

# BIPOLAR ANALOG INTEGRATED CIRCUIT

# $\mu$ PC1185H2

## 7 W DUAL AF POWER AMPLIFIER

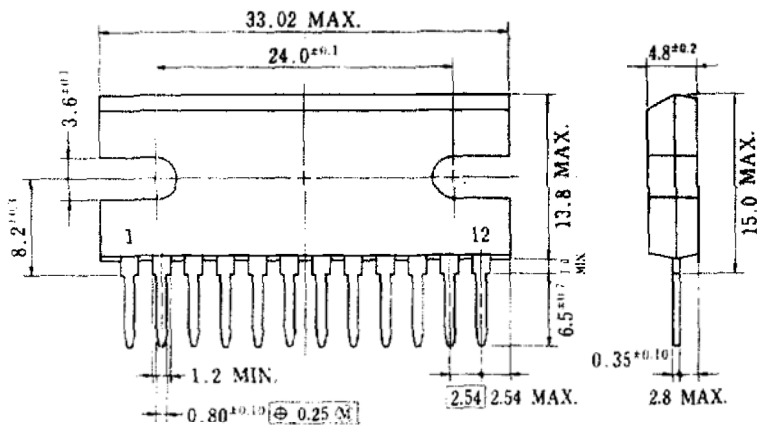
The  $\mu$ PC1185H2 is a dual audio power amplifiers in a 12-lead single in-line package, specifically designed for car stereo application.

This device provides an output power of 7 watts per channel to 4 ohm load with 10 percent distortion at 14.4 volts power supply.

### FEATURES

- Very low number of external components.
- Easy mounting with no electrical isolation between the package and heat sink.
- Space saving due to the single in-line package.
- Very low transient noise at power switch-on.
- No damage for reverse insertion on the PC-board.
- Thermal shut-down circuit included.
- Load dump protection circuit included.

### PACKAGE DIMENSIONS (Unit: mm)



P12HP-254B2

### CONNECTION DIAGRAM

Pin No.	Function
1	GND (for input)
2	Output 1
3	Bootstrap 1
4	Filter
5	N.F. 1
6	Input 1
7	Input 2
8	N.F. 2
9	+V <sub>CC</sub>
10	Bootstrap 2
11	Output 2
12	GND (for output)

**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25 °C)**

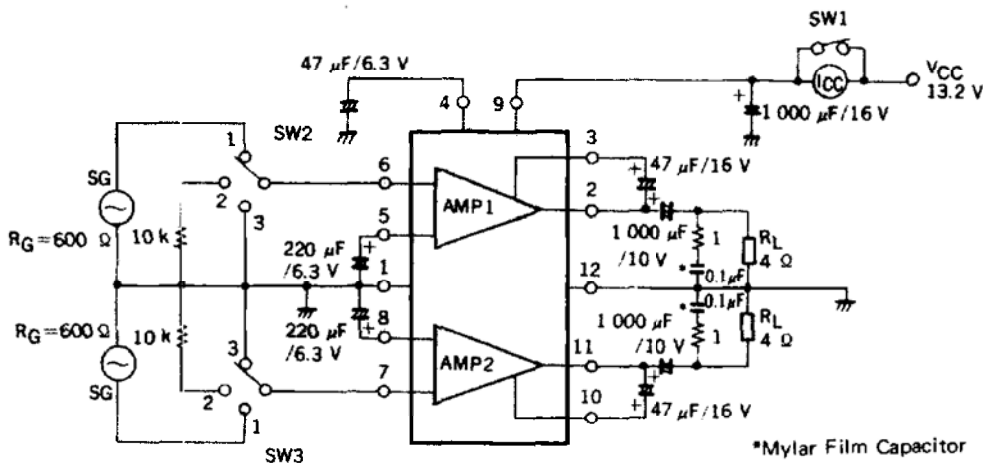
Supply Voltage (Surge PW = 200 ms)	V <sub>CCsurge</sub>	40	V
Supply Voltage (Operational)	V <sub>CC</sub>	18	V
Circuit Current (Peak)	I <sub>CC peak</sub>	4.5	A
Package Dissipation	P <sub>D</sub>	20	W
Operating Temperature	T <sub>opt</sub>	-30 to +75*	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

