HA13122

Dual 4 W Audio Power Amplifier

The HA13122 is specifically designed for cassette-radio, encapsulated in SP-15TA plastic package. The HA13122 delivers 4.3 W per channel under 12 V power supply to 4 Ω load.

Features

- A low quiescent current (36 mA typ.) for efficient battery-operation
- Designed for low crossover distortion under a low idling current
- Audio muting circuit included, providing 60 dB typ of muting attenuation just by 5 mA of muting control current
- No electrical isolation needed for simple chassis-mounting
- Dual power amplifiers provide 4.3 W typ. under 12 V power supply voltage (R_L = 4 Ω, THD = 10 %)
- Internal thermal protection

Ordering Information

Type No.	Package
HA13122	SP-15

Recommended Application

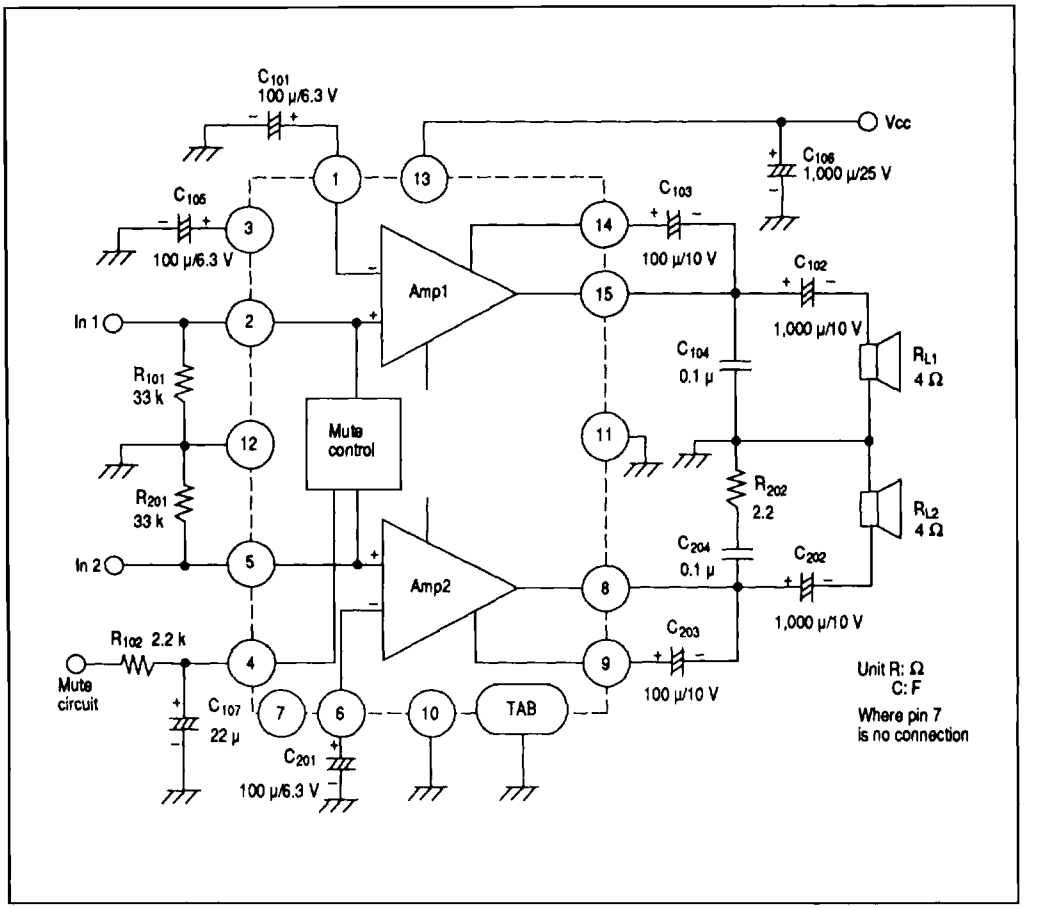
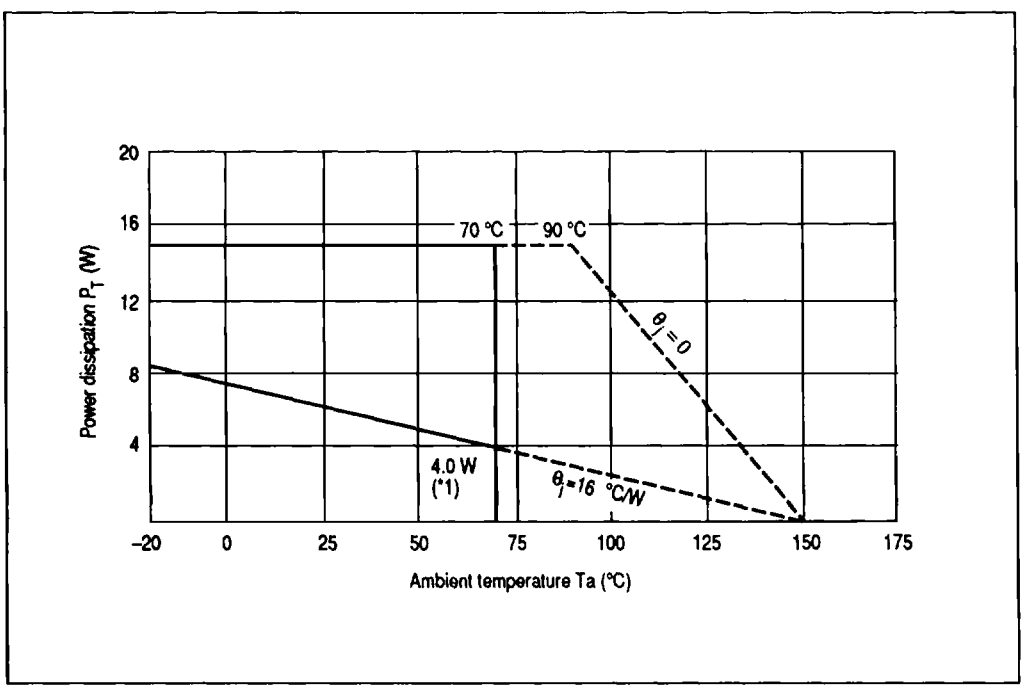


