

# ECG<sup>®</sup> Semiconductors

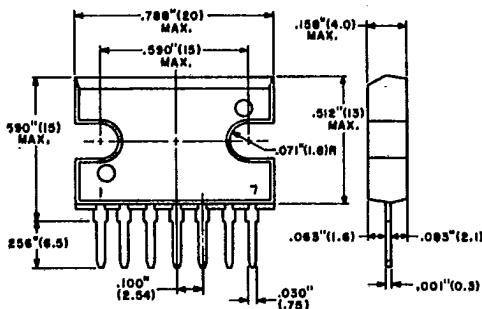
## ECG1285, ECG1286

5.8 W Audio Power Amplifier

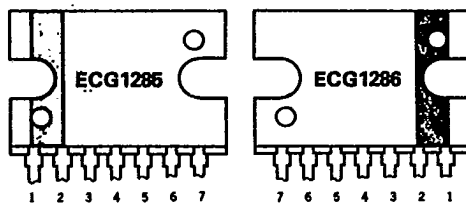
T-74-05-01

**Features**

- High output power at 14.4 V  
 $R_L = 4 \Omega$   $P_o = 7 \text{ W Typ}$   
 $R_L = 2 \Omega$   $P_o = 11 \text{ W}$   
 $R_L = 4 \Omega \text{ BTL Circuit}$   $P_o = 18 \text{ W}$
- Few external components required
- Ease of assembly due to no insulation requirement
- Pin orders of these types are symmetrical with each other, which effectively reduces the printed circuit board area
- Protective circuits provided for are:  
 (1) Load dump  
 (2) Thermal shutdown  
 (3) Over voltage  
 (4) Output terminal short circuit
- These ICs are not destroyed nor damaged when any neighboring terminals are shorted to each other, or reverse insertion into printed circuit board occurs



Connection Diagram



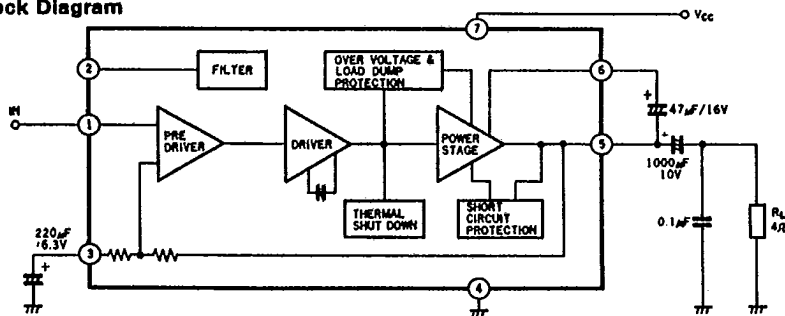
The ECG1285 and ECG1286 are silicon bipolar monolithic ICs. These 5.8 W audio power amplifiers are especially designed for car radio and car stereo. The devices are in a small package featuring low thermal resistance, providing easy design for 2  $\Omega$  load circuit and 4  $\Omega$  load BTL circuit.

Pin No.	ECG1285 ECG1286
1	Input
2	Bypass
3	Feedback
4	GND
5	Output
6	Boot strap
7	Power supply

