

BIPOLAR ANALOG INTEGRATED CIRCUIT

μ PC1230H

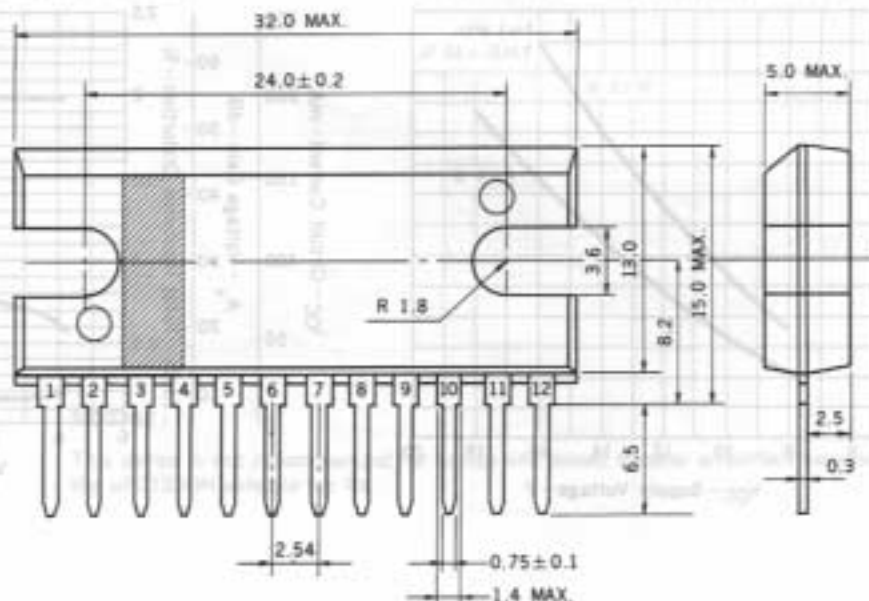
23 W AF POWER AMPLIFIER SILICON BIPOLAR MONOLITHIC INTEGRATED CIRCUIT

The μ PC1230H is an audio power amplifier in a 12-lead single in-line package, specifically designed for car stereo application. Typically it provided 23 watts output power at 14.4 volt and 20 watts at 13.2 V on a 4 ohm load. This device can be used without output capacitors, because it incorporates the original short circuit protection which protects output power transistors and a speaker at the same time when the output terminal is shorted to ground.

FEATURES

- Can be used as OCL connection.
- Very low output offset voltage : $V_{\text{offset}} = 150 \text{ mV (MAX.)}$
- High output power : $P_O = 23 \text{ W TYP.}$ $R_L = 4 \Omega \text{ at } 14.4 \text{ V}$
 $P_O = 20 \text{ W TYP.}$ $R_L = 4 \Omega \text{ at } 13.2 \text{ V}$
- Very low distortion.
- Very low number of external low size components, very simple mounting system with no electrical isolation between the package and the heat sink.
- Low thermal resistance : $\theta_{J-C} \approx 2.5 ^\circ\text{C/W}$
- Following protective circuit as provide
 - (1) Load dump protection
 - (2) Output terminal short circuit protection
 - (3) Thermal shut down protection
 - (4) Speaker protection

PACKAGE DIMENSIONS (in millimeters)



ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

Supply Voltage (Note)	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	20	W
Operating Temperature	T _{opt}	-30 to +75*	°C
Storage Temperature	T _{stg}	-55 to +150	°C

*Using an aluminum heat sink $\theta_{th(c-a)} = 4^{\circ}\text{C/W}$
 Note : Pulse width = 200 ms, Trise ≥ 1 ms

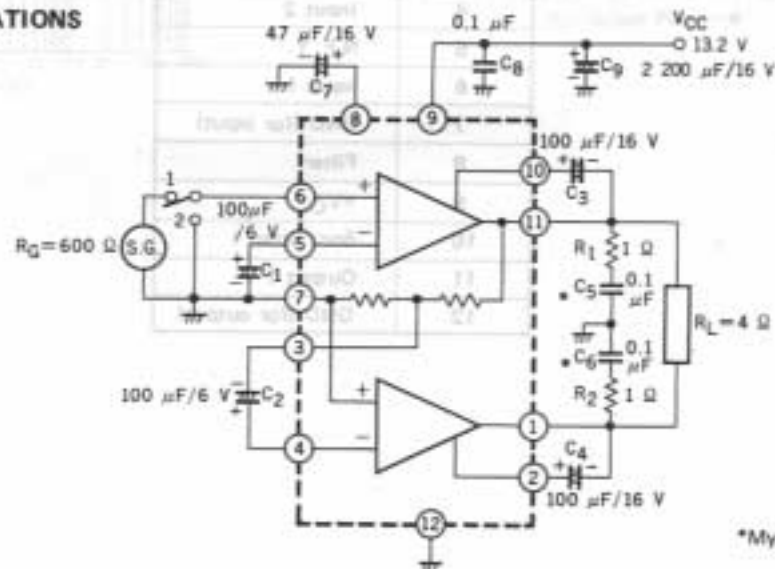
RECOMMENDED OPERATING CONDITIONS (Ta = 25 °C)

