

# HA13117

## 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.

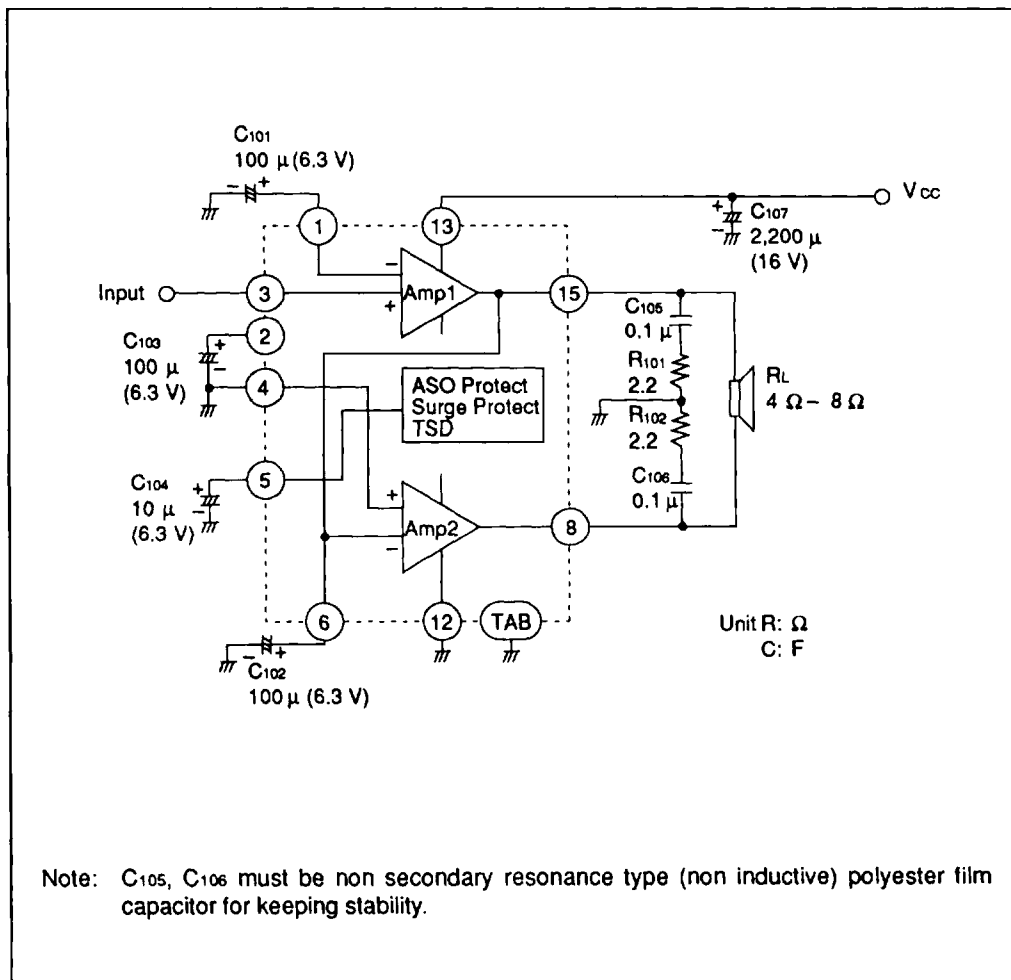
### Features

- 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

### Ordering Information

Type No.	Package
HA13117	SP-15

### Typical Application Circuit



# HA13117

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

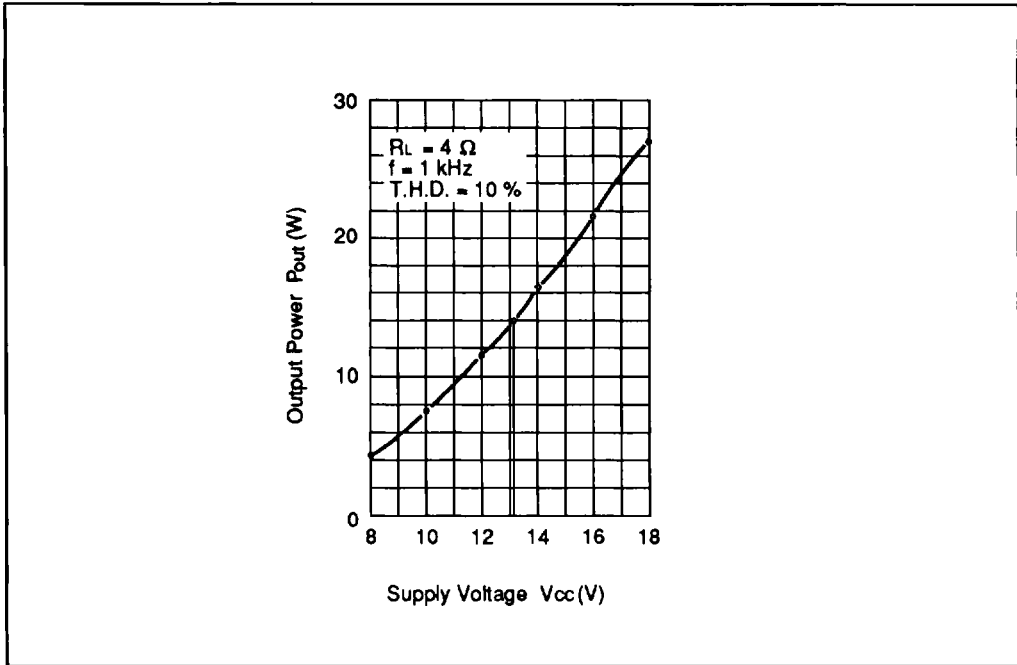
Item	Symbol	Rating	Unit	Notes
Operating supply voltage	Vcc	18	V	