\*Using an aluminum heat sink R<sub>th(c-a)</sub> = 6 °C/W

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C, V<sub>CC</sub> = 13.2 V, f = 1 kHz, R<sub>L</sub> = 4 Ω)**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Circuit Current	I <sub>CC</sub>	30	80	180	mA	V <sub>in</sub> = 0
Output Power	P <sub>O</sub>		7.0		W	T.H.D. = 10 %, V <sub>CC</sub> = 14.4 V
		5.0	5.8		W	T.H.D. = 10 %, V <sub>CC</sub> = 13.2 V
			8.5		W	T.H.D. = 10 %, R <sub>L</sub> = 2 Ω, V <sub>CC</sub> = 13.2 V
Total Harmonic Distortion	T.H.D.		0.3	1.0	%	P <sub>O</sub> = 0.5 W
			0.4		%	P <sub>O</sub> = 2 W, R <sub>L</sub> = 2 Ω
Voltage Gain	A <sub>v</sub>	51	54	58	dB	P <sub>O</sub> = 0.5 W
Channel Balance	ΔA <sub>v</sub>		0	±1.5	dB	P <sub>O</sub> = 0.5 W
Cross Talk	CT	30	45		dB	f = 1 kHz, other ch R <sub>G</sub> = 0
Output Noise Level	V <sub>n</sub>		1.4	4	mVr.m.s.	R <sub>G</sub> = 10 kΩ

