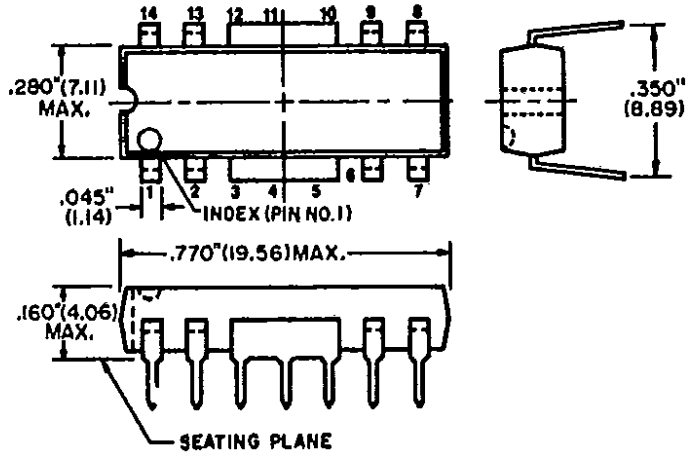


ECG[®] Semiconductors

ECG990 Dual Power Audio Amplifier

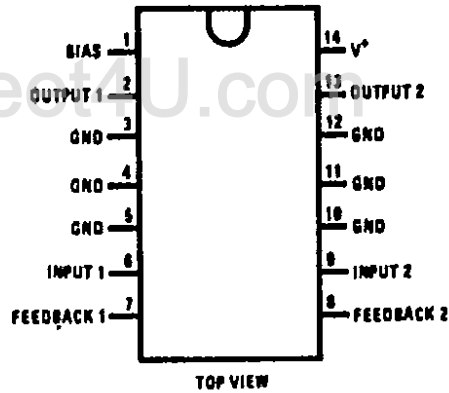
Features

- 2W/channel
- -65dB ripple rejection, output referred
- -65dB channel separation, output referred
- Wide supply range, 6-24V
- Very low cross-over distortion
- Low audio band noise
- Internal current limiting, short circuit protection
- Internal thermal shutdown

