

# BIPOLAR ANALOG INTEGRATED CIRCUIT

# $\mu$ PC1185H2

## 7 W DUAL AF POWER AMPLIFIER

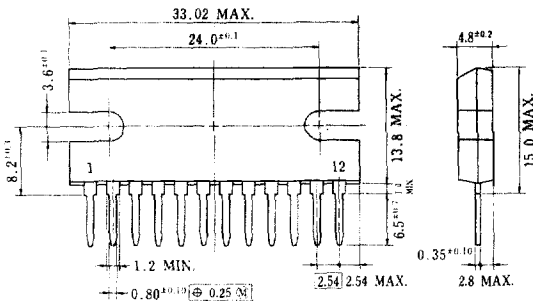
The  $\mu$ PC1185H2 is a dual audio power amplifiers in a 12-lead single in-line package, specifically designed for car stereo application.

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)



P12MP-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	+VCC
10	Bootstrap 2
11	Output 2
12	GND (for output)

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

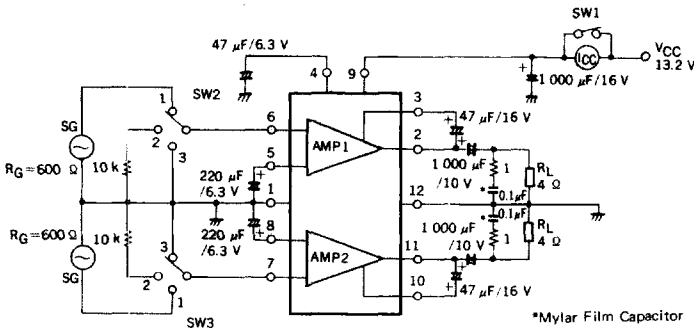
Supply Voltage (Surge PW = 200 ms)	V <sub>CCsurge</sub>	40	V
Supply Voltage (Operational)	V <sub>CC</sub>	18	V
Circuit Current (Peak)	I <sub>CC peak</sub>	4.5	A
Package Dissipation	P <sub>D</sub>	20	W
Operating Temperature	T <sub>opt</sub>	-30 to +75°	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150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



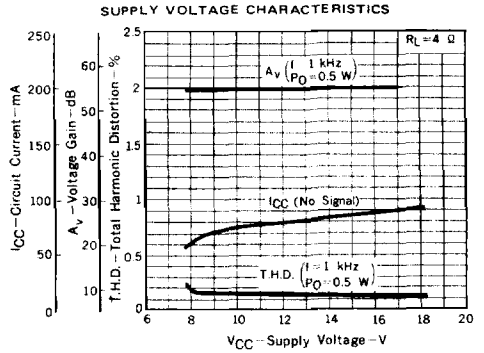
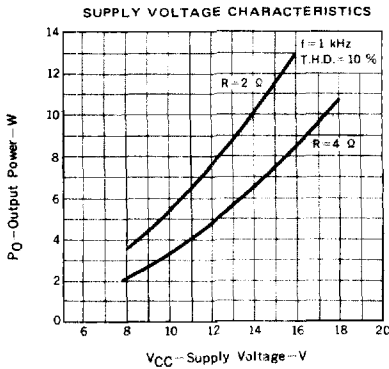
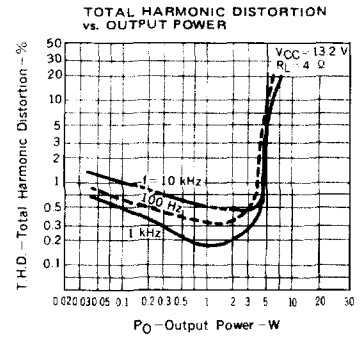
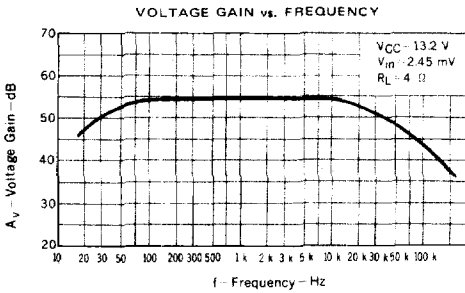
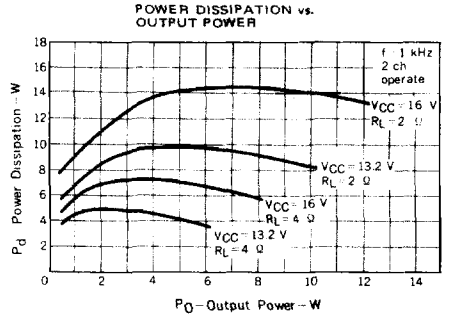
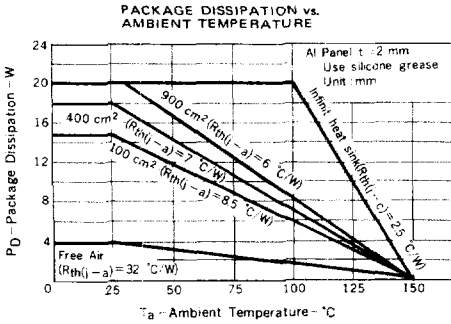
\*Mylar Film Capacitor

