

HA13117

T-74-05-01

14 W BTL Audio Power Amplifier

At 13.2 V to 4 Ω load, the HA13117 provides an output power of 14 W with 10 % distortion. It is easy to design as this IC employs internal each protection circuit and the new small package.

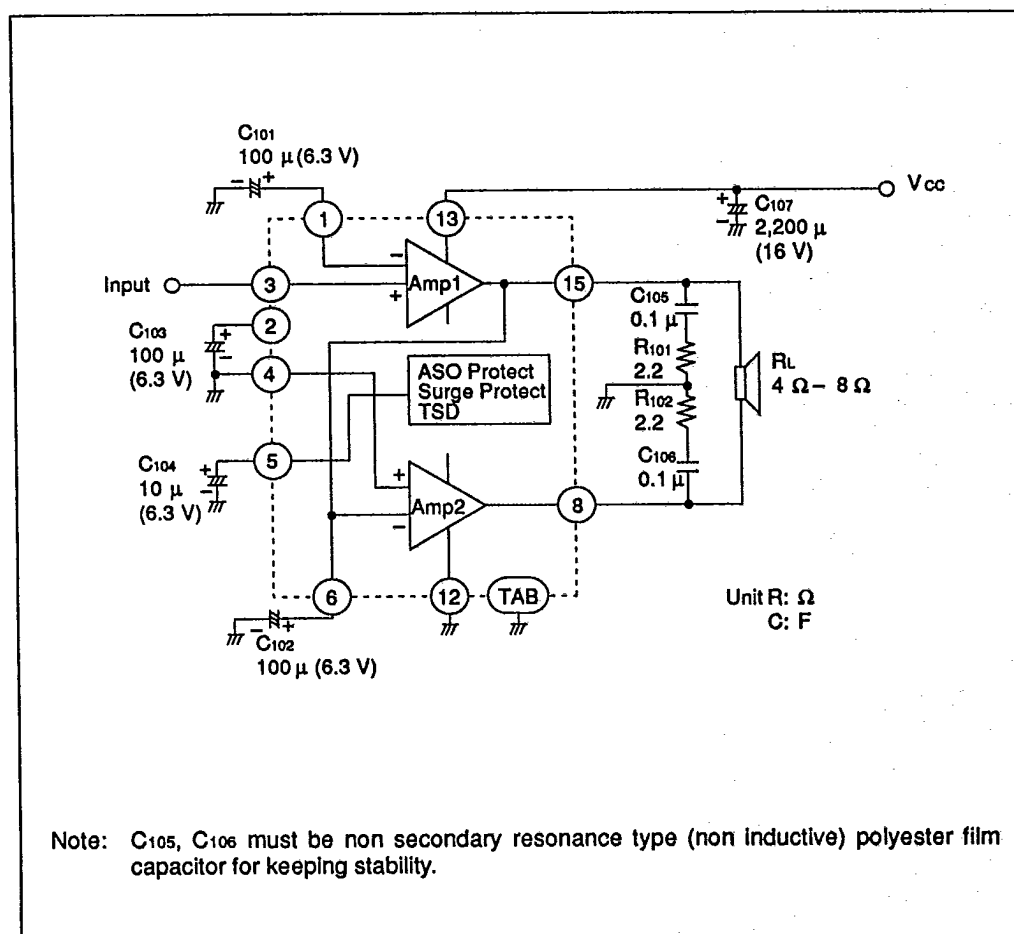
Ordering Information

Type No.	Package
HA13117	SP-15

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
 - Power supply fault protection circuit

Typical Application Circuit



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

341

HA13117

T-74-05-01

Table 1 Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit	Notes
Operating supply voltage	Vcc	18	V	
DC supply voltage	Vcc (DC)	26	V	1
Peak supply voltage	Vcc (peak)	50	V	2
Output current	I _o (peak)	4	A	
Power dissipation	P _T	15	W	
Thermal resistance	θ_{j-c}	3.5	$^\circ\text{C/W}$	
Junction temperature	T _J	150	$^\circ\text{C}$	
Operating temperature	T _{opr}	-30 to +80	$^\circ\text{C}$	
Storage temperature	T _{stg}	-55 to +125	$^\circ\text{C}$	

