ECG® Semiconductors

ECG1256

5.8 W Audio Power Amplifier

Features

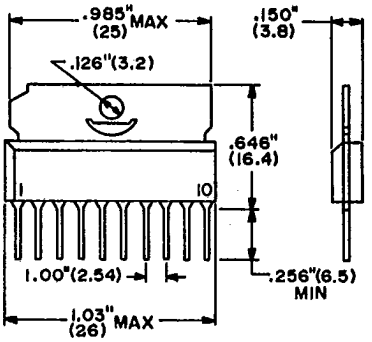
- **High power output**
- **High voltage gain**
- **High peak current capability**
- **High input impedance**
- **Low distortion**
- **Perfect protection from short circuit**
- **Perfect protection from Giant-Pulse on source line**

The ECG1256 is a class B audio amplifier in a single-in-line package with an external cooling tab. It provides an output power of 5.8 W to 4 Ω with 10% distortion at 13.2 V, also is capable of 8 W when driving a 2 Ω load. ECG1256 works with a wide range of supply voltages (9—16 V) and gives high output current (up to 4.5 A), low harmonic distortion and low switching distortion.

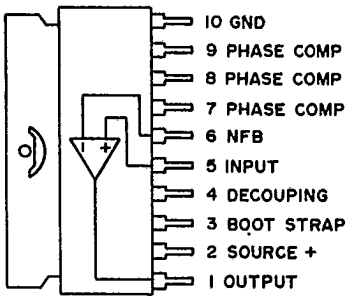
The output is short circuit proof with internal operation-area-limiters and a thermal-shutdown circuit. Giant-Pulse-proof circuits enables overvoltage capability on source line up to 40 Vdc for 1 second to be achieved without external overvoltage protection circuits.

Applications

- **Car component stereos**
- **AM-FM radios**
- **TV sound systems**
- **Intercoms**
- **Phonograph amplifiers**



Pin Connections



Absolute Maximum Ratings (T_A = +25°C)

Characteristic	Symbol	Rating	Unit
Supply Voltage (Note 1)	V_{cc}	18	V
Circuit Current (Note 2)	I_{cc}	4.5	A
Operating Ambient Temperature	T_{opg}	−20 to +75	°C
Storage Temperature	T_{stg}	−40 to +125	°C
Junction Temperature	T_j	150	°C
Power Dissipation (Note 3)	P_D	8.3	W

Note 1 — No Signal
Note 2 — Instantaneous Value
Note 3 — With Infinite Heat Sink

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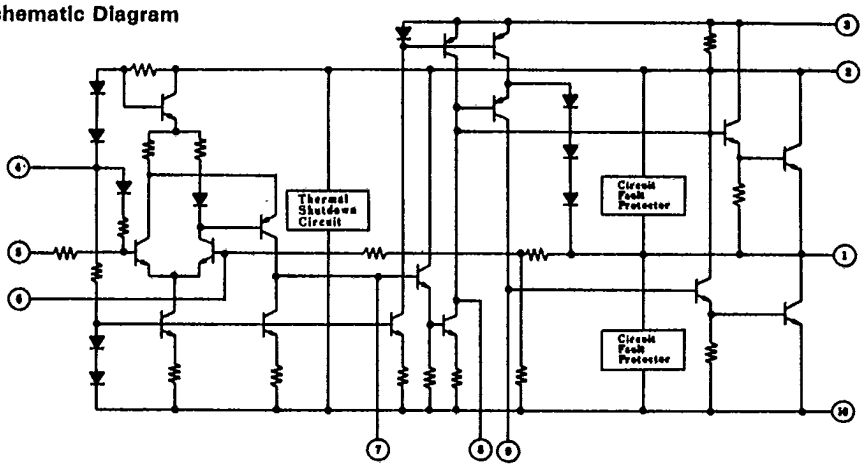
Schematic Diagram

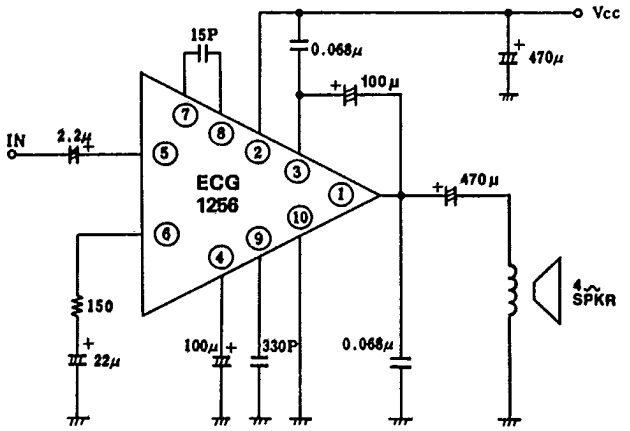


Electrical Characteristics (T_A = +25°C, V_{CC} = 13.2 V)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Zero-Signal Circuit Current	I_{CC}	Zero-Signal	16	42	100	mA
Voltage Gain	G_V	f = 1 kHz, P_O = 1 W, R_L = 4 Ω	55	58	61	dB
Input Resistance	R_I	f = 1 kHz, P_O = 1 W, R_L = 4 Ω	40	66	--	kΩ
Total Harmonic Distortion	THD	f = 1 kHz, P_O = 1 W, R_L = 4 Ω	--	0.4	1.5	%
Maximum Power Output	P_O	f = 1 kHz, R_L = 4 Ω, THD = 10%	5.0	5.8	--	W
Output Noise Voltage	V_{NO}	R_g = 10 kΩ, BW = 20 to 20 kHz	--	2	5	mV