**TEST CIRCUIT**



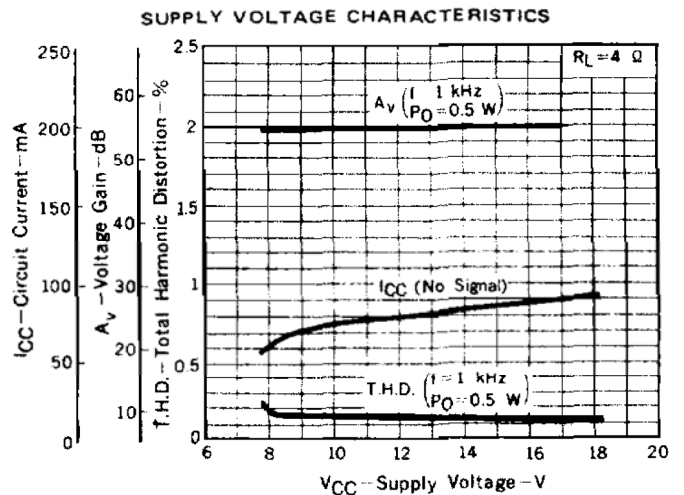
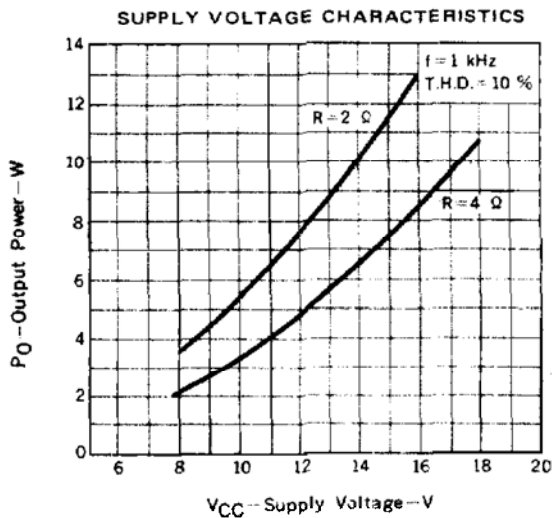
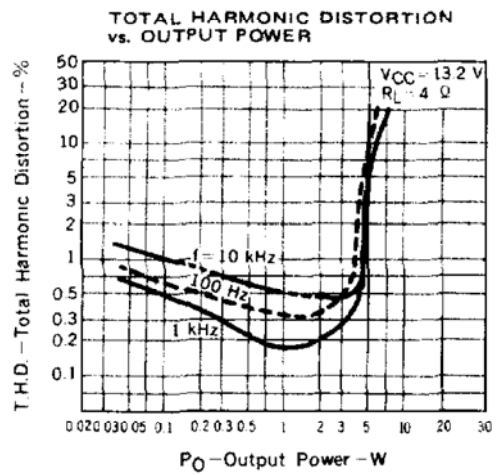
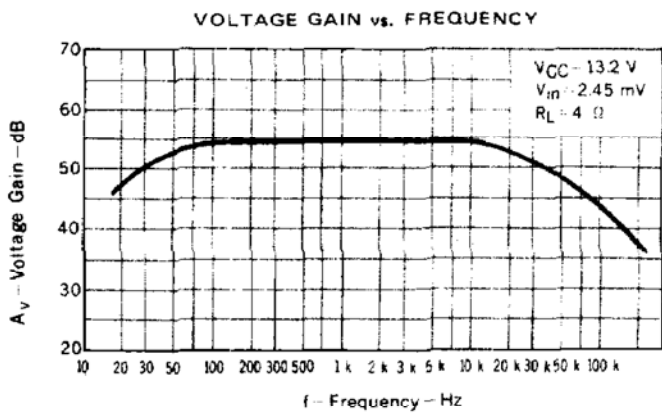
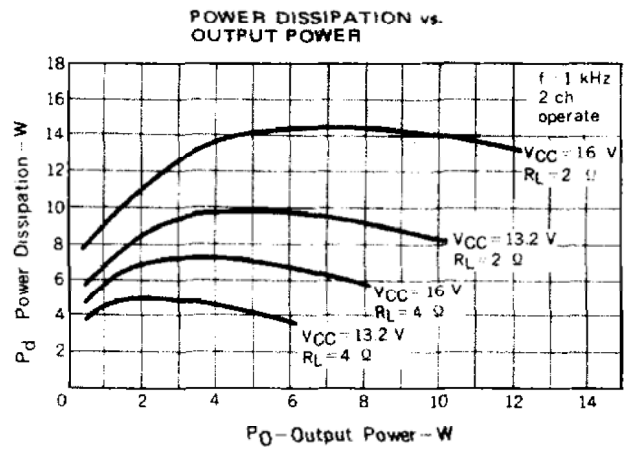
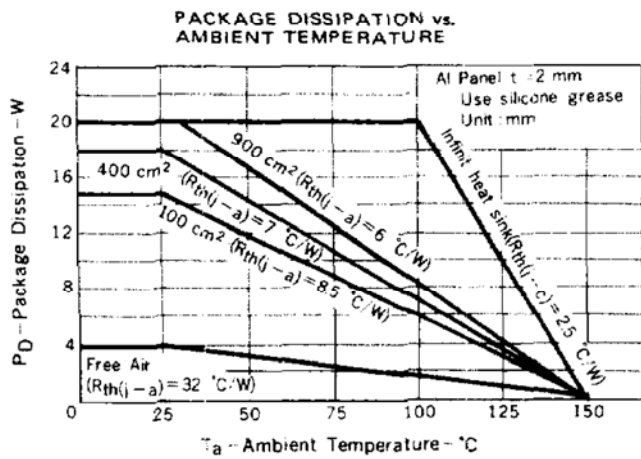
\*Mylar Film Capacitor

