

T-74-05-01

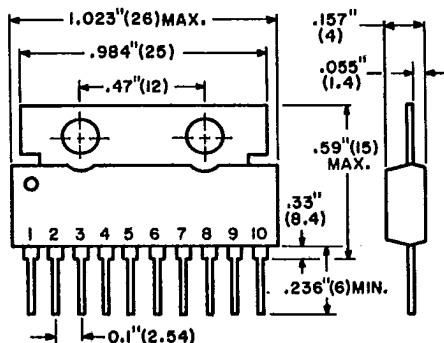
ECG[®] Semiconductors

ECG1194 AF Power Amplifier 5.8W

Features

- Low noise
- Low distortion
- High output power
- Built-in short circuit protection
- Built-in voltage stabilizer

The ECG1194 is a monolithic integrated circuit designed for use as a 5.8 W AF power amplifier in automotive radio and stereo and CB transceiver applications. It is typically used at a supply voltage of 13.2 V with a 4 ohm load.



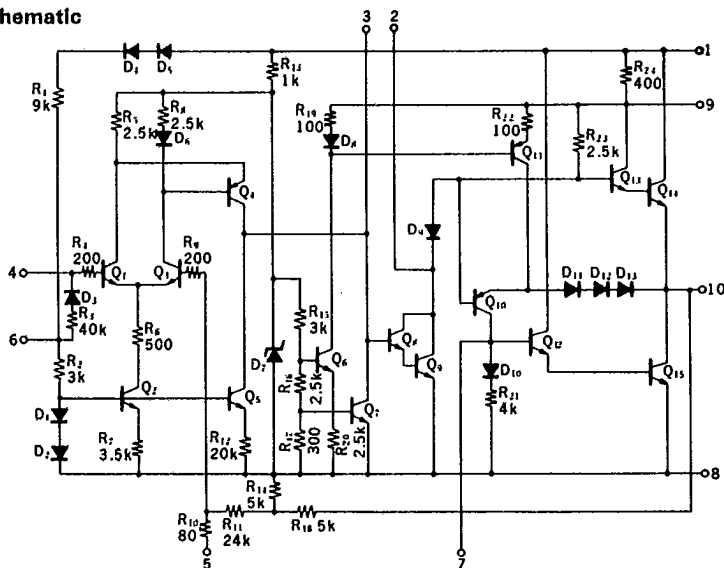
Absolute Maximum Ratings (T_A = 25°C)

Characteristic	Symbol	Rating	Unit
Quiescent Supply Voltage	V _{CC1}	18.0	V
Operational Supply Voltage	V _{CC2}	17.0*	V
Peak Circuit Current	I _{CC(Peak)}	2.5	A
Power Dissipation	P _d	7.0*	W
Operating Temperature	T _{opt}	-20 to +75*	°C
Storage Temperature	T _{stg}	-40 to +150	°C

connections	
1	Power supply: +V _{CC}
2	Phase compensation
3	Phase compensation
4	Input
5	Feedback
6	Bypass
7	Phase compensation
8	GND
9	Boot strap
10	Output
	TAB (GND)

* Using an aluminum heat sink 100 x 100 x 1 mm

Circuit Schematic



ECG1194

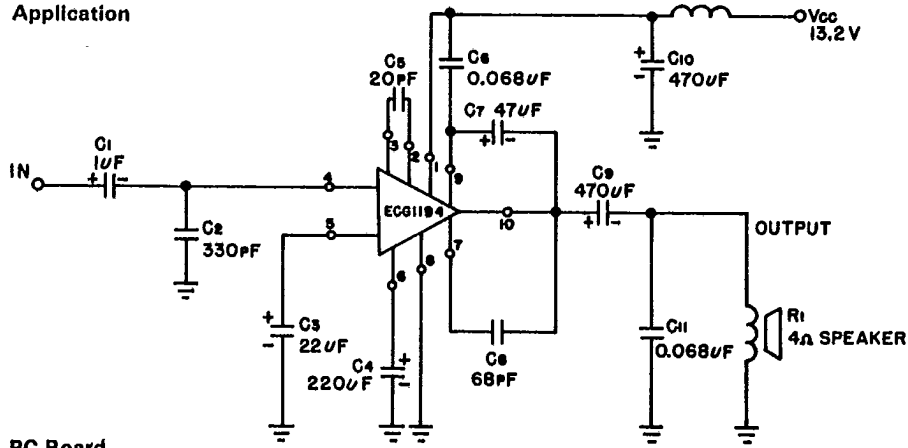
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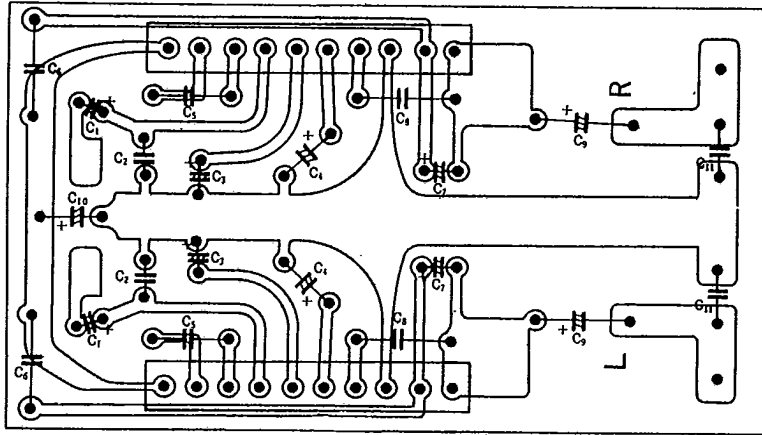
Electrical Characteristics ($T_A = 25^\circ\text{C}$, $V_{CC} = 13.2\text{ V}$, $f = 1\text{ kHz}$, $R_L = 4\ \Omega$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Supply Current	I_{CC}		12	30	60	mA
Output Power	P_O	THD = 10%	5.0	5.8		W
Total Harmonic Distortion	THD	$P_O = 0.5\text{ W}$		0.2	1.0	%
Voltage Gain	A_V	$P_O = 0.5\text{ W}$	52.0	55.5	58.0	dB
Output Noise Level	V_N	$R_g = 10\text{ K}$		1.4	4.0	mVrms