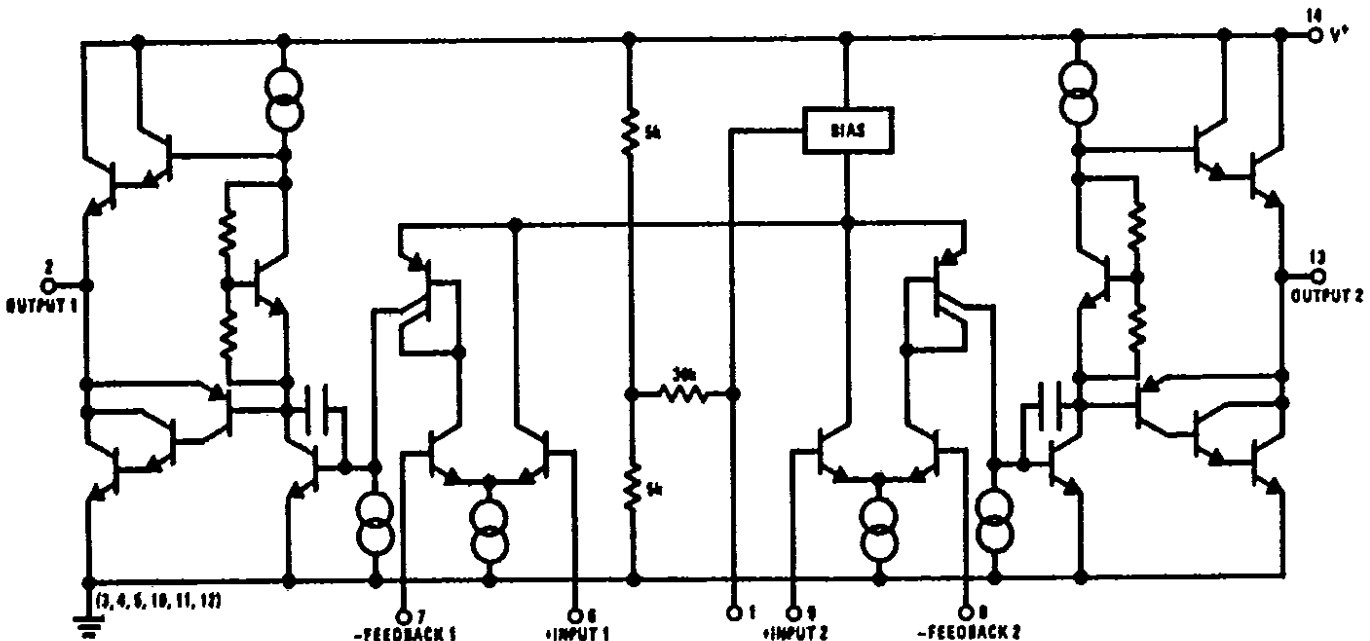


The ECG990 is a monolithic dual power amplifier designed to deliver 2W/channel continuous into 8Ω loads. It is designed to operate with a low number of external components, and still provide flexibility for use in stereo phonographs, tape recorders and AM-FM stereo receivers, etc. Each power amplifier is biased from a common internal regulator to provide high power supply rejection, and output Q point centering. The ECG990 is internally compensated for all gains greater than 10.

