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.

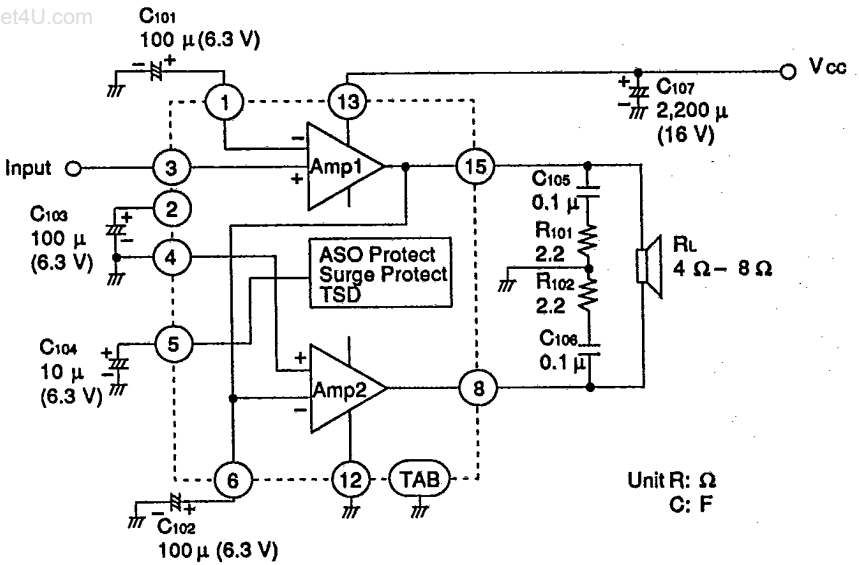
Features

- 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



Note: C_{105}, C_{106} must be non secondary resonance type (non inductive) polyester film capacitor for keeping stability.

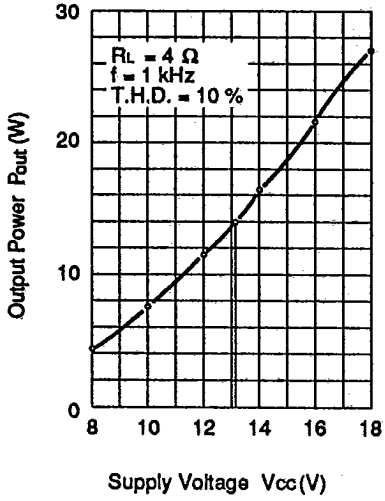
Table 1 Absolute Maximum Ratings (Ta = 25 °C)

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	P_T	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	

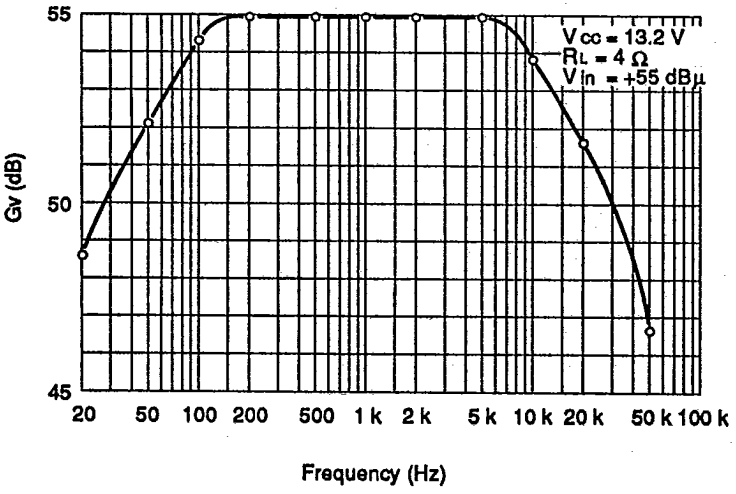
Notes: 1. Value at t = 30 sec.
2. Value at width tw = 200 ms and rise time tr = 1 ms.

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

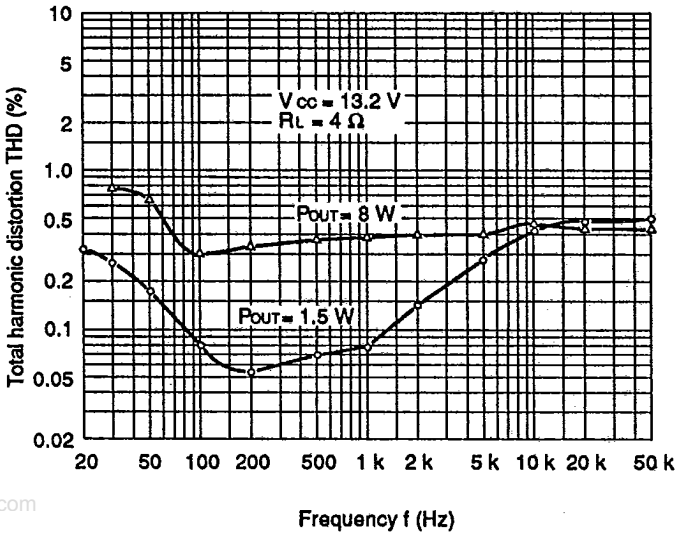
Item	Symbol	Min	Typ	Max	Unit	Test conditions	
Quiescent current	Iq	40	80	160	mA	Vin = 0	
Input bias voltage	V_B	—	20	40	mV	Vin = 0	
Output offset voltage	ΔVo	—	—	330	mV	Vin = 0	
Voltage gain	Gv	53	55	57	dB	Vin = –55 dBm	
Output power	Pout	10	14	—	W	THD = 10 %	R_L = 4 Ω
		—	7	—			R_L = 8 Ω
Total harmonic 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	f_L	—	20	—	Hz	ΔGv = –3 dB from f = 1 kHz Ref.	Low
	f_H	10	20	40	kHz		High