Application



PC Board



Parts No.	Capacity
C1	1 μF (50 V)
C2	330 pF
C3	22 μF (6.3 V)
C4	220 μF
C5	20 pF
C6	0.2 μF
C7	47 μF (10 V)
C8	68 pF
C9	470 μF (16 V)
C10	100 μF (16 V)
C11	0.068 μF

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ECG1194

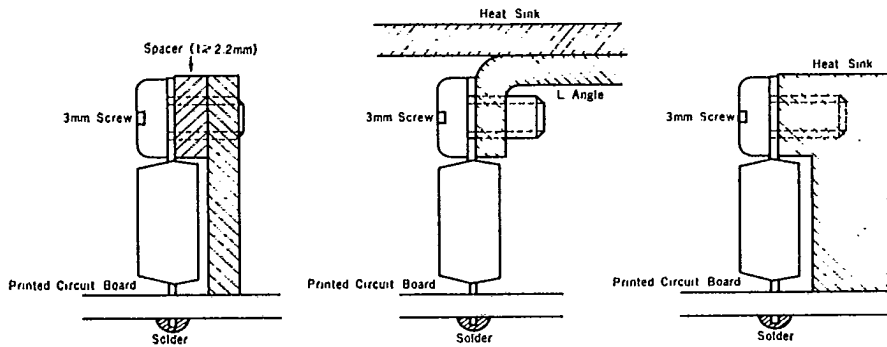
Circuit Board Design Consideration

- Use the widest possible printed foil for a power supply and the ground.
- One point earthing is ideal, but if this is impossible, keep the input loop out of the output loop.
- The output earthing point should be located as close as possible to the ground pin (pin 8 and TAB) to prevent oscillation due to feedback.
- The pin 8 is internally connected to the TAB.

Circuit Design Consideration

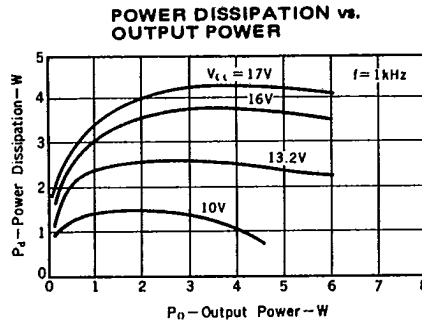
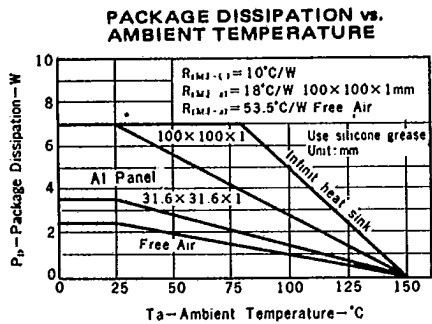
- A cut-off frequency range depends on mainly a capacitor C_8 . A typical f_H value is about 25 kHz by a 20 pF capacitor.
- The capacitor C_8 is for a frequency compensation in high frequency range.
- Capacitors C_8 and C_{11} are for prevention oscillation due to feedback.
- A Mylar capacitor is recommended for capacitors C_8 and C_{11} .
- If an oscillation occurs due to an earthing of a printed circuit board, use larger capacity for C_8 or C_{11} .
- The capacitor C_{10} should be located as close as possible to the IC pins.

Mounting Instructions



Note. Use Silicone grease.
Use a torque of 4 ~ 6kg-cm.

Typical Characteristics ($T_A = 25^\circ\text{C}$)



Typical Characteristics (Cont.)