**Recommended Conditions ( $T_A = 25^\circ\text{C}$ )**

Supply Voltage Range	9.5 to 16	V
Load Impedance	2 to 4	$\Omega$

**Block Diagram**



T-74-05-01

**Absolute Maximum Ratings** ( $T_A = 25^\circ\text{C}$ )

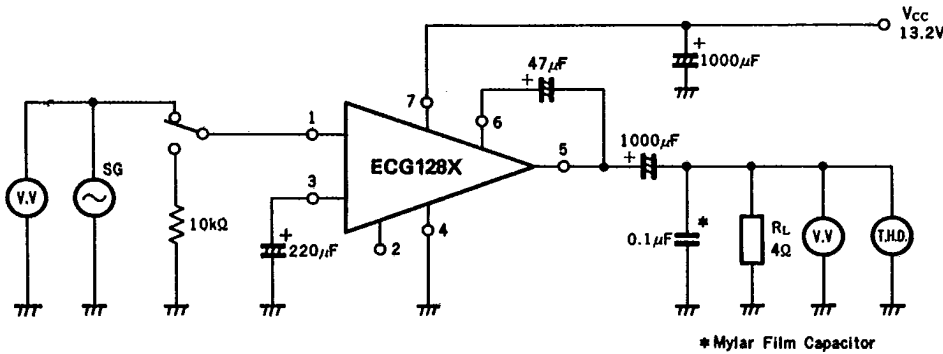
Characteristic	Symbol	Rating	Unit
Supply Voltage (Surge PW=200 ms)	$V_{cc}$ surge	40	V
Supply Voltage (Quiescent)	$V_{cc1}$	25*	V
Supply Voltage (Operational)	$V_{cc2}$	18	V
Circuit Current (Peak)	$I_{cc}$ peak	4.5	A
Package Dissipation	$P_D$	12	W
Operating Temperature	$T_{opg}$	-30 to +75*	$^\circ\text{C}$
Storage Temperature,	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

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

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Circuit Current	$I_{cc}$	$V_{IN} = 0$ , $V_{cc} = 13.2 \text{ V}$	23	45	80	mA
Output Power	$P_o$	$R_L = 4 \Omega$ , THD = 10%, $V_{cc} = 13.2 \text{ V}$	5.0	5.8	--	W
		$R_L = 4 \Omega$ , THD = 10%, $V_{cc} = 14.4 \text{ V}$	--	7	--	W
		$R_L = 2 \Omega$ , THD = 10%, $V_{cc} = 13.2 \text{ V}$	--	9.2	--	W
		$R_L = 2 \Omega$ , THD = 10%, $V_{cc} = 14.4 \text{ V}$	--	11	--	W
Total Harmonic Distortion	THD	$P_o = 0.5 \text{ W}$	--	0.3	1	%
Voltage Gain	$V_G$	$P_o = 0.5 \text{ W}$	51	53.5	56	dB
Output Noise Level	$V_{NO}$	$R_G = 10 \text{ k}\Omega$	--	.14	4.0	mVrms