**Table 1**

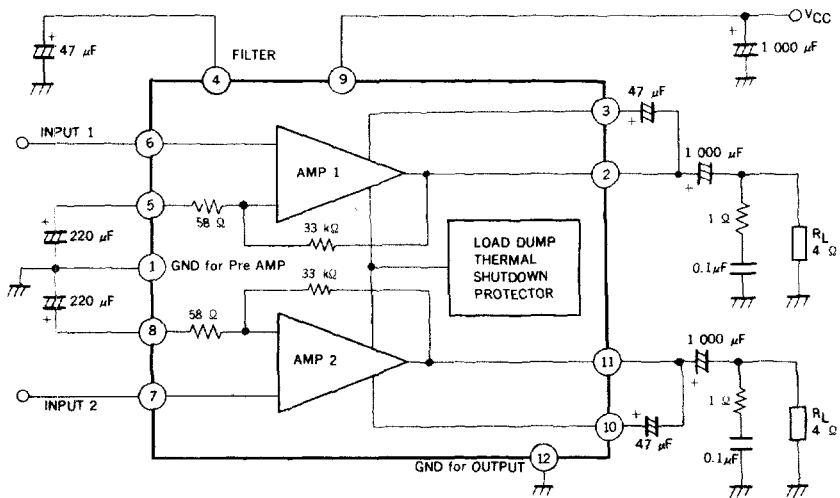
	SW1	SW2	SW3
I <sub>CC</sub>	OFF	3	3
P <sub>O</sub>	ON	1 (3)	3 (1)
T.H.D.	ON	1 (3)	3 (1)
A <sub>v</sub>	ON	1 (3)	3 (1)
V <sub>n</sub>	ON	2	2
SVR	ON	3	3
CT	ON	1 (3)	3 (1)

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

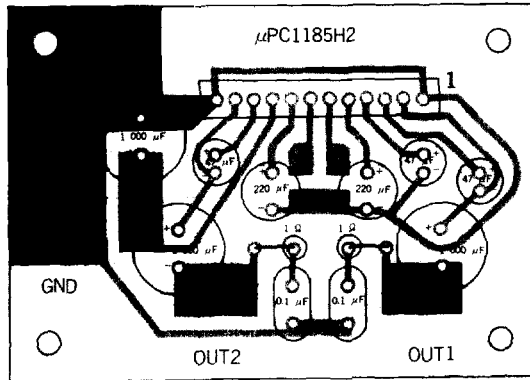
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



BLOCK DIAGRAM AND TYPICAL APPLICATION



PC BOARD AND COMPONENT LAY-OUT



NOTICE:

The μPC1185H2 is not recommended for bridge and power booster amplifiers without output capacitors because it doesn't include speaker protection circuit.

The μPC1230H2 is suitable for bridge and power booster amplifiers.