

BIPOLAR ANALOG INTEGRATED CIRCUIT

μ PC1238V, μ PC1238H

10 W AF POWER AMPLIFIER

The μ PC1238 is an audio power amplifier designed for median Hi-Fi stereo set and TV set sound power amplifier.

This device can provide 8.4 watts to 8 ohm at 1% T.H.D. and ± 13 V supply voltage.

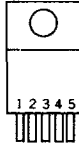
The μ PC1238 incorporates the thermal protection circuit to protect the damage of IC chip against load damping etc.

Since the package is a 5 Pin TO-220 package, it greatly simplifies construction of a power amplifier both in design and assembly.

FEATURES

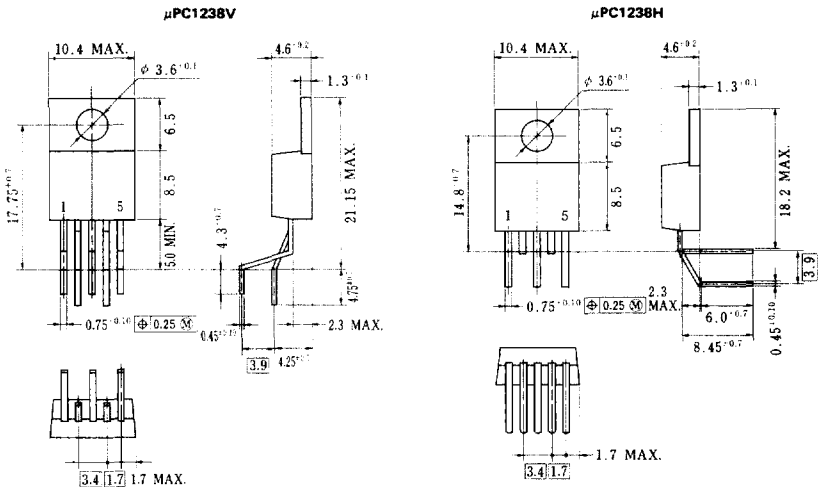
- High output power
 - 8.4 W TYP. (at 8 Ω , $V_{CC} = \pm 13$ V)
 - 12.5 W TYP. (at 4 Ω , $V_{CC} = \pm 13$ V)
- Low T.H.D.
 - 0.012 % TYP. ($P_{out} = 2$ W, $R_L = 8 \Omega$)
 - 0.02 % TYP. ($P_{out} = 2$ W, $R_L = 4 \Omega$)
- Low equivalent input noise voltage.
- Available for NFB tone control mode.
- Negligible power ON/OFF noise.
- High density components assembly due to 5 Pin TO-220 package.

CONNECTION DIAGRAM



Pin No.	Electrical Connection
1	Non inverting input
2	Inverting input
3	-V _{CC}
4	Output
5	+V _{CC}

PACKAGE DIMENSIONS (Unit: mm)



ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Supply Voltage (Quiescent)	V _{CC}	±18	V
Supply Voltage (Operational)	V _{CC}	±15	V
Circuit Current	I _{CC(peak)}	4	A
Package Dissipation	P _D	*25	W
Junction Temperature	T _j	150	°C
Operating Temperature	T _{opt}	-20 to +65	°C
Storage Temperature	T _{stg}	-40 to +150	°C
Thermal Resistance Junction to Case	R _{th(j-c)}	3.4	°C/W

*T_{tab} = 65 °C

RECOMMENDED OPERATING CONDITIONS (T_a = 25 °C)

