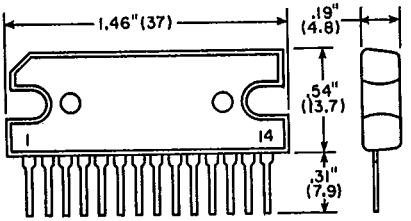
ECG® Semiconductors

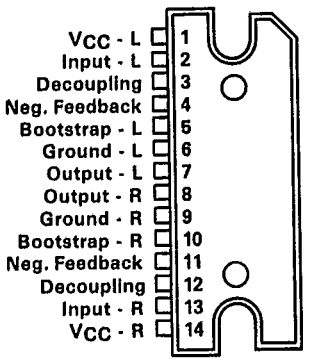
ECG1291

5.5 W per Ch, Dual Audio Pwr Amp

Features

- Compact 14-pin SIL package incorporates dual audio, power amplifiers
- Low number of external components: 4/channel (total 8)
- Characteristics of the two amplifiers are well matched. Incorporates protective circuits. Power supply surge protection circuit (can withstand a surge of +40 V for 0.2 seconds)
- Load short circuit protection
- Thermal cutoff circuit
- High power output: 5.5 W (typ) per channel
  16 W typical (with BTL connections and R_L=4 Ω)
- High voltage gain: 54 dB (typ)





The ECG1291 is an integrated circuit consisting of a high-gain, high-power dual audio power amplifier. It is housed in a compact 14-pin SIL package and is suitable for use in standard 4 Ω car stereos and car radios. Each amplifier provides up to 5.5 W output power and can be used with loads ranging from 2 Ω to 16 Ω.

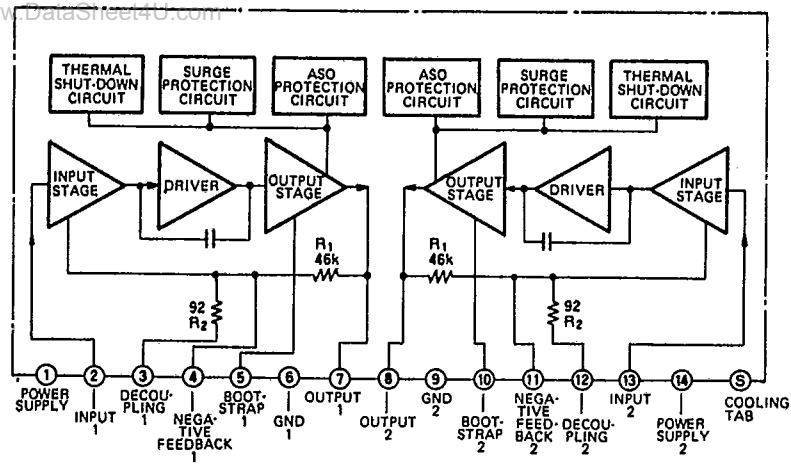
The ECG1291 can also be used as a 16 W output BTL amplifier with a 4 Ω load.

The ECG1291 has been designed to withstand accidental terminal load short-circuits, reverse insertion and momentary power surges exceeding the rated value.

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Rating	Unit
Supply Voltage	V_{CC}	Quiescent	18	V
Peak Supply Voltage	V_{CC} (surge)	Quiescent, t≤0.2 sec	40	V_{p-o}
Circuit Current	I_{CC}	Instantaneous value	9	A
Power Dissipation	P_{DF}	With infinite heat sink	31	W
Junction Temperature	T_j		150	°C
Thermal Derating	K_θ	With infinite heat sink, T_A≥25°C	250	mW/°C
Operating Temperature	T_{opg}		−20 to +75	°C
Storage Temperature	T_{stg}		−40 to +125	°C

Block Diagram

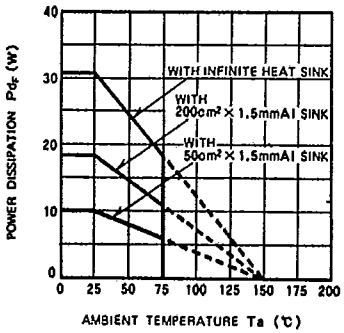


Electrical Characteristics (T_A=25°C, V_{CC}=13.2 V, R_L=4 Ω unless otherwise noted)