Table 1 Absolute Maximum Ratings (Ta = 25 °C)

Item	Symbol	Rating	Unit
Supply voltage	Vcc	18	V
Output current	Io(peak)	4	A
Power dissipation	P_T	15 (See note)	W
Junction temperature	Tj	150	°C
Operating temperature	Topr	–20 to +70	°C
Storage temperature	Tstg	–50 to +125	°C

Note: The derating curve is shown below, in which θf is the thermal resistance of heat – sink. θj–c, the thermal resistance between the junction and the case (TAB), is calculated as 4 °C/W.

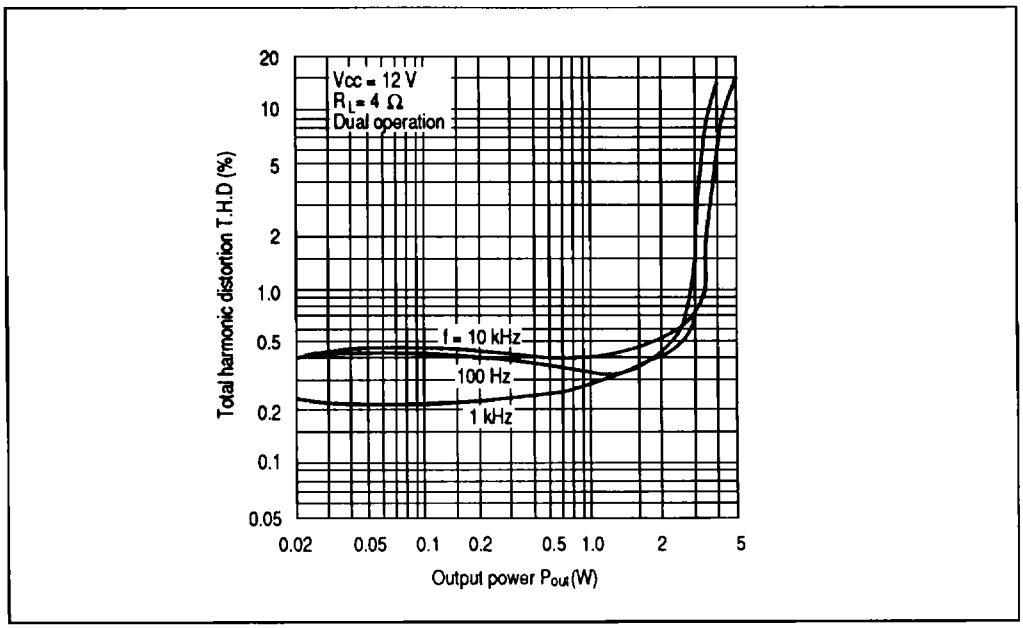


*1: Max power dissipation under Vcc = 12 V, R_L = 4 Ω and dual operation.

