resistance	Rin	—	68	—	kΩ	
Rolloff frequency	fL	—	5	—	Hz	ΔGv = -3 dB Low from
	fH	40	70	120	kHz	f = 1 kHz Ref. High

Typical Application Circuit

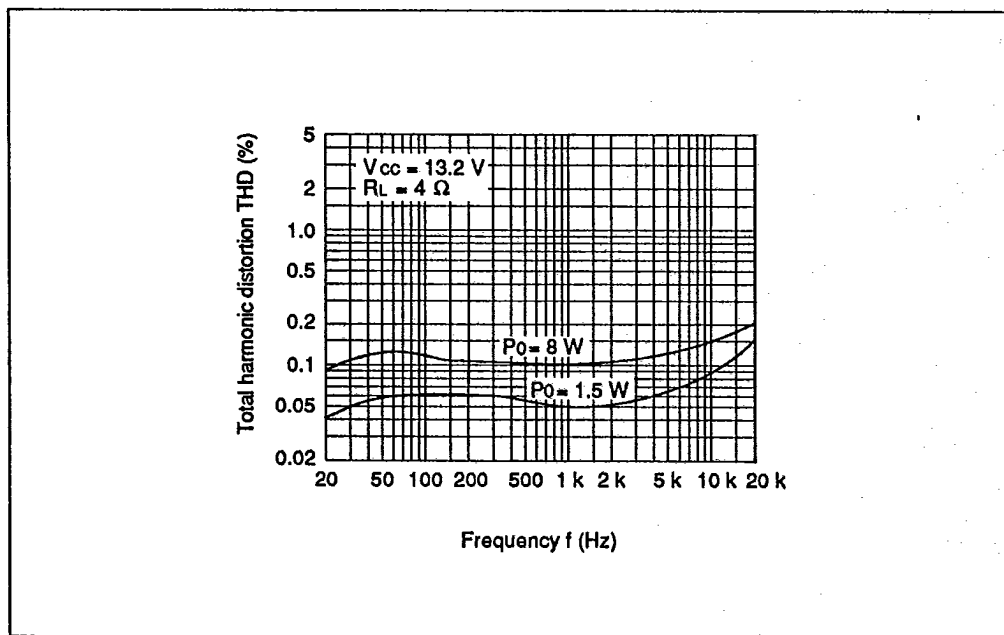


HA13116

T-74-05-01



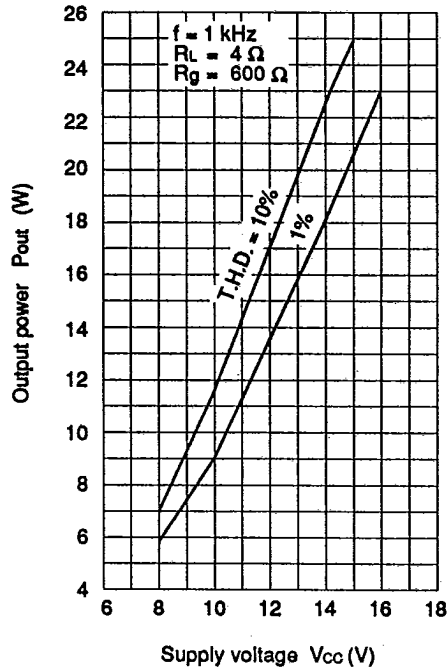
Total Harmonic Distortion vs. Output Power