DC supply voltage	Vcc (DC)	26	V	1
Peak supply voltage	Vcc (peak)	50	V	2
Output current	Io (peak)	4	A	
Power dissipation	Pr	15	W	
Thermal resistance	$\theta_{j-c}$	3.5	°C/W	
Junction temperature	Tj	150	°C	
Operating temperature	Topr	-30 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.

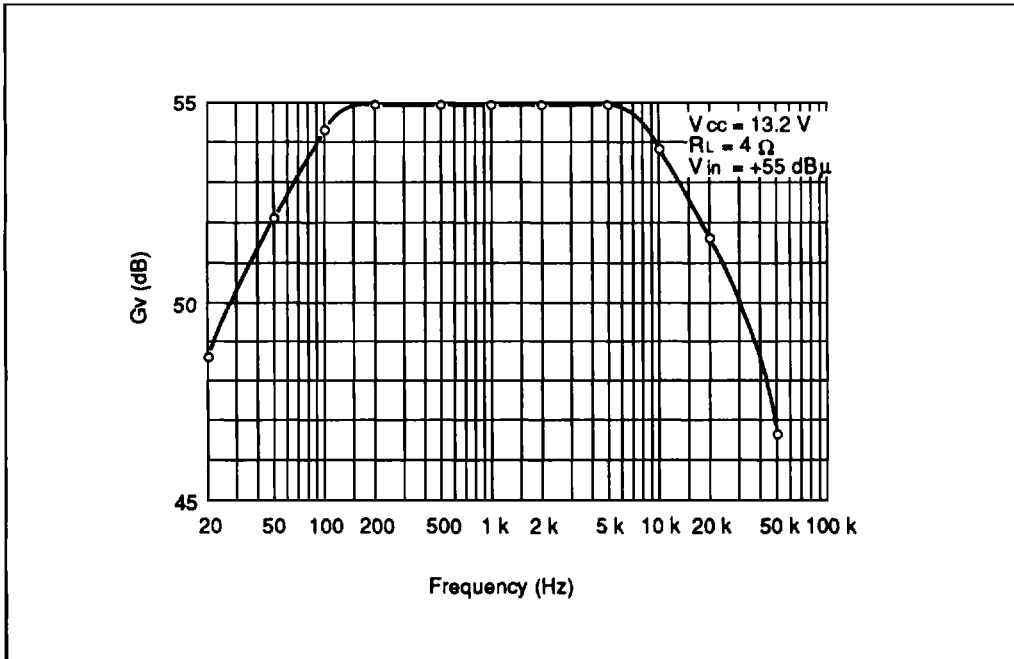
**Table 2 Electrical Characteristics (Vcc = 13.2 V, f = 1 kHz, RL = 4 Ω, Ta = 25 °C)**