Applications

Power Amplifier



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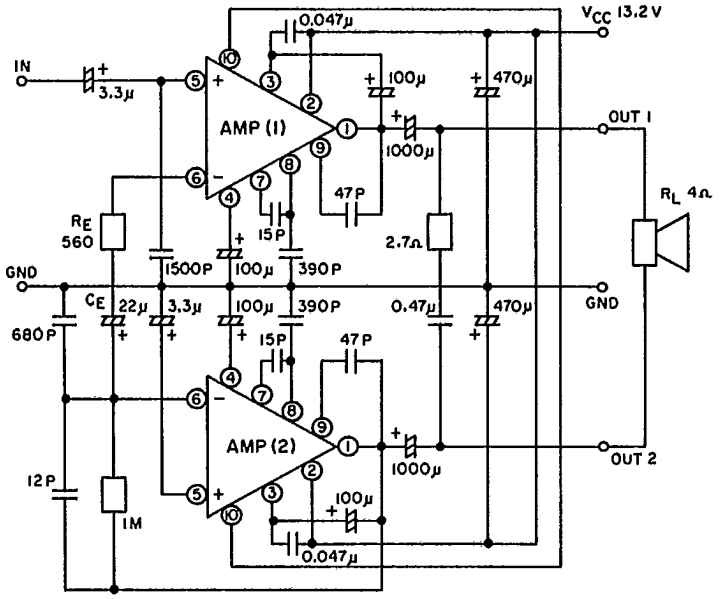
Bridge Amplifier

The ECG1256 can provide output power of 15 W to 4Ω with 5% distortion and 10 W to 8Ω with 10% distortion at 13.2 V supply, employing the following Bridge Amplifier Connections.

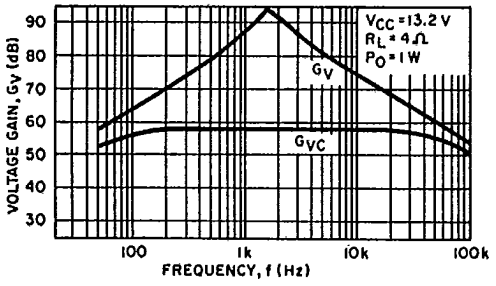


Voltage gain at Bridge Amplifier Connection is determined by following equation:

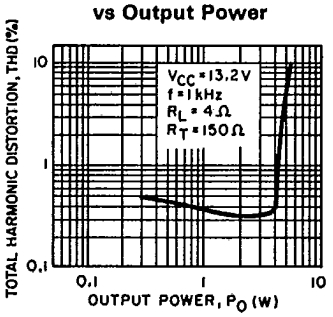
$$G_{vf} = \frac{V_{(OUT_1-OUT_2)}}{V_{(IN-GND)}} = 20 \log_{10} \frac{2.72 \times 10^5}{R_E} \text{ [dB]}$$

Typical Performance Characteristics

Output Voltage Gain vs Frequency



Total Harmonic Distortion vs Output Power



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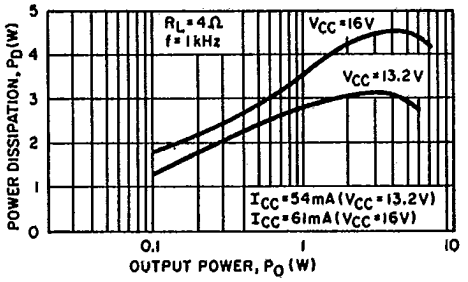
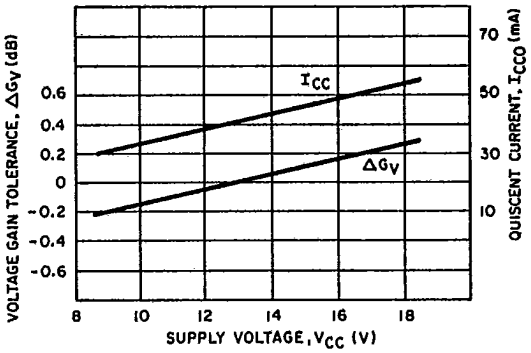
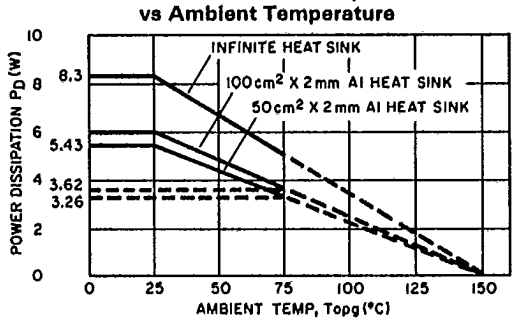
Power Dissipation vs Output Power



Voltage Gain Tolerance and Quiescent Current vs Supply Voltage



Maximum Power Dissipation vs Ambient Temperature



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