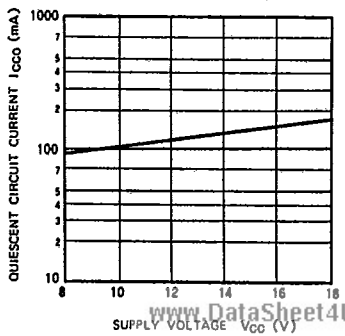
Characteristics	Symbol	Test Condition			Min	Typ	Max	Unit
		f(kHz)	P_O(W)					
Quiescent Circuit Current	I_{CCO}			Quiescent	--	90	200	mA
Voltage Gain	G_V	1	1		50	53.5	55	dB
Total Harmonic Distortion	THD	1	1		--	0.4	1.5	%
Maximum Power Output	P_O max	1		THD=10%	4.8	5.5	--	W
Output Noise Level	N_O			R_g=10 kΩ, BW=20 Hz to 20 kHz	--	1	2.5	mVrms
Input Resistance	R_{in}	1	1		20	45	--	kΩ
Voltage Gain Variation Between Channels	ΔG_V	1	1		--	--	±3	dB
Channel Separation	C.S	1	1	R_g=2.7 kΩ	-40	-50	--	dB

Typical Characteristics (T_A=25°C, V_{CC}=13.2 V unless otherwise noted)

Thermal Derating (Maximum Rating)

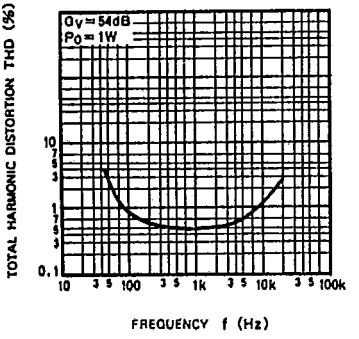


Quiescent Circuit Current vs Supply Voltage

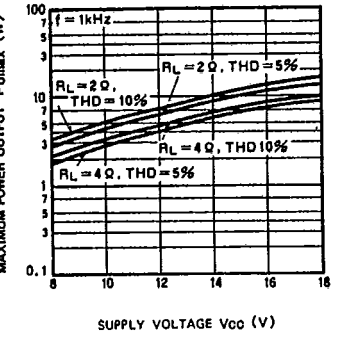


Typical Characteristics (Cont.)

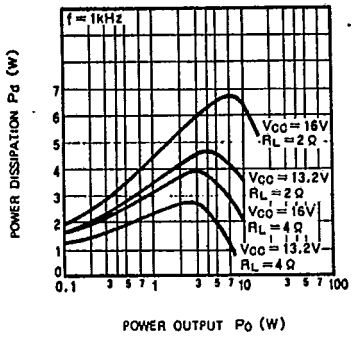
Total Harmonic Distortion vs Frequency (One Channel)



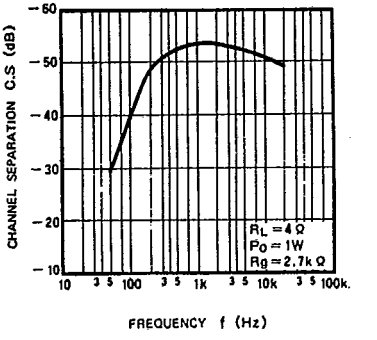
Maximum Output Power vs Supply Voltage (One Channel)



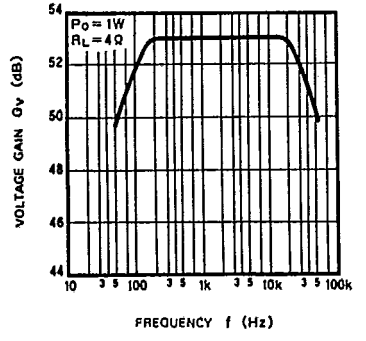
Power Dissipation vs Output Power (One Channel)



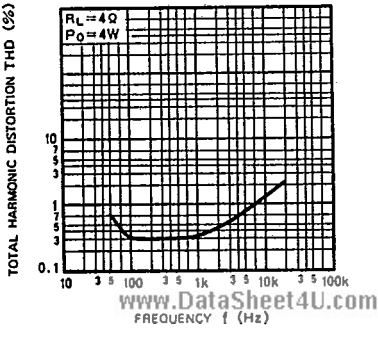
Channel Separation vs Frequency



Voltage Gain vs Frequency (BTL Connections)