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Quiescent current	Io	40	80	160	mA	Vin = 0
Input bias voltage	Vb	—	20	40	mV	Vin = 0
Output offset voltage	$\Delta V_o$	—	—	330	mV	Vin = 0
Voltage gain	Gv	53	55	57	dB	Vin = -55 dBm
Output power	Pout	10	14	—	W	THD = 10 % RL = 4 Ω
		—	7	—		
Total harmonic distortion	THD	—	0.2	1.0	%	Pout = 1.5 W
Output noise voltage	WBN	—	1.0	2.0	mV	Rg = 10 kΩ, BW = 20 Hz to 20 kHz
Supply voltage rejection ratio	SVR	33	44	—	dB	f = 500 Hz
Input resistance	Rin	20	30	40	kΩ	
Rolloff frequency	fL	—	20	—	Hz	$\Delta G_v = -3$ dB from
	fH	10	20	40	kHz	f = 1 kHz Ref. High



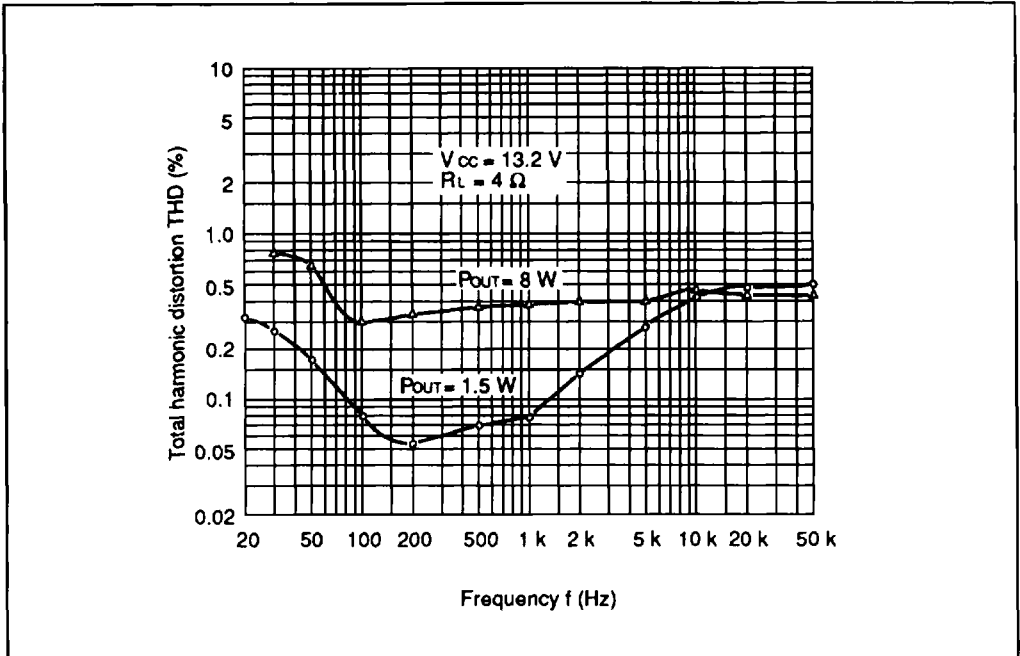


Output Power vs. Supply Voltage

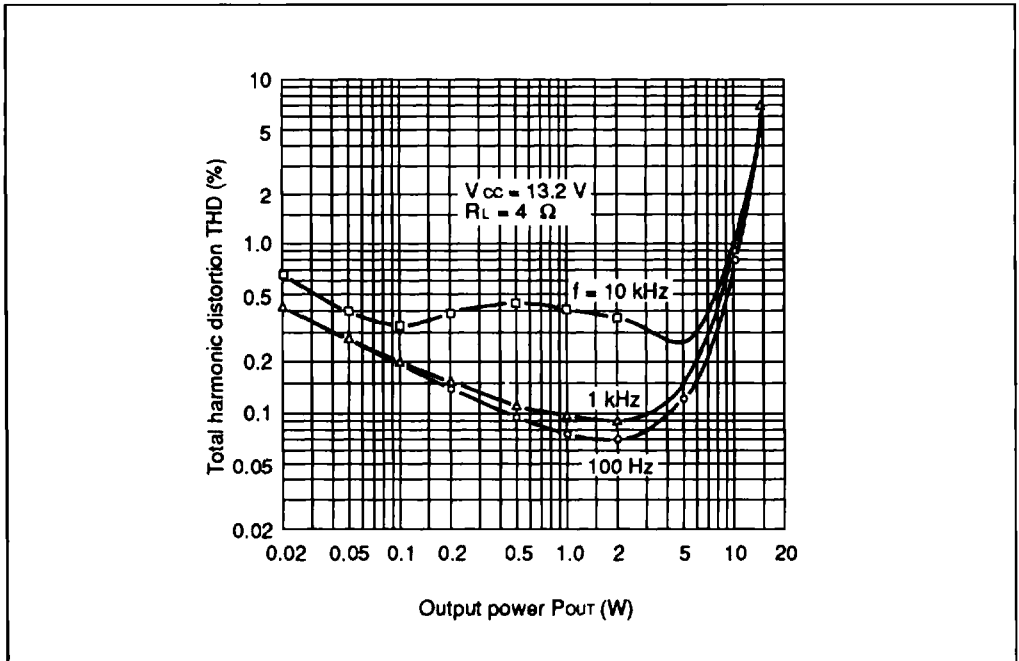


Voltage Gain vs. Frequency