Connection Diagram



Schematic Diagram



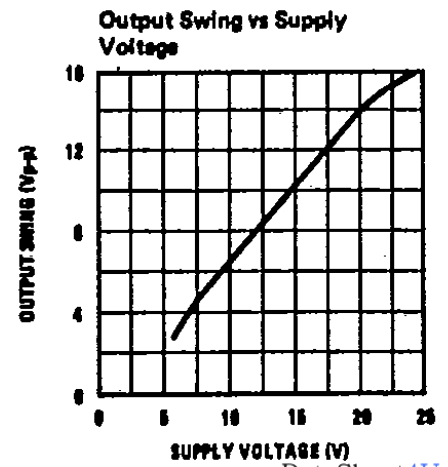
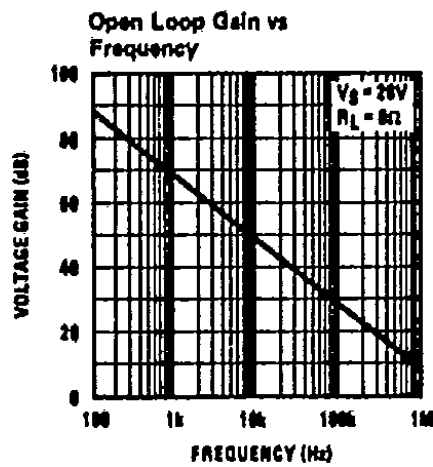
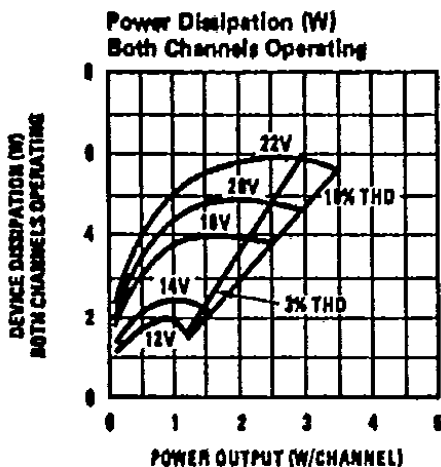
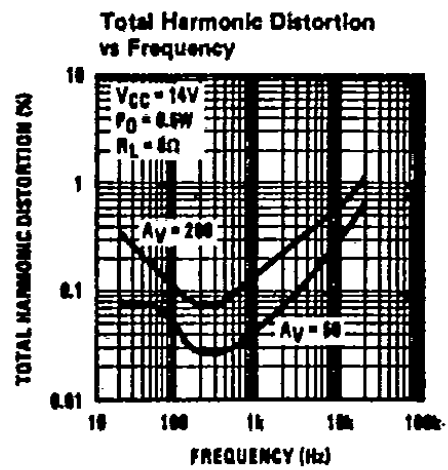
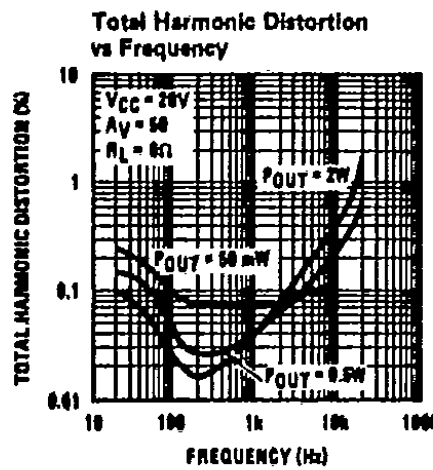
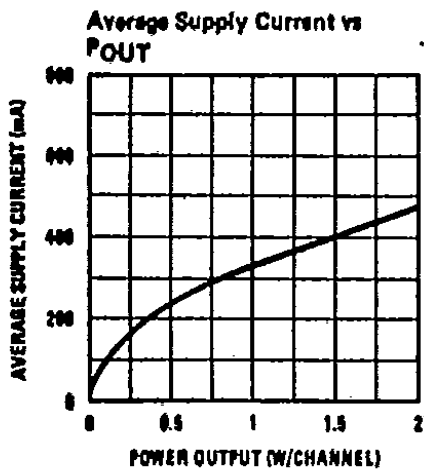
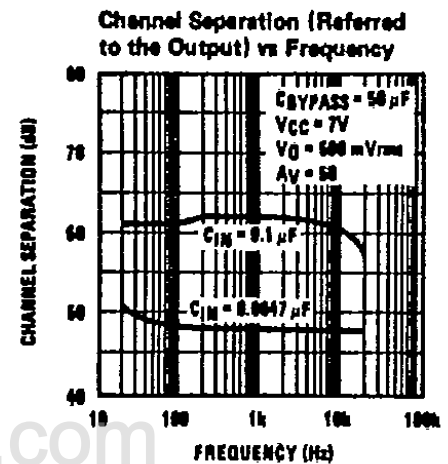
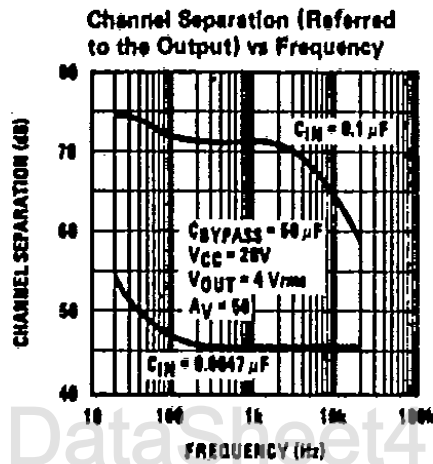
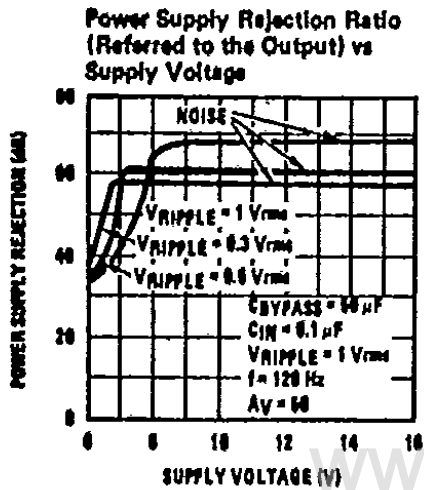
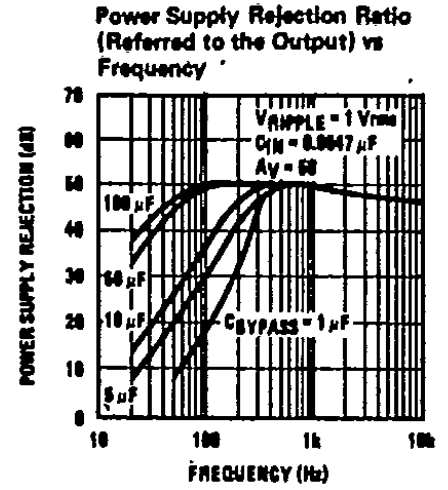
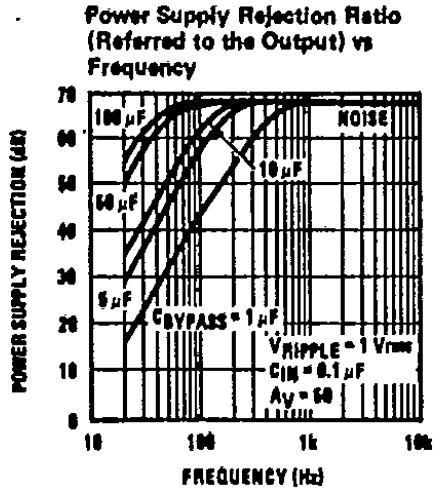
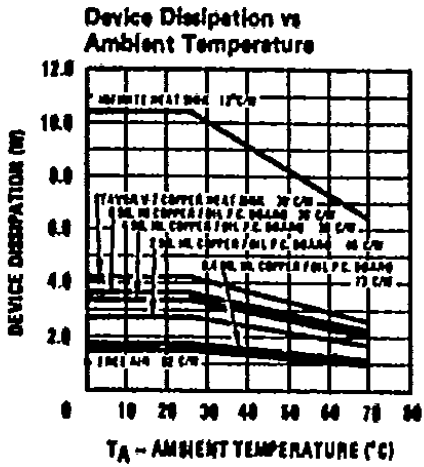
Absolute Maximum Ratings