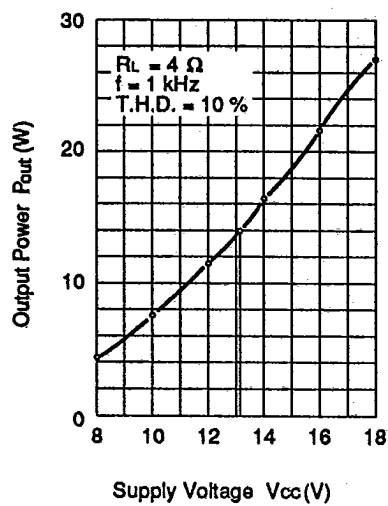
Notes: 1. Value at $t = 30$ sec.2. Value at width $t_w = 200$ ms and rise time $t_r = 1$ ms.Table 2 Electrical Characteristics ($V_{cc} = 13.2$ V, $f = 1$ kHz, $R_L = 4\ \Omega$, $T_a = 25^\circ\text{C}$)

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_o	—	—	330	mV	V _{in} = 0
Voltage gain	G _v	53	55	57	dB	V _{in} = -55 dBm
Output power	P _{out}	10	14	—	W	THD = 10 % $R_L = 4\ \Omega$
		—	7	—		$R_L = 8\ \Omega$
Total harmonic distortion	THD	—	0.2	1.0	%	P _{out} = 1.5 W
Output noise voltage	W _{BN}	—	1.0	2.0	mV	R _g = 10 k Ω , BW = 20 Hz to 20 kHz
Supply voltage rejection ratio	SVR	33	44	—	dB	f = 500 Hz
Input resistance	R _{in}	20	30	40	k Ω	
Rolloff frequency	f _L	—	20	—	Hz	$\Delta G_v = -3$ dB Low
	f _H	10	20	40	kHz	from f = 1 kHz Ref. High