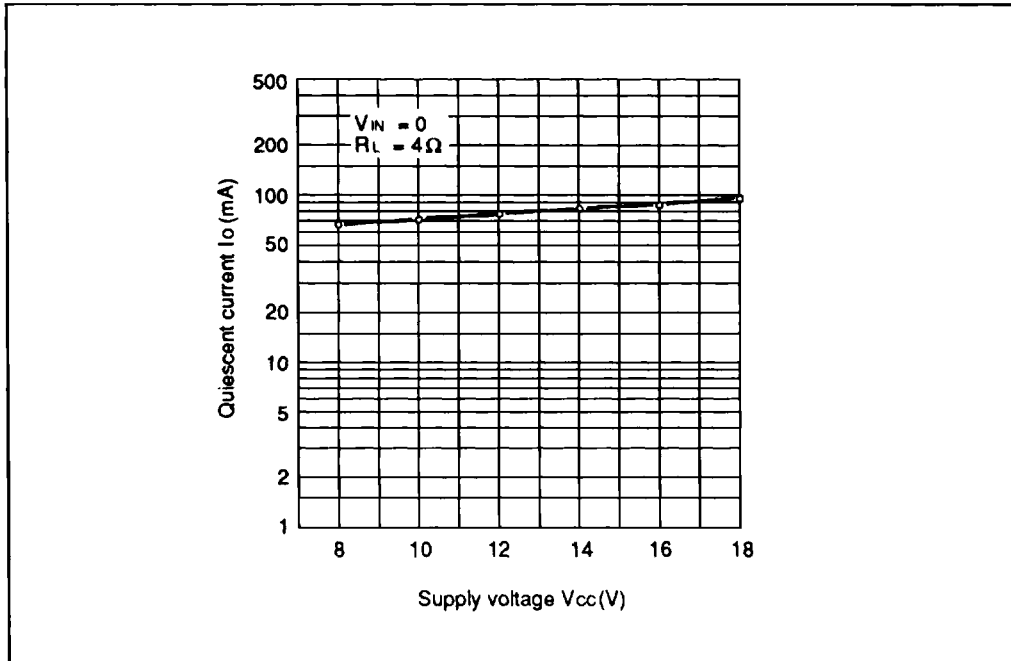


**Total Harmonic Distortion vs. Frequency**

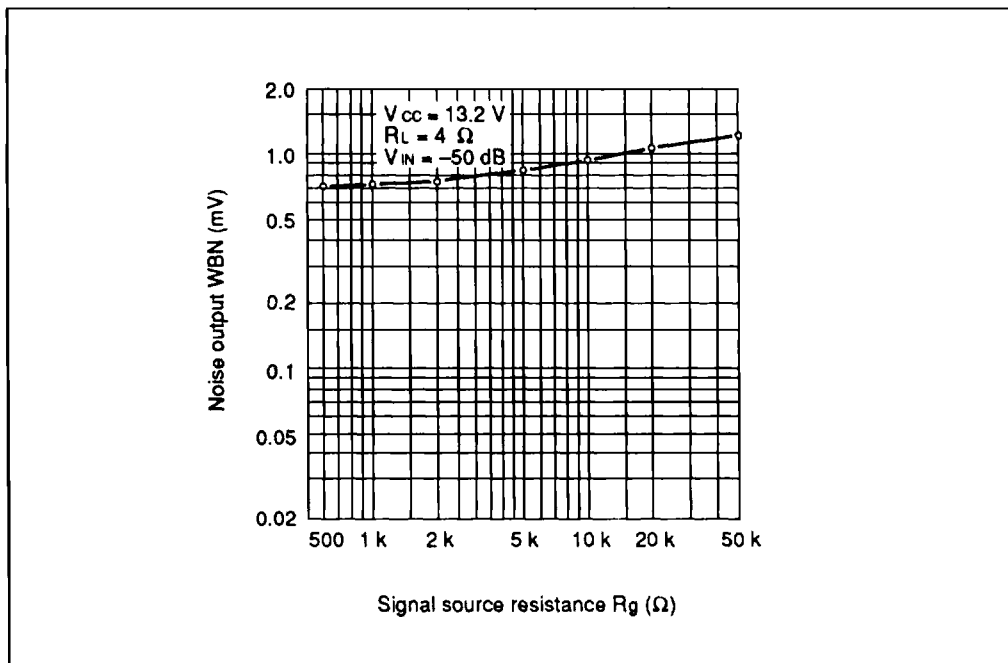


**Total Harmonic Distortion vs. Output Power**



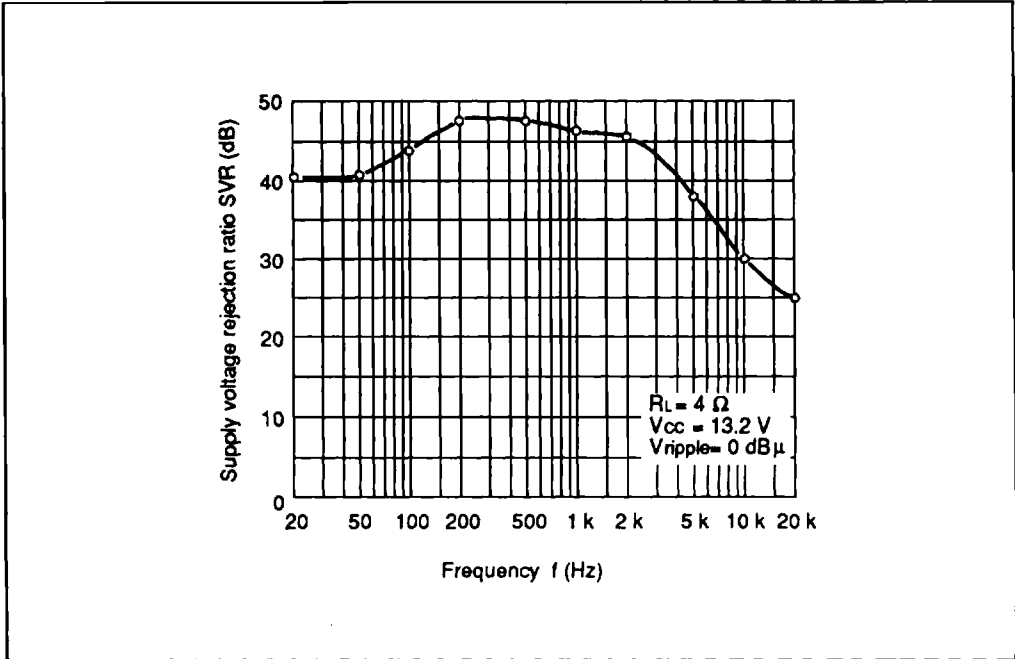


Quiescent Current vs. Supply Voltage



Noise Output vs. Signal Source Resistance





Supply Voltage Rejection Ratio vs. Frequency