**Test Circuit & Typical Application**

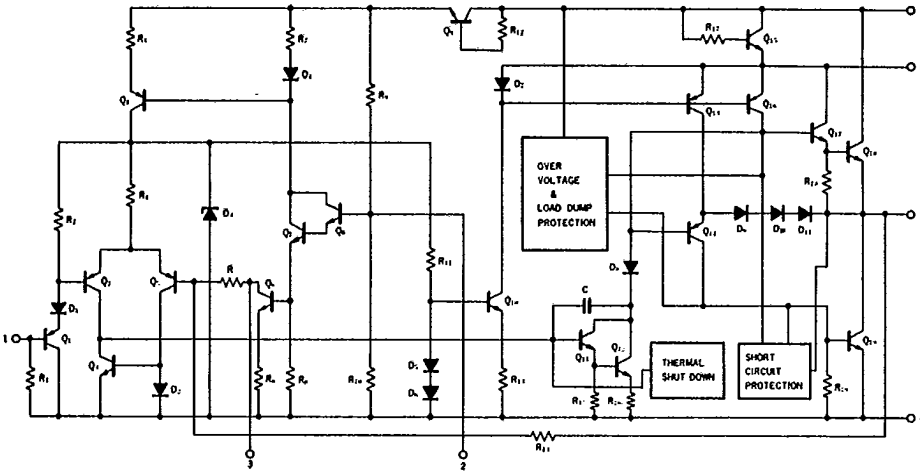


653

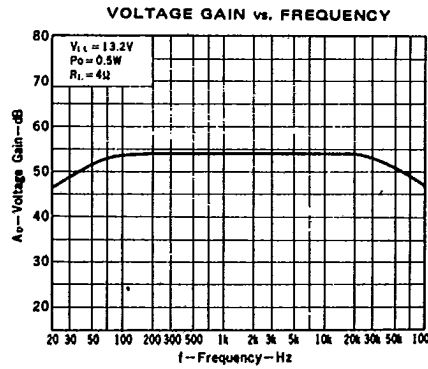
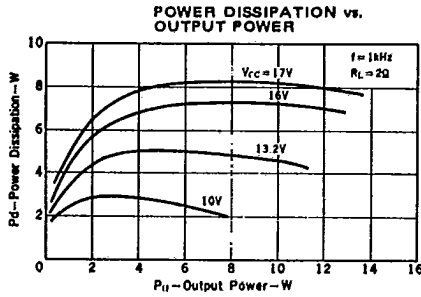
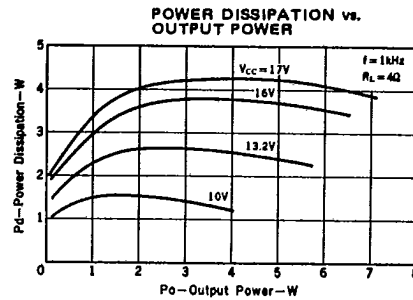
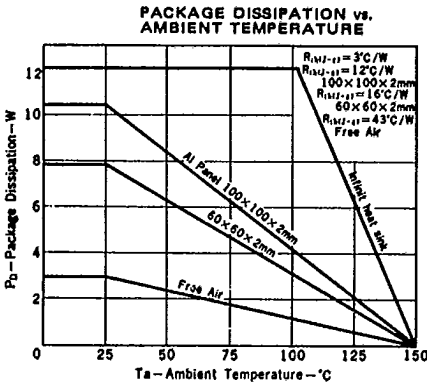
ECG1285, ECG1286

T-74-05-01

Equivalent Circuit

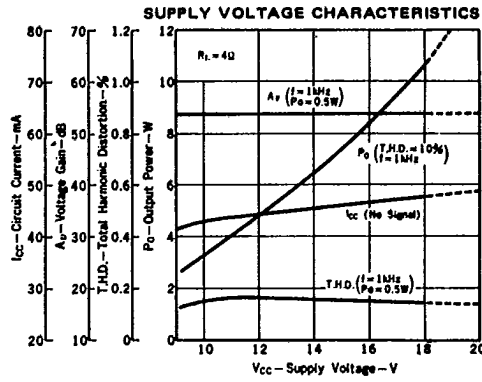
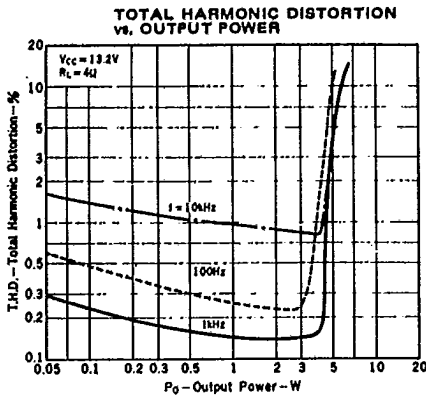


Typical Characteristics (TA = 25°C)

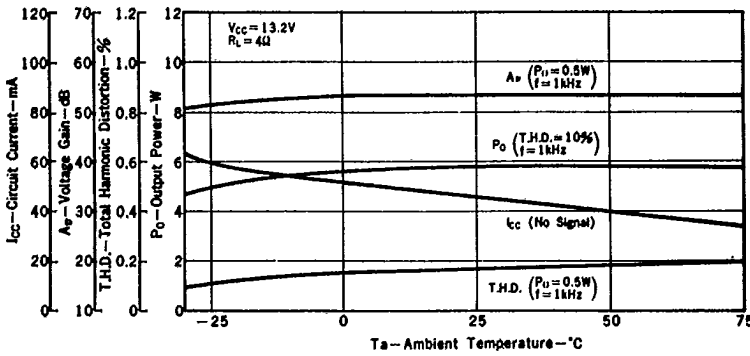


Typical Characteristics (Cont.)

T-74-05-01



TEMPERATURE CHARACTERISTICS



Typical Applications

(1) Circuit Example

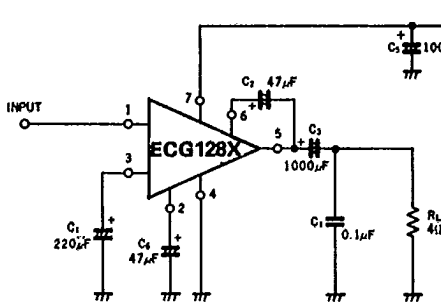


Fig. A

- C<sub>5</sub> effectively reduces a power-on transient noise.