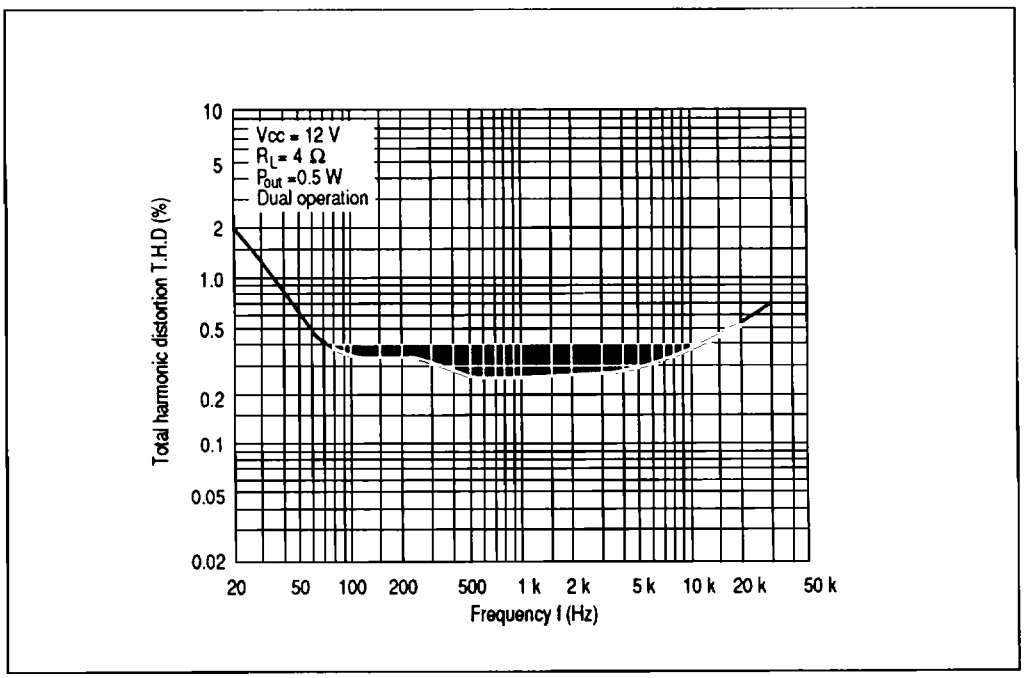
Table 2 Electrical Characteristics (Unless otherwise specified, Ta = 25 °C, V_{CC} =12 V, R_L = 4 Ω, f = 1 kHz and Rg = 600 Ω, under Dual Amp Operation)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Quiescent current	I_Q	—	36	60	mA	Vin = 0 V
Input bias current	I_B	—	—	1.0	μA	Vin = 0 V
Voltage gain	Gv	44	46	48	dB	Vin = 46 dBm
Difference of voltage gain	ΔGv	—	—	±1.5	dB	Vin = –46 dBm
Output power per channel	Pout	3.8	4.3	—	W	THD = 10 % Vcc = 12 V
Total harmonic distortion	THD	—	0.25	1.0	%	Pout = 0.5 W
Noise output	WBN	—	0.4	1.0	mV	Rg = 10 kΩ, BW = 20 Hz to 20 kHz
Supply voltage rejection ratio	SVR	40	44	—	dB	f = 100 Hz, Vripple = 0 dBm
Roll-off frequency	f_H	12	20	33	kHz	Vin = –46 dBm, Gv = –3 dB (f = 1 kHz Ref.)
Cross-talk	CT	—	60	—	dB	Vin = –46 dBm
Muting attenuation	ATT	—	60	—	dB	I_{MUTE} = 5 mA, Vin = –46 dBm

