

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.

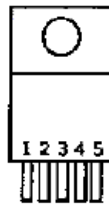
The μ PC1238 incorporates the thermal protection circuit to protect the damage of IC chip against load damping etc.

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

FEATURES

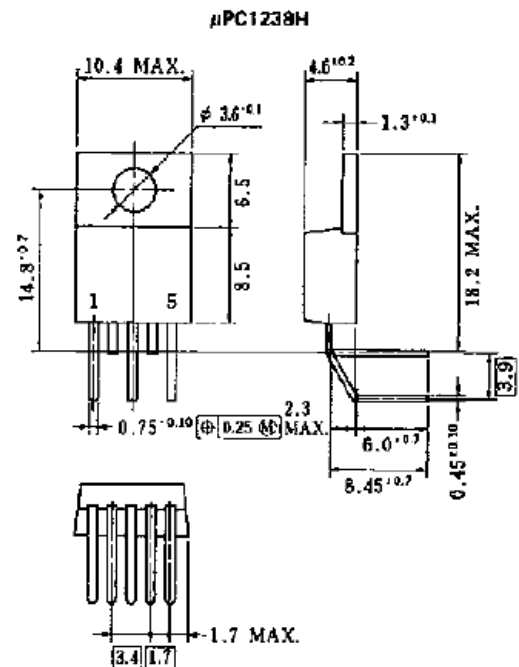
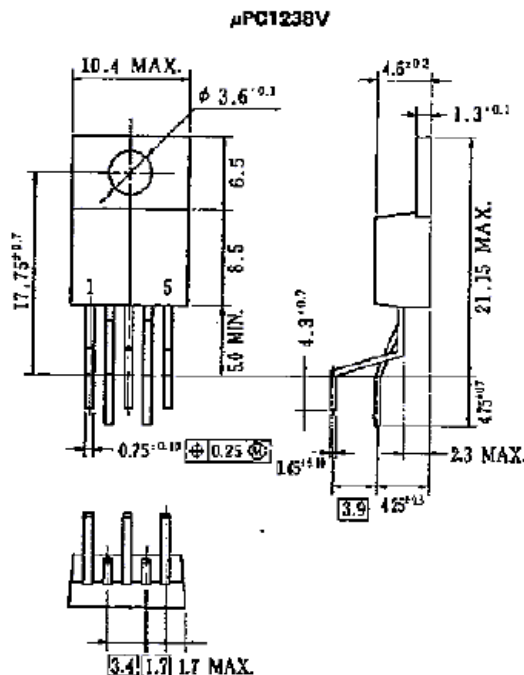
- High output power
 - 8.4 W TYP. (at 8 Ω , $V_{CC} = \pm 13$ V)
 - 12.5 W TYP. (at 4 Ω , $V_{CC} = \pm 13$ V)
- Low T.H.D.
 - 0.012 % TYP. ($P_{out} = 2$ W, $R_L = 8 \Omega$)
 - 0.02 % TYP. ($P_{out} = 2$ W, $R_L = 4 \Omega$)
- Low equivalent input noise voltage.
- Available for NFB tone control mode.
- 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	-VCC
4	Output
5	+VCC

PACKAGE DIMENSIONS (Unit: mm)



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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Supply Voltage (Quiescent)	V_{CC}	± 18	V
Supply Voltage (Operational)	V_{CC}	± 15	V
Circuit Current	$I_{CC(\text{peak})}$	4	A
Package Dissipation	P_D	25	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Operating Temperature	T_{opt}	-20 to +65	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to +150	$^\circ\text{C}$
Thermal Resistance Junction to Case	$R_{\text{th(j-c)}}$	3.4	$^\circ\text{C/W}$

 $^*T_{\text{tab}} = 85^\circ\text{C}$ RECOMMENDED OPERATING CONDITIONS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Supply	V_{CC}	± 6	± 13	± 15	V
Terminated Input Resistance	R_{IN}	47	56	100	$\text{k}\Omega$
Closed Loop Voltage Gain	A_v	20	35		dB
Load Impedance	R_L	4	8		Ω