Table 1

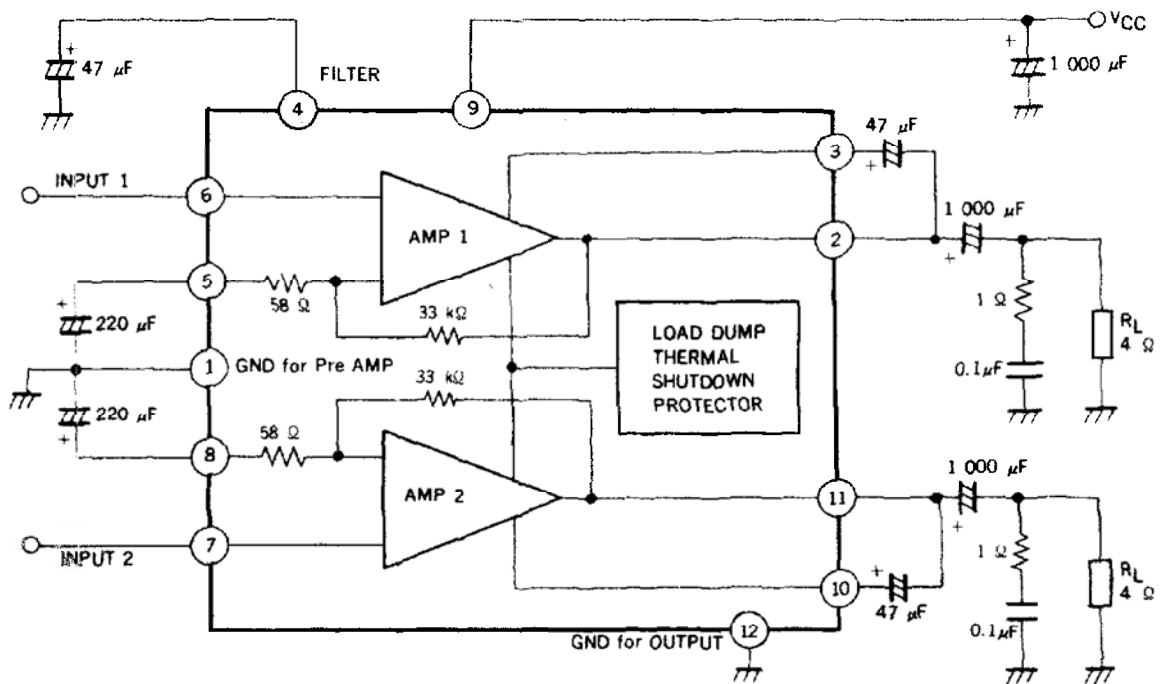
	SW1	SW2	SW3
I <sub>CC</sub>	OFF	3	3
P <sub>O</sub>	ON	1 (3)	3 (1)
T.H.D.	ON	1 (3)	3 (1)
A <sub>v</sub>	ON	1 (3)	3 (1)
V <sub>n</sub>	ON	2	2
SVR	ON	3	3
CT	ON	1 (3)	3 (1)

The position of switches at testing AMP1 is show in table 1. The numbers in parenthesis show the position of switches in testing AMP2.

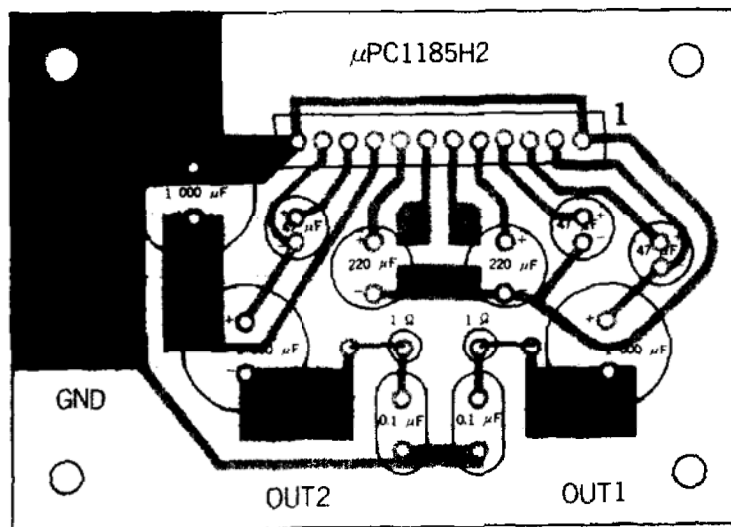
**TYPICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)**



**BLOCK DIAGRAM AND TYPICAL APPLICATION**



**PC BOARD AND COMPONENT LAY-OUT**



**NOTICE:**

The  $\mu$ PC1185H2 is not recommended for bridge and power booster amplifiers without output capacitors because it doesn't include speaker protection circuit.

The  $\mu$ PC1230H2 is suitable for bridge and power booster amplifiers.

5