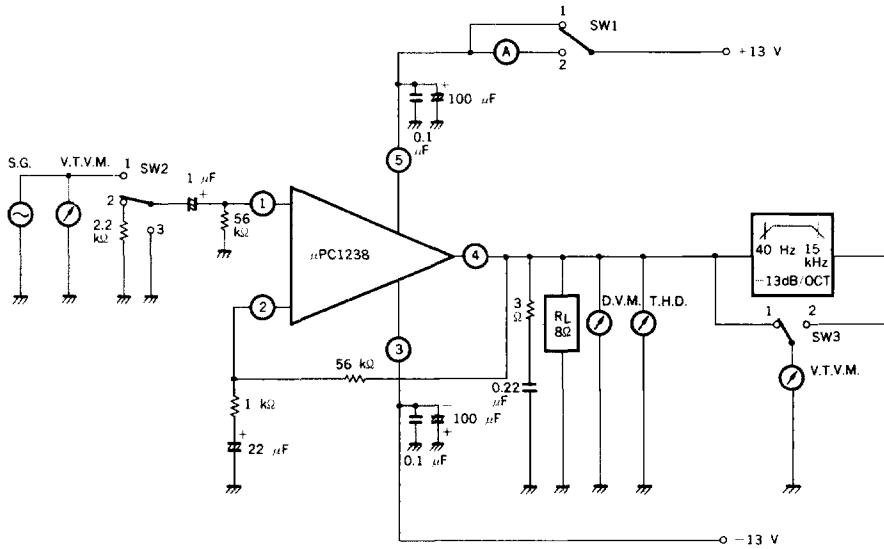
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Supply	V _{CC}	±6	±13	±15	V
Terminated Input Resistance	R _{IN}	47	56	100	kΩ
Closed Loop Voltage Gain	A _v	20	35		dB
Load Impedance	R _L	4	8		Ω

ELECTRICAL CHARACTERISTICS

(Refer to the test circuit : T_a = 25 °C, V_{CC} = ±13 V, A_v = 35 dB, R_G = 600 Ω, R_L = 8 Ω)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Output Offset Voltage	V _{OFF}	-100	0	+100	mV	No Signal
Circuit Current	I _{CC}	30	60	130	mA	No Signal
Output Power	P _O	7	8.4		W	T.H.D. = 1 %, f = 1 kHz
Total Harmonic Distortion	T.H.D.		0.2	1	%	f = 40 Hz - 15 kHz P _O = 0.1 - 7 W
Open Loop Voltage Gain	A _{vo}		83		dB	P _O = 0.1 W, f = 500 Hz
Equivalent Input Noise Voltage	V _{NI}		3	10	μV _{r.m.s.}	R _G = 2.2 kΩ f = 40 Hz - 15 kHz (-3 dB)
Power Band Width	P.B.W.		75		kHz	P _O = 0.1 W, -3 dB
Supply Voltage Rejection Ratio	S.V.R.	45	51		dB	f = 100 Hz, R _G = 2.2 kΩ

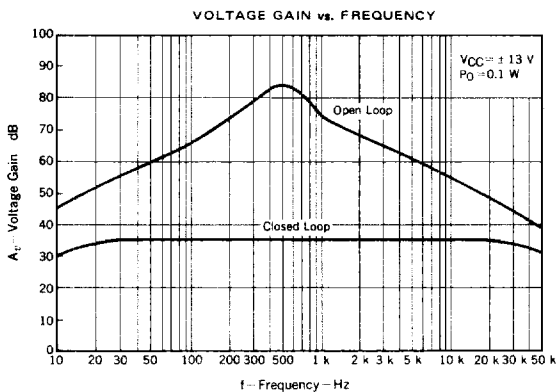
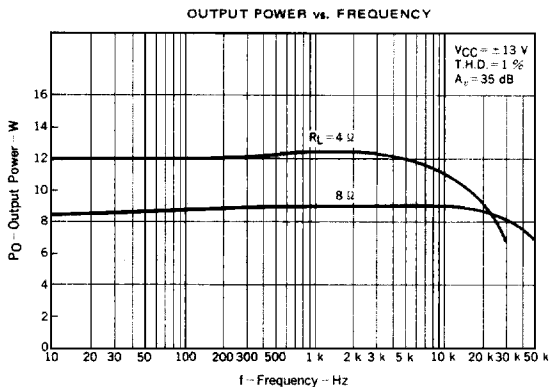
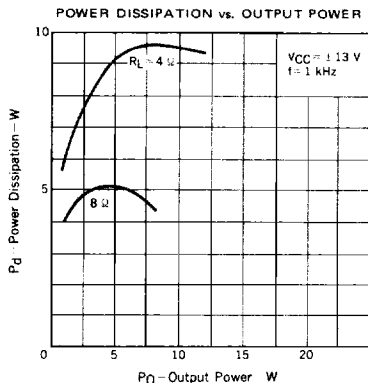
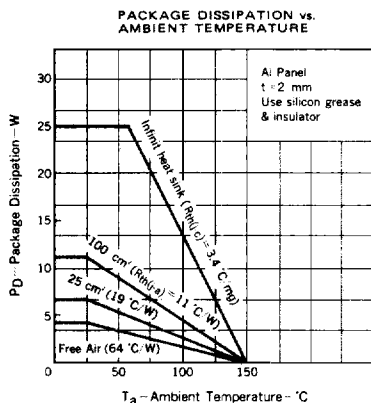
TEST CIRCUIT & TYPICAL APPLICATIONS