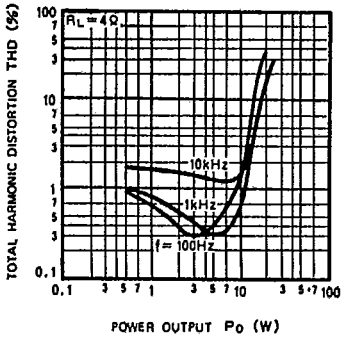


Total Harmonic Distortion vs Frequency (BTL Connections)

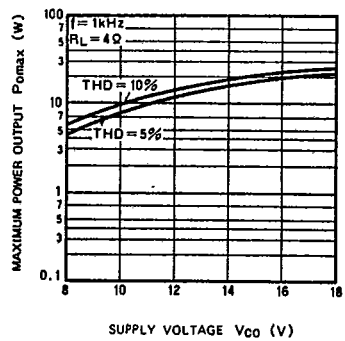


Typical Characteristics (Cont.)

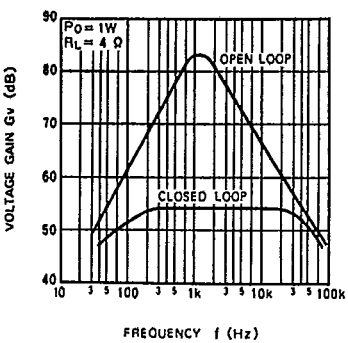
Total Harmonic Distortion vs Output Power (BTL Connections)



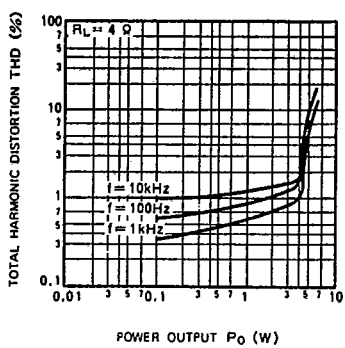
Maximum Output Power vs Supply Voltage (BTL Connections)



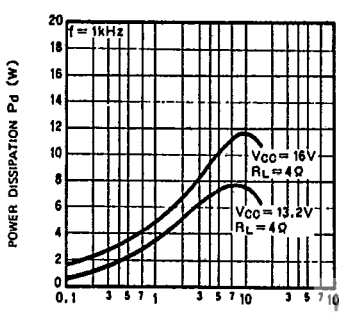
Voltage Gain vs Frequency (One Channel)



Total Harmonic Distortion vs Output Power (One Channel)

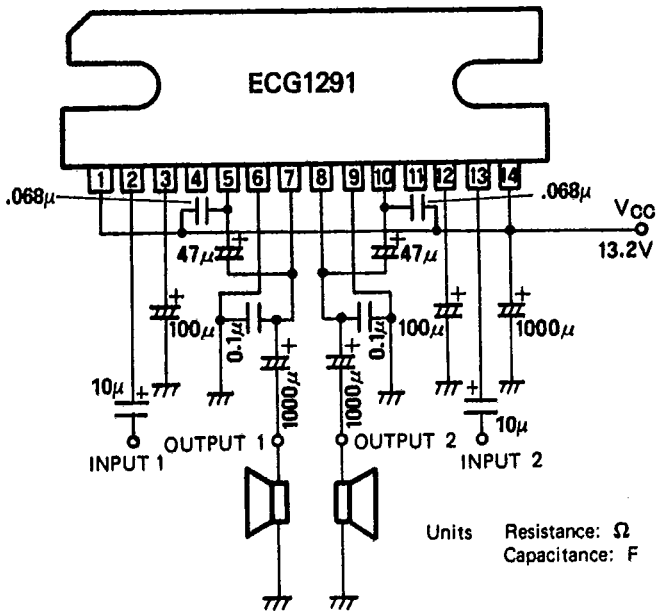


Power Dissipation vs Output Power (BTL Connections)



Application Circuits

5.5 W Per Channel Stereo Power Amplifier



16 W BTL Amplifier