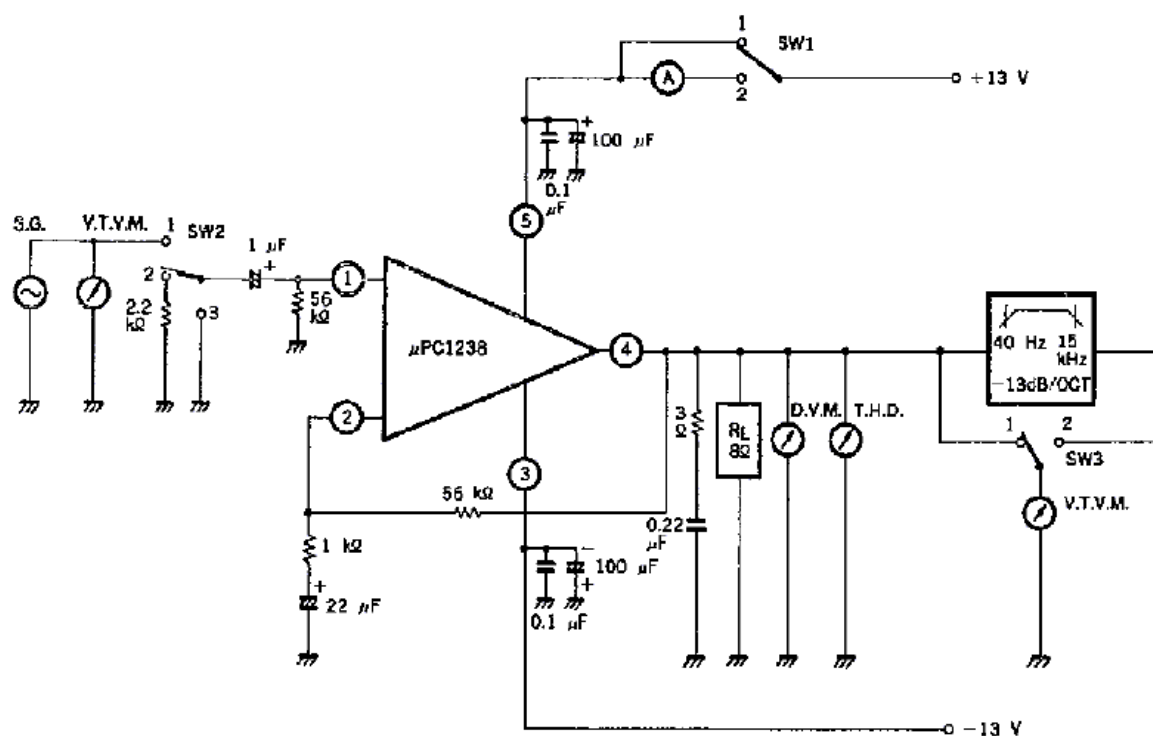
ELECTRICAL CHARACTERISTICS

(Refer to the test circuit : $T_a = 25^\circ\text{C}$, $V_{CC} = \pm 13\text{ V}$, $A_v = 35\text{ dB}$, $R_G = 600\ \Omega$, $R_L = 8\ \Omega$)

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 %, $f = 1\text{ kHz}$
Total Harmonic Distortion	T.H.D.		0.2	1	%	$f = 40\text{ Hz} - 15\text{ kHz}$ $P_O = 0.1 - 7\text{ W}$
Open Loop Voltage Gain	A_{v0}		83		dB	$P_O = 0.1\text{ W}$, $f = 500\text{ Hz}$
Equivalent Input Noise Voltage	V_{NI}		3	10	$\mu\text{V}_{\text{r.m.s.}}$	$R_G = 2.2\text{ k}\Omega$ $f = 40\text{ Hz} - 15\text{ kHz} (-3\text{ dB})$
Power Band Width	P.B.W.		75		kHz	$P_O = 0.1\text{ W}$, -3 dB
Supply Voltage Rejection Ratio	S.V.R.	46	61		dB	$f = 100\text{ Hz}$, $R_G = 2.2\text{ k}\Omega$

μ PC1238V, μ PC1238H **N E C ELECTRONICS INC**

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

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