Supply Voltage Range	9.5 to 16	V
Load Impedance	3.2 to 16	Ω

ELECTRICAL CHARACTERISTICS (Ta = 25 °C, V_{CC} = 13.2 V, R_L = 4 Ω , f = 1 kHz)

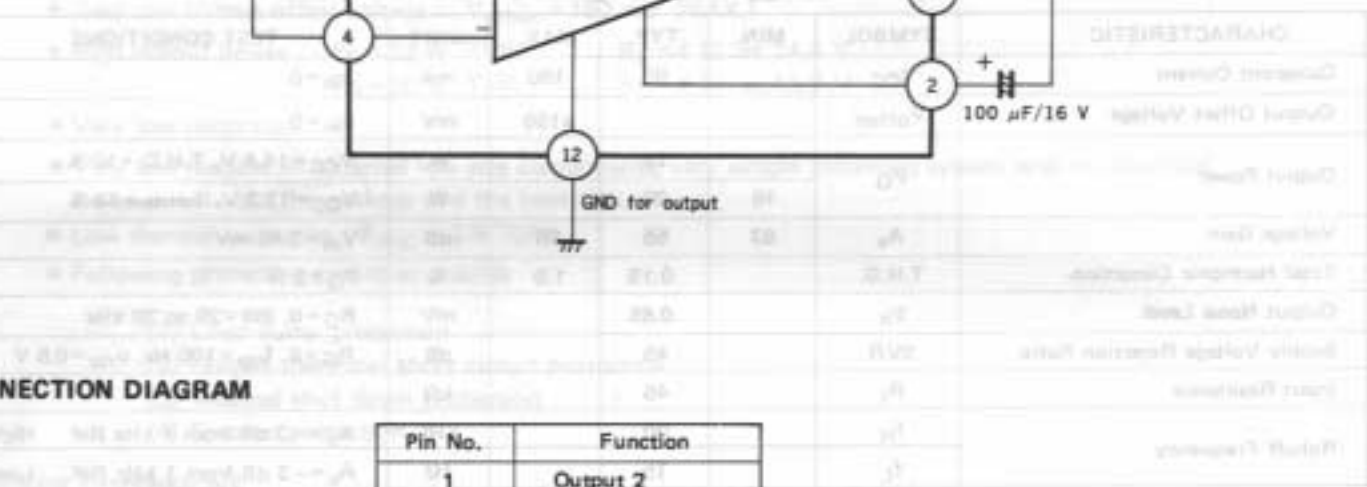
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Quiescent Current	I _{CC}		90	180	mA	V _{in} = 0
Output Offset Voltage	V _{offset}			± 150	mV	V _{in} = 0
Output Power	P _O		23		W	V _{CC} = 14.4 V, T.H.D. = 10 %
		16	20		W	V _{CC} = 13.2 V, T.H.D. = 10 %
Voltage Gain	A _v	53	55	56	dB	V _{in} = 2.45 mV
Total Harmonic Distortion	T.H.D.		0.15	1.0	%	P _O = 2 W
Output Noise Level	v _n		0.65		mV	R _G = 0, BW = 20 to 20 kHz
Supply Voltage Rejection Ratio	SVR		45		dB	R _G = 0, f _{rip} = 100 Hz, v _{rip} = 0.5 V
Input Resistance	R _i		45		k Ω	
Rolloff Frequency	f _H		90		kHz	A _v = -3 dB from 1 kHz Ref. High
	f _L		15		Hz	A _v = -3 dB from 1 kHz Ref. Low

TEST CIRCUIT & TYPICAL APPLICATIONS



*Mylar film capacitor

SILICON BIPOLAR MONOLITHIC INTEGRATION



Pin No.	Function
1	Output 2
2	Boot Strap 2
3	Divided Output
4	Input 2
5	N.F. 1
6	Input 1
7	GND (for input)
8	Filter
9	+VCC
10	Boot Strap 1
11	Output 1
12	GND (for output)