Supply Voltage	26V
Input Voltage	$\pm 0.7V$
Operating Temperature	0°C to +70°C
Storage Temperature	-65°C to +150°C
Junction Temperature	150°C
Lead Temperature (Soldering, 10 seconds)	300°C

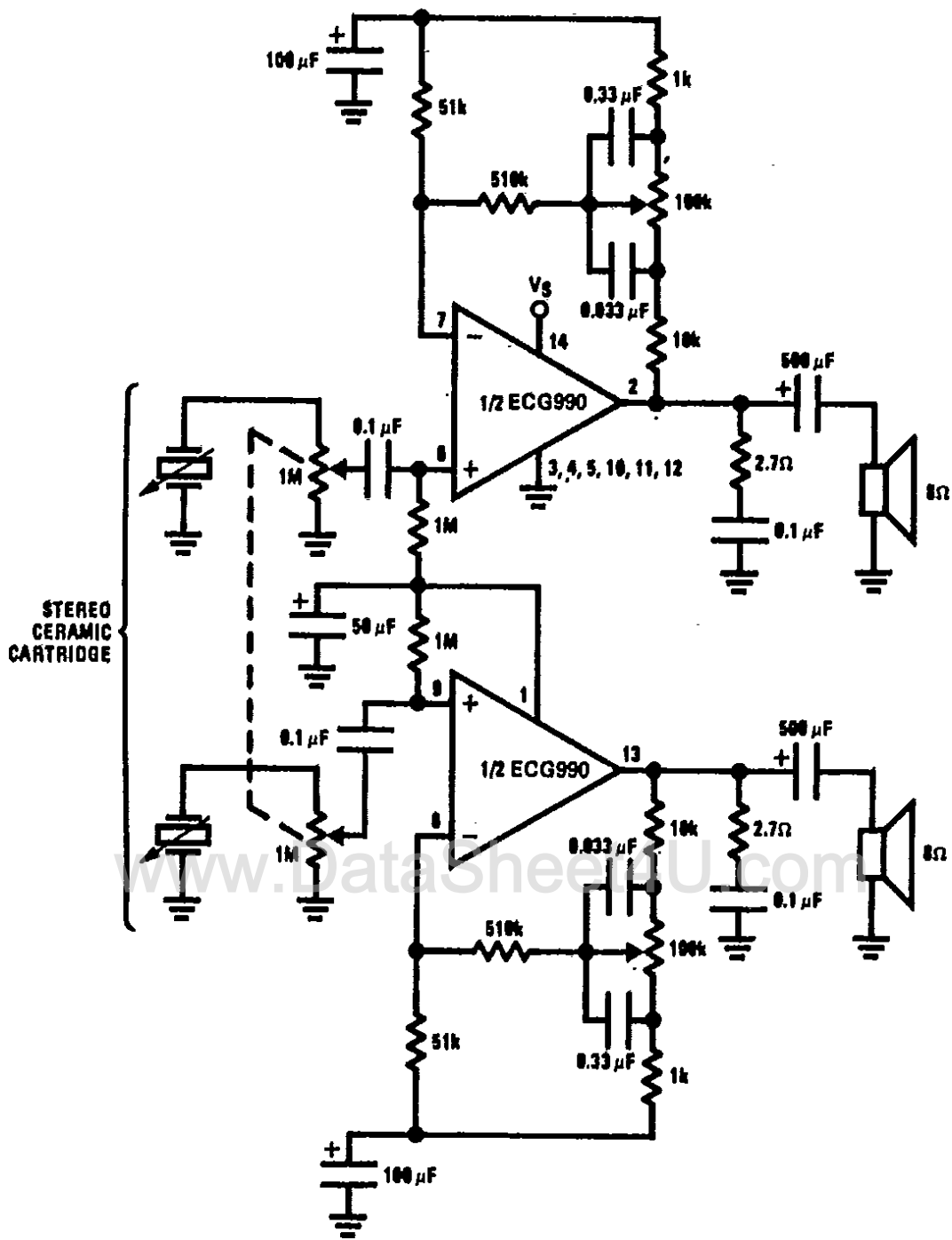
Electrical Characteristics ($V_S = 20V$, $T_A = 25^\circ C$, $R_L = 8\Omega$, $A_V = 50$ (34dB) unless otherwise specified)