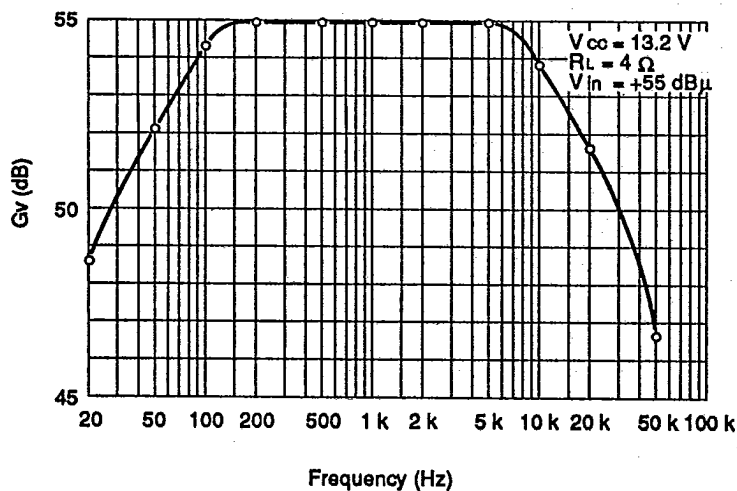


T-74-05-01

HA13117



Output Power vs. Supply Voltage



Voltage Gain vs. Frequency

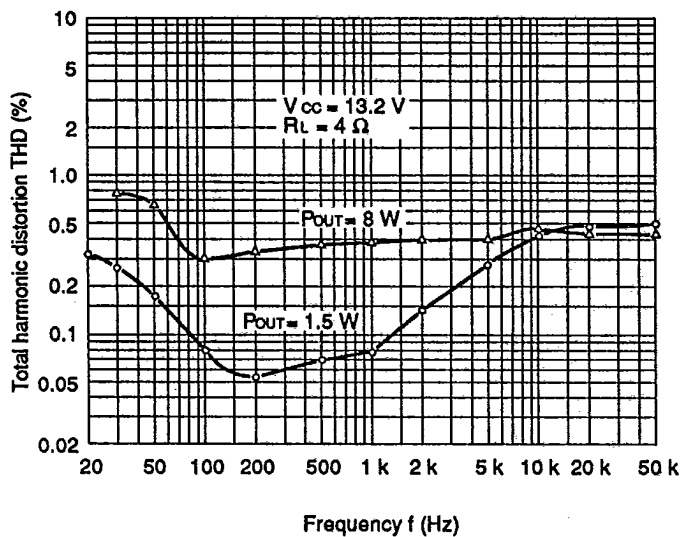


Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300

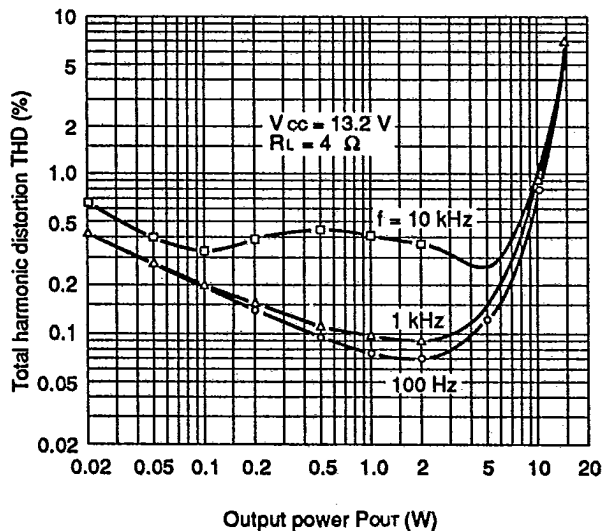
343

HA13117

T-74-05-01



Total Harmonic Distortion vs. Frequency



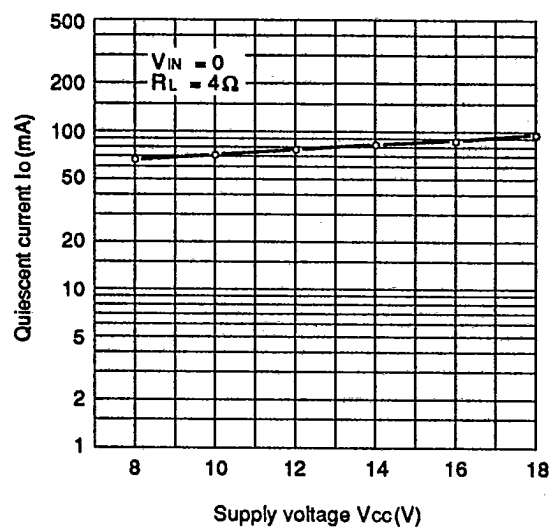
Total Harmonic Distortion vs. Output Power



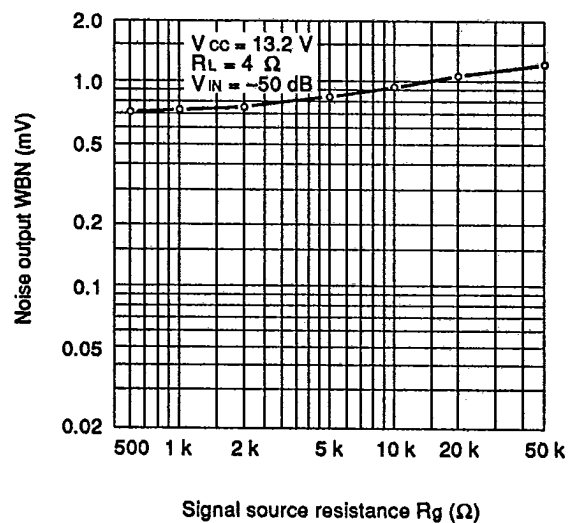
344 Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300

T-74-05-01

HA13117



Quiescent Current vs. Supply Voltage



Noise Output vs. Signal Source Resistance

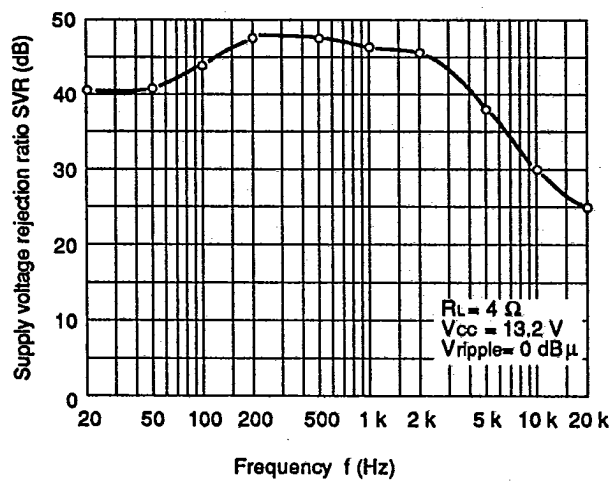


Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300

345

HA13117

T-74-05-01



Supply Voltage Rejection Ratio vs. Frequency