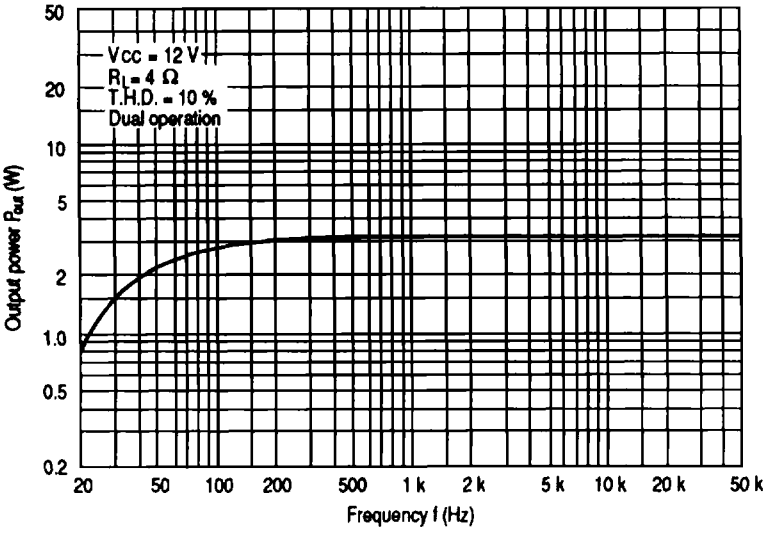
Typical Performance Curves



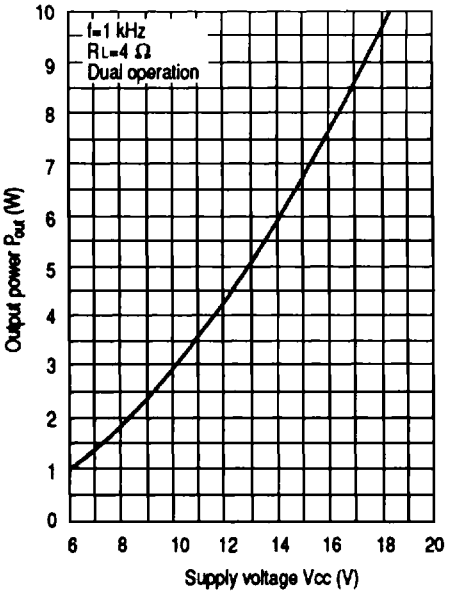
Total Harmonic Distortion vs. Output Power



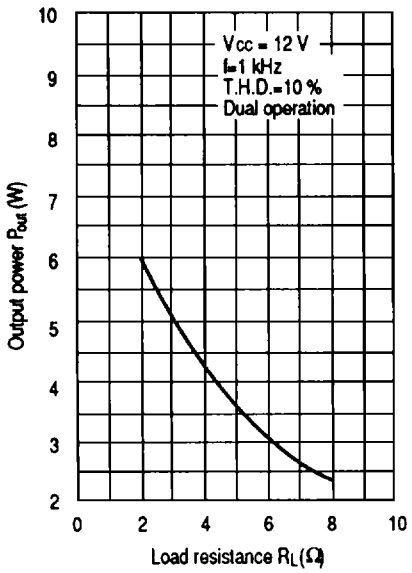
Total Harmonic Distortion vs. Frequency



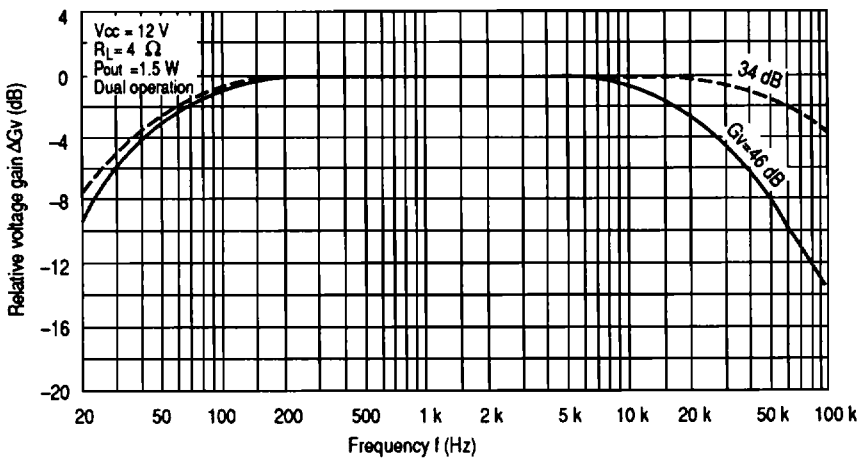
Output Power vs. Frequency



Output Power vs. Supply Voltage



Output Power vs. Load Resistance



Relative Voltage Gain vs. Frequency