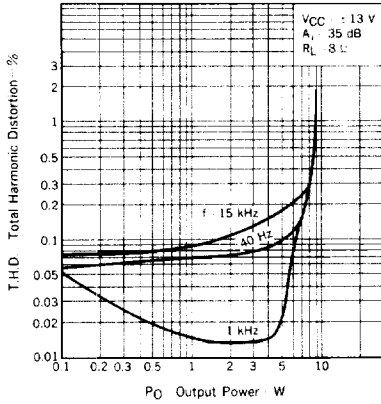
Switch Position

TEST ITEM	SYMBOL	SW1.	SW2.	SW3.
Output Offset Voltage	V _{OFF}	1	3	1
Circuit Current	I _{CC}	2	3	1
Output Power	P _O	1	1	1
Total Harmonic Distortion	T.H.D.	1	1	1
Equivalent Input Noise Voltage	V _{NI}	1	2	2
Supply Voltage Rejection Ratio	S.V.R.	1	2	1

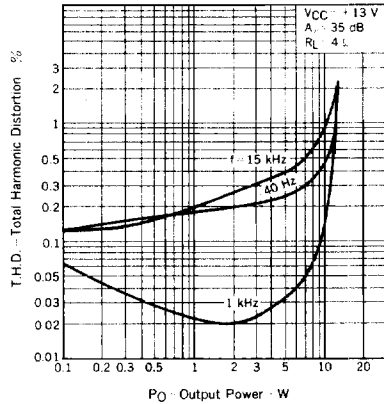
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



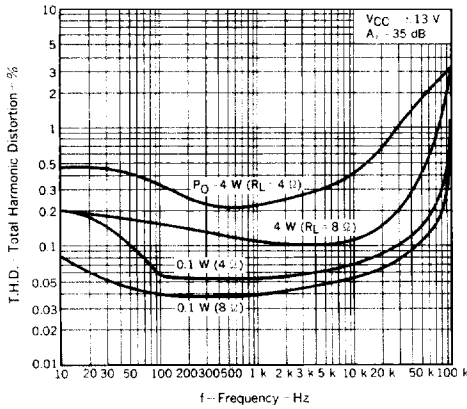
TOTAL HARMONIC DISTORTION vs. OUTPUT POWER



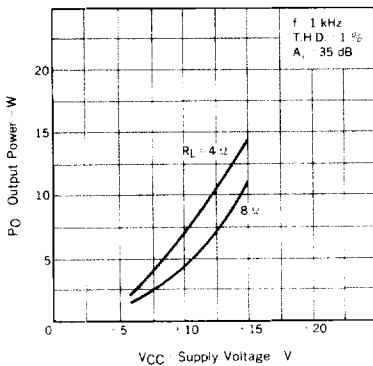
TOTAL HARMONIC DISTORTION vs. OUTPUT POWER



TOTAL HARMONIC DISTORTION vs. FREQUENCY



OUTPUT POWER vs. SUPPLY VOLTAGE



OPEN LOOP VOLTAGE GAIN, CIRCUIT CURRENT vs. SUPPLY VOLTAGE