Characteristic	Conditions	Min	Typ	Max	Units
Total Supply Current	$P_O = 0W$		25	50	mA
Output Power	THD = 10%, $V_S = 20V$, $R_L = 8\Omega$	2.0			W
Total Harmonic Distortion	$f = 1kHz$, $V_S = 14V$		0.075		%
	$P_O = 50mW/Channel$		0.045		%
	$P_O = 500mW/Channel$		0.055		%
	$P_O = 1W/Channel$		$V_S - 6$		%
Channel Separation	$C_F = 50\mu F$, $C_{IN} = 0.1\mu F$, $f = 1kHz$, Output Referred				
	$V_S = 20V$, $V_O = 4V_{rms}$ $V_S = 7V$, $V_O = 0.5V_{rms}$	-50	-70 -60		dB dB
PSRR Power Supply Rejection Ratio	$C_F = 50\mu F$, $C_{IN} = 0.1\mu F$, $f = 120Hz$, Output Referred				
	$V_S = 20V$, $V_{RIPPLE} = 1V_{rms}$ $V_S = 7V$, $V_{RIPPLE} = 0.5V_{rms}$	-50	-65 -40		dB dB
Noise	Equivalent Input Noise $R_S = 0$, $C_{IN} = 0.1\mu F$, BW = 20Hz – 20kHz		2.5		μV
	Output Noise Wideband $R_S = 0$, $C_{IN} = 0.1\mu F$, $A_V = 200$		0.80		mV
Open Loop Gain	$R_S = 0$, $f = 100kHz$, $R_L = 8\Omega$		70		dB
Input Offset Voltage			15		mV
Input Bias Current			50		nA
Input Impedance	Open Loop	9	4	11	M Ω
DC Output Level	$V_S = 20V$		10		V
Slew Rate			2.0		V/ μs
Power Bandwidth			65		kHz
Current Limit			1.0		A

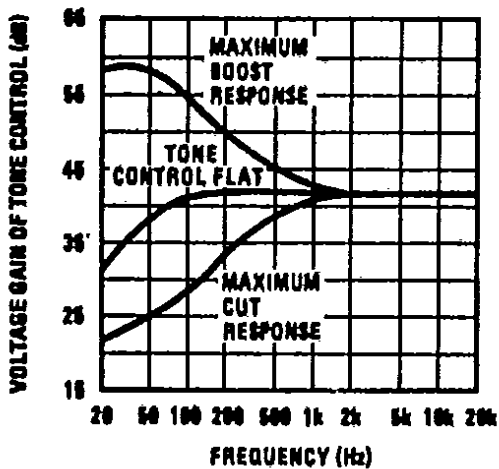
Note 1: For operation at ambient temperature greater than 25°C, the ECG990 must be derated based on a maximum 150°C junction temperature using a thermal resistance which depends upon device mounting techniques.