(2) Circuit Example

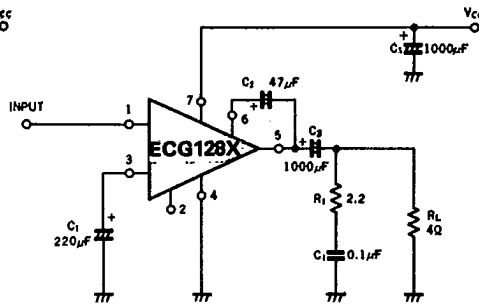
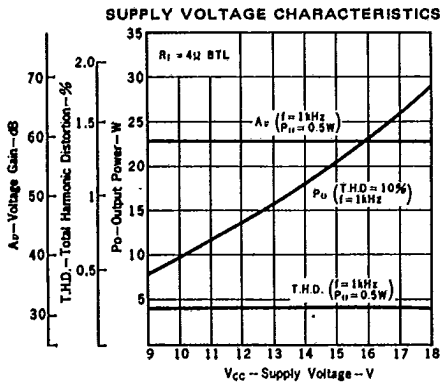
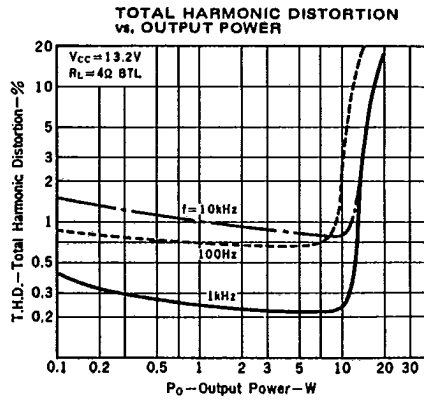
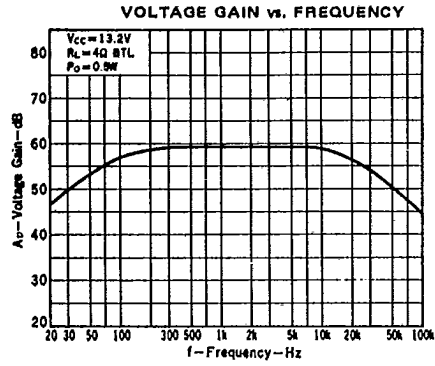


Fig. B

- C<sub>4</sub> prevents parasitic oscillation. A mylar film capacitor is recommended. If oscillation occurs, increase capacitance of C<sub>4</sub>, or connect an additional resistor R<sub>1</sub> as shown.

4 Ω BTL Characteristics (T<sub>A</sub> = 25°C)

T-74-05-01



4 Ω BTL Application

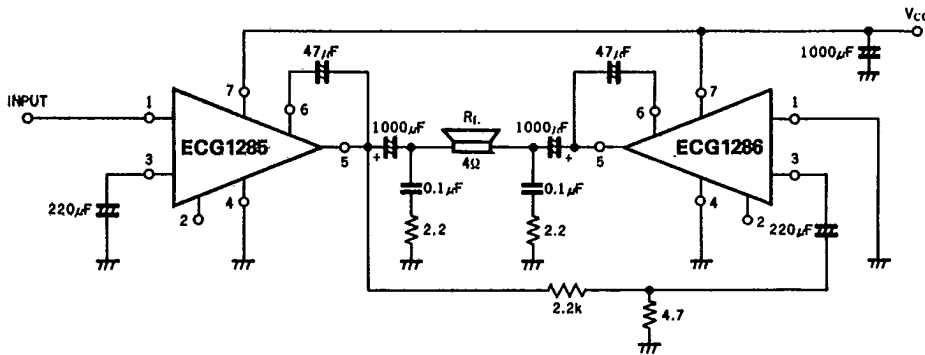


Fig. C

ECG1285, ECG1286

656