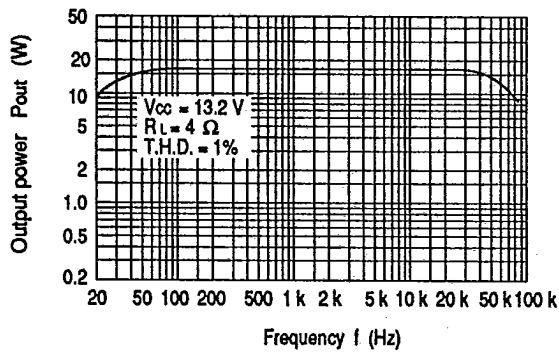
Total Harmonic Distortion vs. Frequency



T-74-05-01



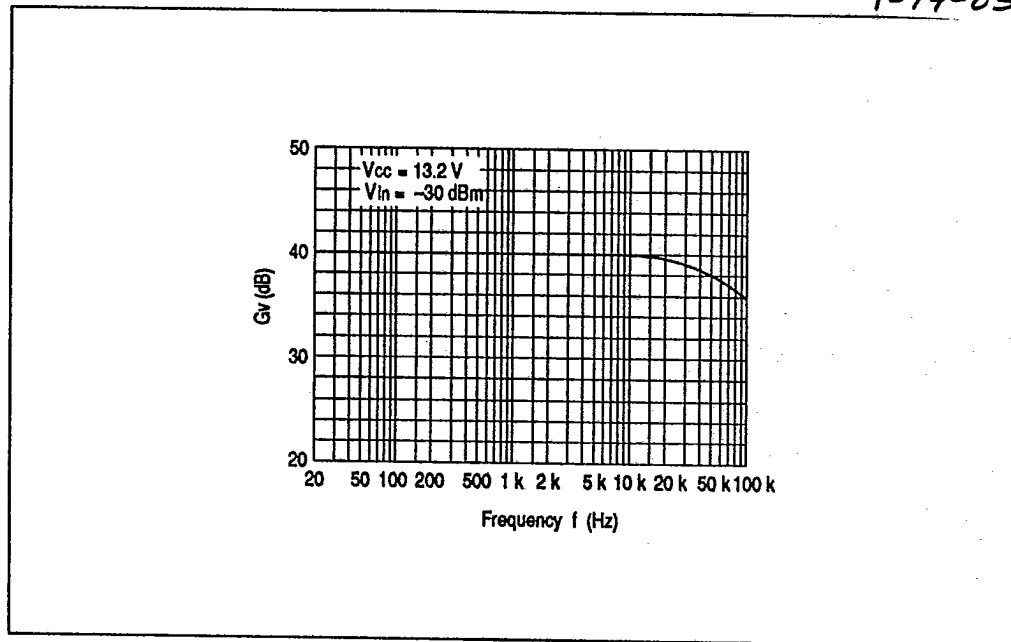
Output Power vs. Supply Voltage



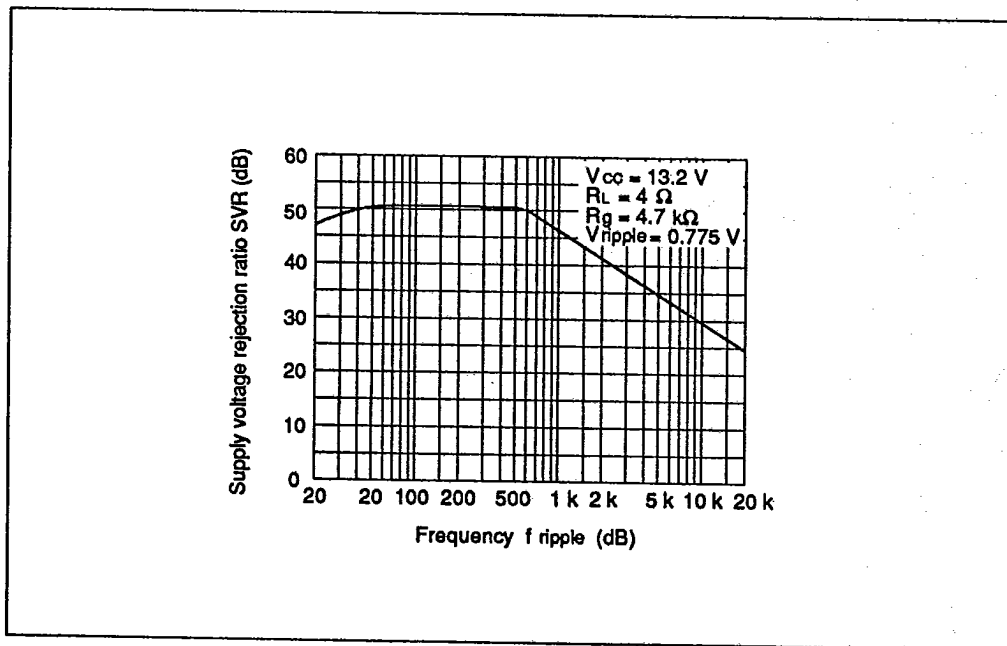
Output Power vs. Frequency



T-74-05-01



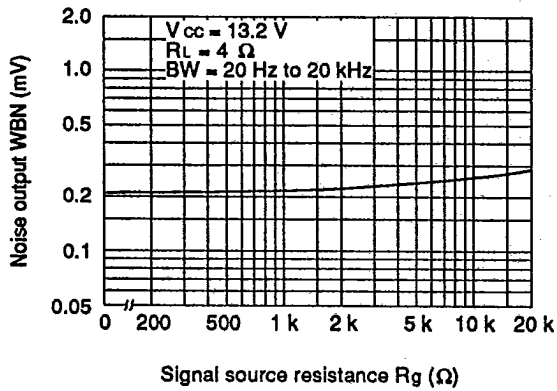
Voltage Gain vs. Frequency



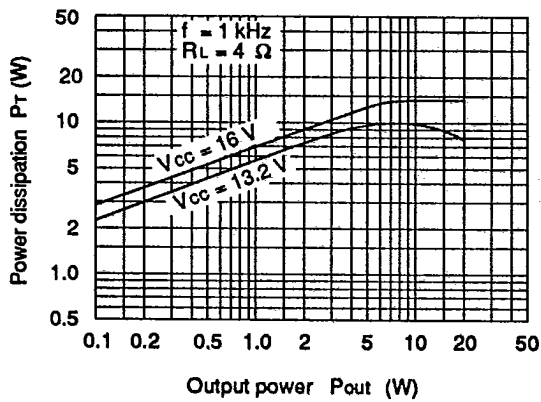
Supply Voltage Rejection Ratio vs. Frequency



T-74-05-01



Noise Output vs. Signal Source Resistance

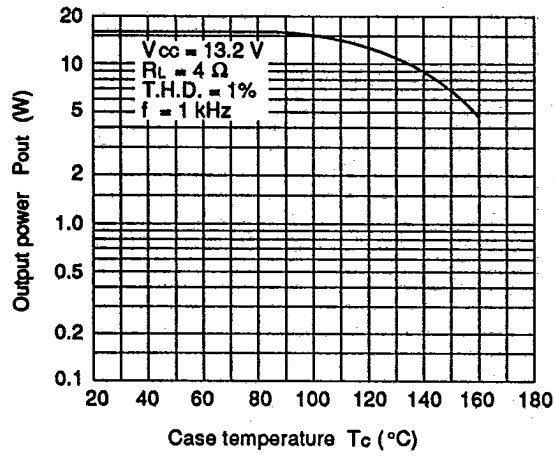


Power Dissipation vs. Output Power



HA13116

T-74-05-01



Output Power vs. Case Temperature



340 Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.