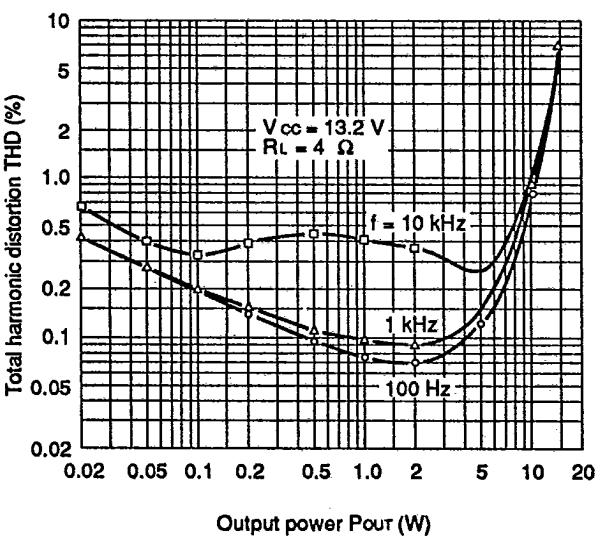
Output Power vs. Supply Voltage



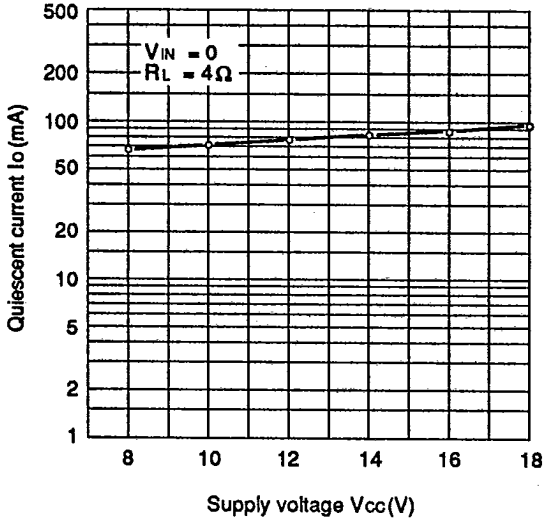
Voltage Gain vs. Frequency



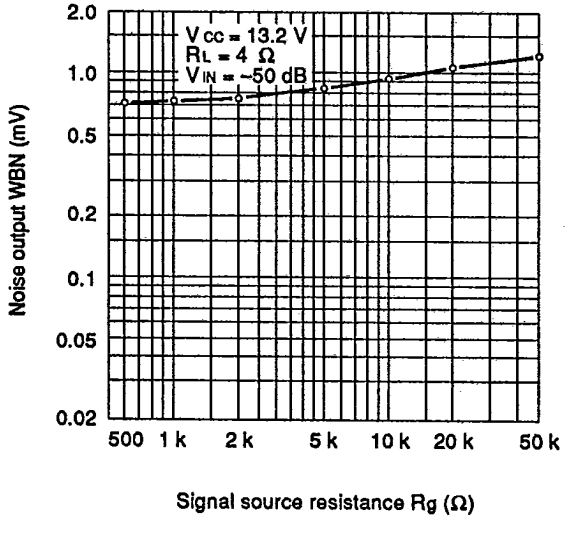
Total Harmonic Distortion vs. Frequency



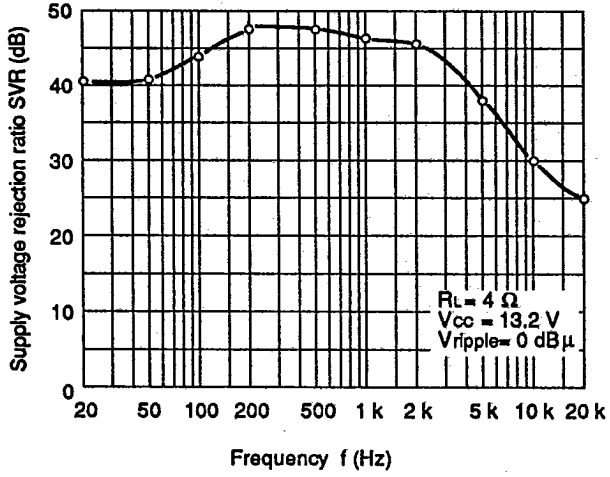
Total Harmonic Distortion vs. Output Power



Quiescent Current vs. Supply Voltage



Noise Output vs. Signal Source Resistance



Supply Voltage Rejection Ratio vs. Frequency