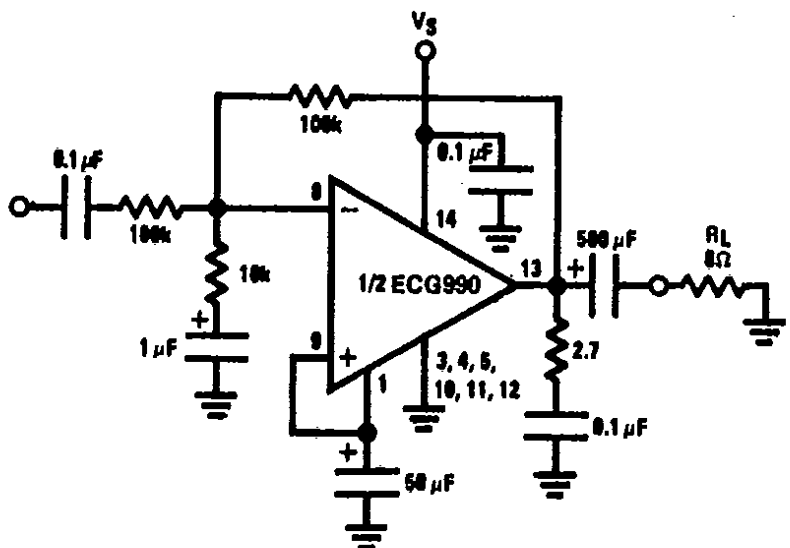
Stereo Phonograph Amplifier with Bass Tone Control



