

BIPOLAR ANALOG INTEGRATED CIRCUIT

μ PC1277H

4.2 W DUAL AUDIO POWER AMPLIFIER

DESCRIPTION

The μ PC1277H is a dual audio power amplifier designed for a stereo radio cassette and in a 12-pin power single in line plastic package.

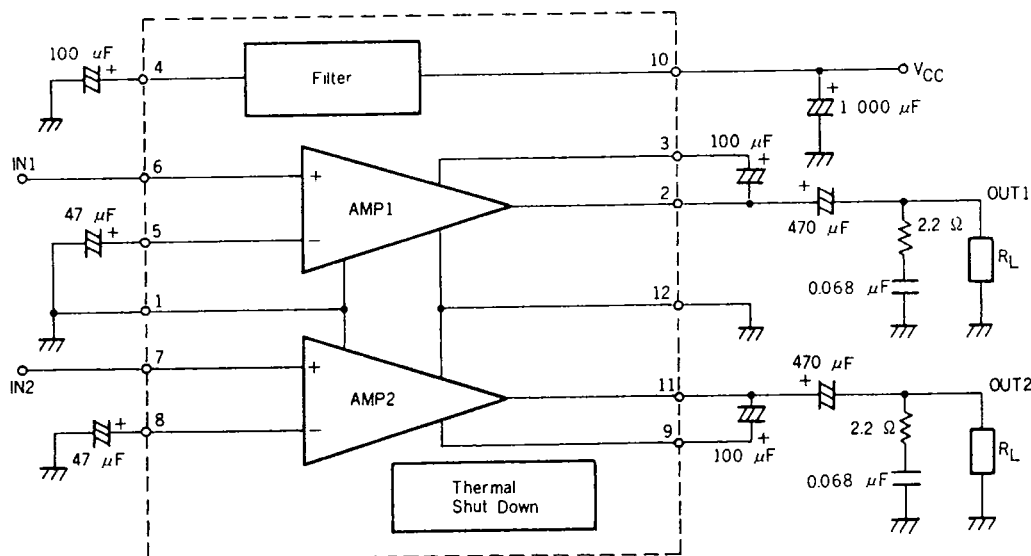
The μ PC1277H has two audio power amplifiers and each of the two provides 4.2 W output power at 12 V/4 ohms.

FEATURES

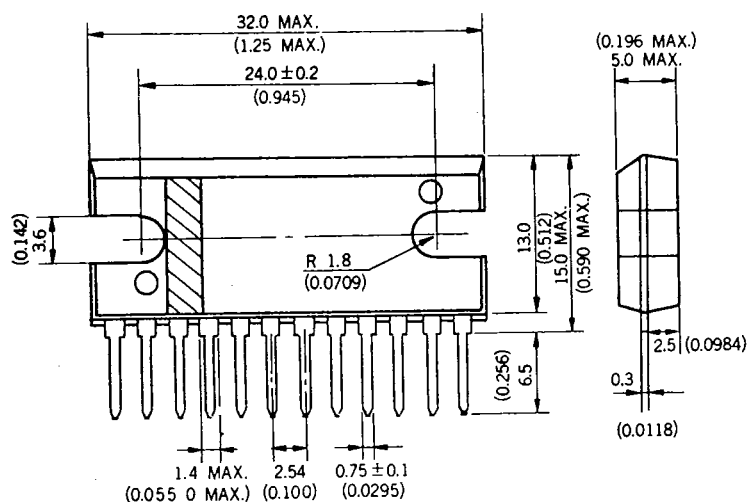
- High output power.

4.2 W/ch (TYP.)	$V_{CC} = 12\text{ V}$, $R_L = 4\text{ ohms}$
5 W/ch (TYP.)	$V_{CC} = 12\text{ V}$, $R_L = 3\text{ ohms}$
2.2 W/ch (TYP.)	$V_{CC} = 9\text{ V}$, $R_L = 4\text{ ohms}$
3 W/ch (TYP.)	$V_{CC} = 9\text{ V}$, $R_L = 3\text{ ohms}$
- Wide operating voltage range. $V_{CC} = 5\text{ to }16\text{ V}$
- No shock noise at power supply switch on and off.
- Soft clipping wave form.
- High ripple rejection ratio. R.R.R. = 50 dB (TYP.)
- Few external components. 12 parts
- Thermal shut'down circuit is built in.
- A 12-pin power SIP can easily be mounted on PCB and a external heat sink can easily be attached.

BLOCK DIAGRAM



PACKAGE DIMENSIONS in millimeters (inches)



CONNECTION DIAGRAM

Pin No.	Connection
1	GND (Input)
2	Output 1
3	Boot Strap 1
4	Filter
5	NFB 1
6	Input 1
7	Input 2
8	NFB 2
9	Boot Strap 2
10	VCC
11	Output 2
12	GND (Output)

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Supply Voltage (No Signal)	V _{CC1}	20	V
Supply Voltage (Operating)	V _{CC2}	16	V
Allowable Power Dissipation	P _D	13*	W
Operating Temperature	T _{opt}	−20 to +75	°C
Storage Temperature	T _{stg}	−40 to +150	°C

* 100 x 100 x 2 mm³ Al heat sink

RECOMMENDED OPERATING CONDITIONS (T_a = 25 °C)

Supply Voltage	V_{CC}	5 to 12 to 16	V
Load Impedance	R_L	3 to 4 to 8	ohms

ELECTRICAL CHARACTERISTICS

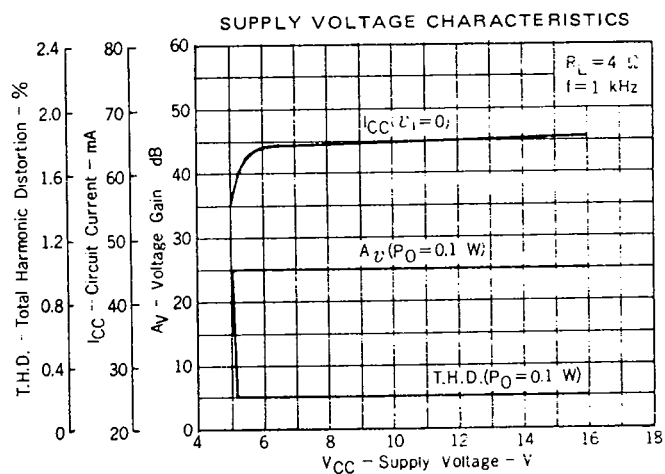
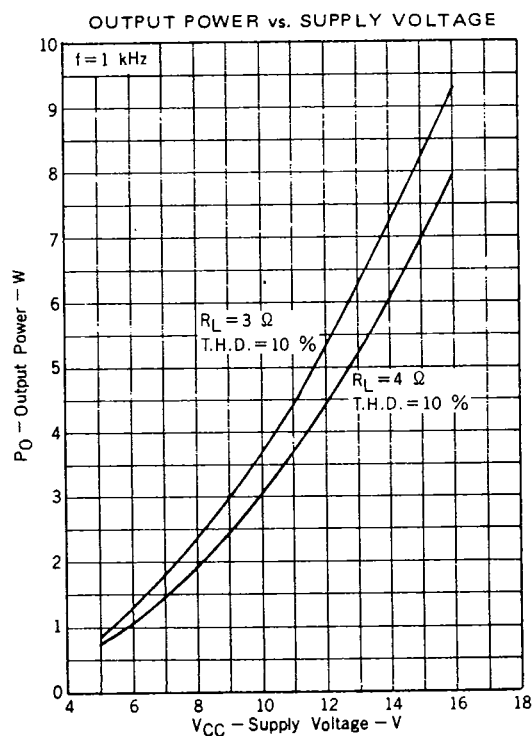
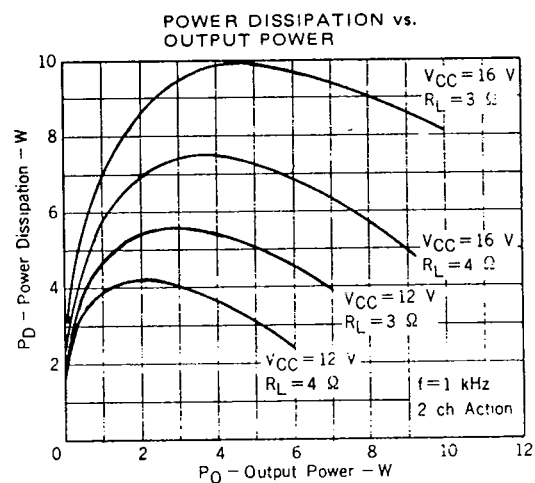
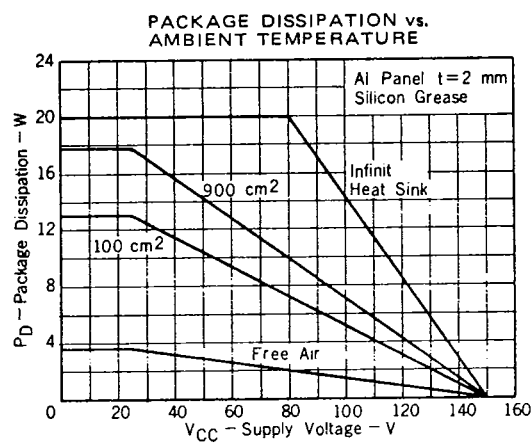
($V_{CC} = 12\text{ V}$, $R_L = 4\text{ ohm}$, $f = 1\text{ kHz}$, $T_a = 25\text{ }^\circ\text{C}$,
100 x 100 x 2 mm Al Panel Heat Sink)