Frequency Response of Bass Tone Control

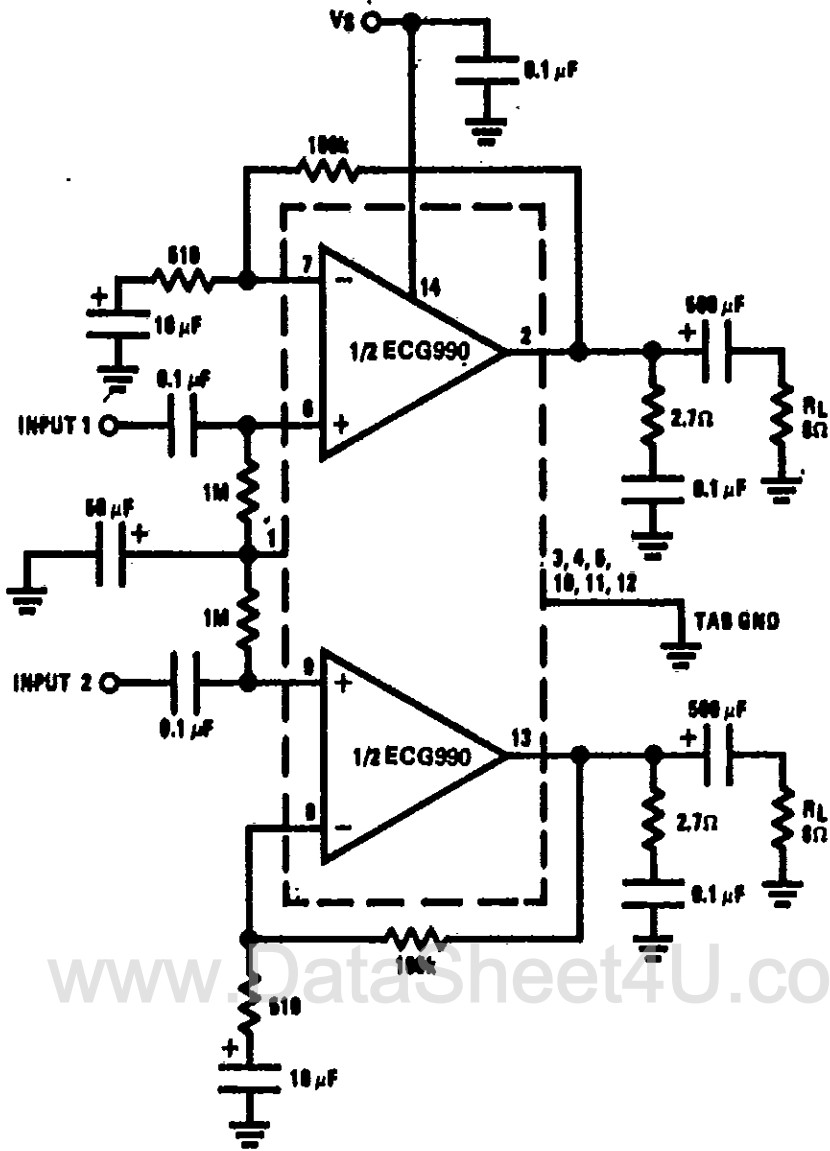


Inverting Unity Gain Amplifier

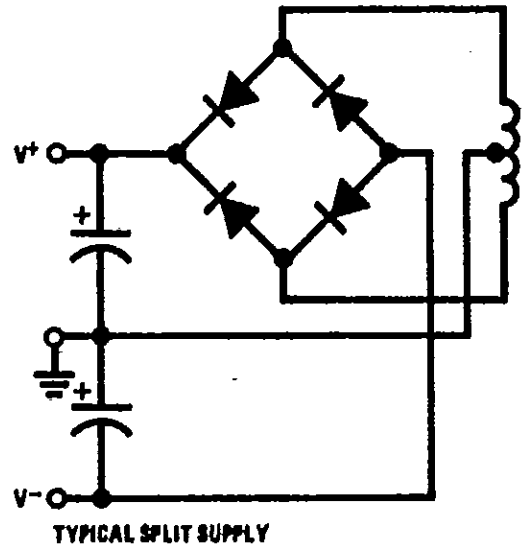
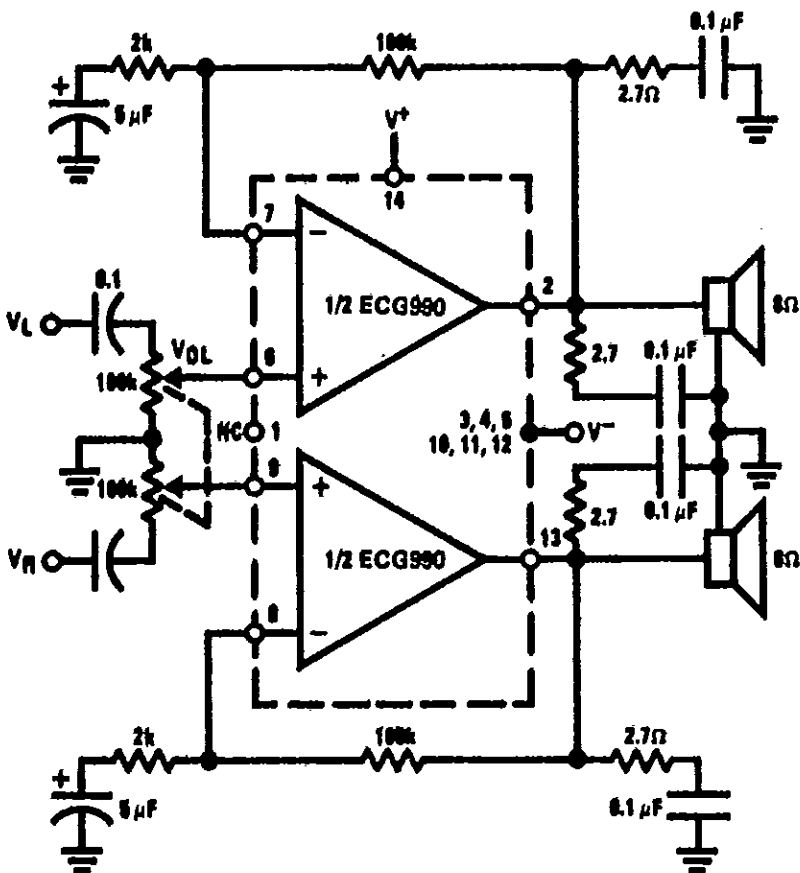


Typical Applications (Continued)

Stereo Amplifier with $A_V = 200$



Non-Inverting Amplifier Using Split Supply



TYPICAL SPLIT SUPPLY