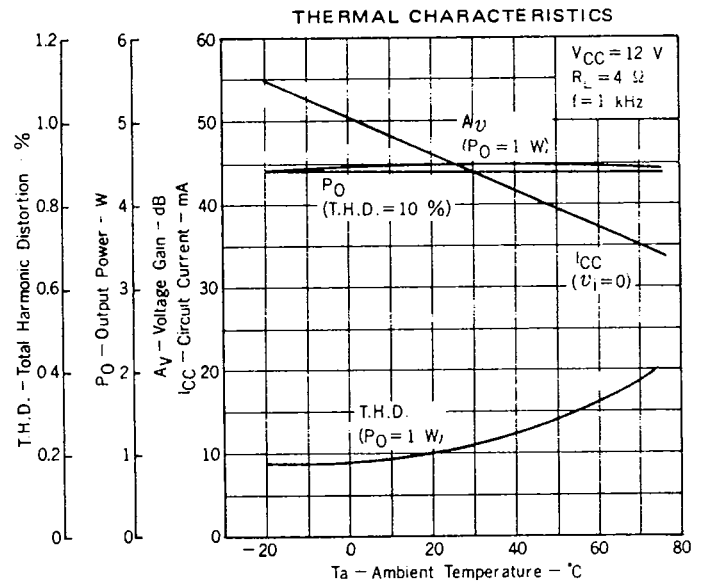
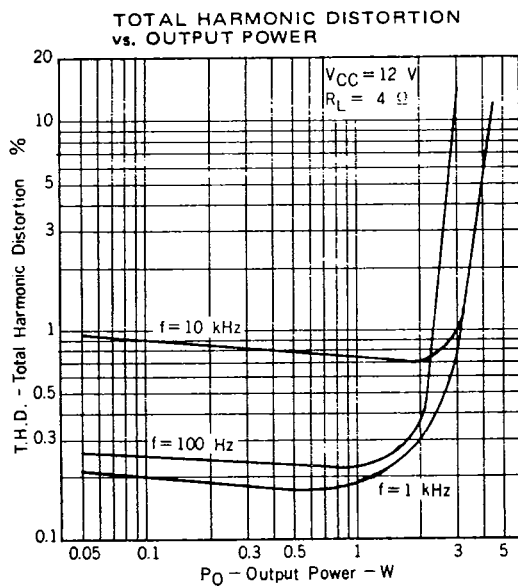
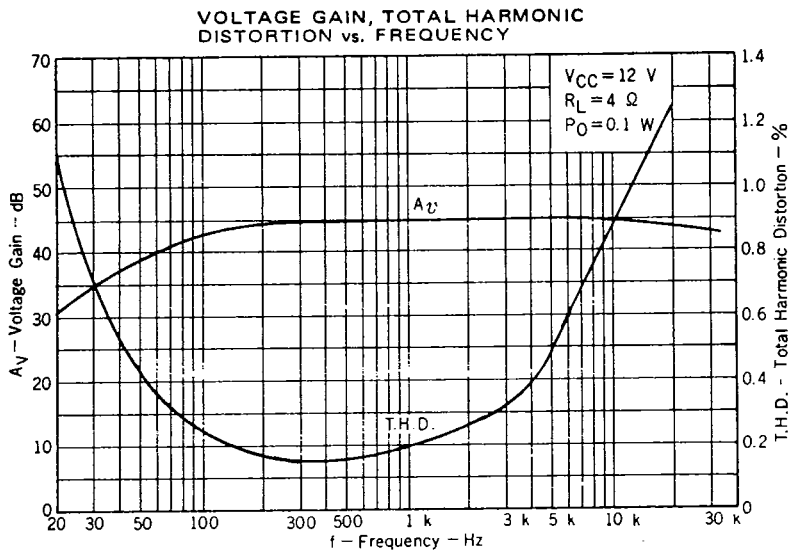
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Circuit Current	I_{CC}	20	45	90	mA	No Signal
Voltage Gain	A_v	42	45	48	dB	$P_o = 1\text{ W}$
Output Power	P_{o1}	1.8	2.2		W	T.H.D. = 10 % $V_{CC} = 9\text{ V}$, $R_L = 4\text{ ohm}$
	P_{o2}	2.5	3		W	T.H.D. = 10 % $V_{CC} = 9\text{ V}$, $R_L = 3\text{ ohm}$
	P_{o3}	3.2	4.2		W	T.H.D. = 10 % $V_{CC} = 12\text{ V}$, $R_L = 4\text{ ohm}$
	P_{o4}	4	5		W	T.H.D. = 10 % $V_{CC} = 12\text{ V}$, $R_L = 3\text{ ohm}$
Total Harmonic Distortion	T.H.D.		0.2	1	%	$P_o = 1\text{ W}$
Output Noise Voltage	NL		0.6	2	mVr.m.s.	$R_G = 10\text{ kohm}$
Cross Talk	C.T.	45	55		dB	$P_o = 1\text{ W}$ other ch. $R_G = 10\text{ kohm}$
Channel Balance	Ch. B.	-2	0	+2	dB	$P_o = 1\text{ W}$
Ripple Rejection	R.R.	40	50		dB	$R_G = 0$, $f = 100\text{ Hz}$ $v = 0.3\text{ Vr.m.s.}$
Input Impedance	Z_{in}	30	50		kohm	

μ PC1277H

6427525 N E C ELECTRONICS INC

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



Note 1) An inverse connection of the supply voltage pin and the GND pin or a connection of the output pin and either the supply voltage line or GND sometimes causes μ PC1277H to break down immediately. Handle it with care.

Note 2) GND pins #1 (input side GND) and #12 (output side GND) are separated inside of the IC, therefore connect them on a PCB. Make the input and output common impedance least when designing a PCB.

Note 3) Recommend a polyester Film capacitor as a phase compensated capacitance ($0.068 \mu\text{F}$). Choose larger capacity in case that a long power supply line on a PCB causes the IC a parasitic oscillation.