

6427525 NEC ELECTRONICS INC 05E 22772 D

BIPOLAR ANALOG INTEGRATED CIRCUIT

$\mu$ PC1238V,  $\mu$ PC1238H

10 W AF POWER AMPLIFIER

T-74-05-01

The  $\mu$ 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  $\pm 13$  V supply voltage. The  $\mu$ 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

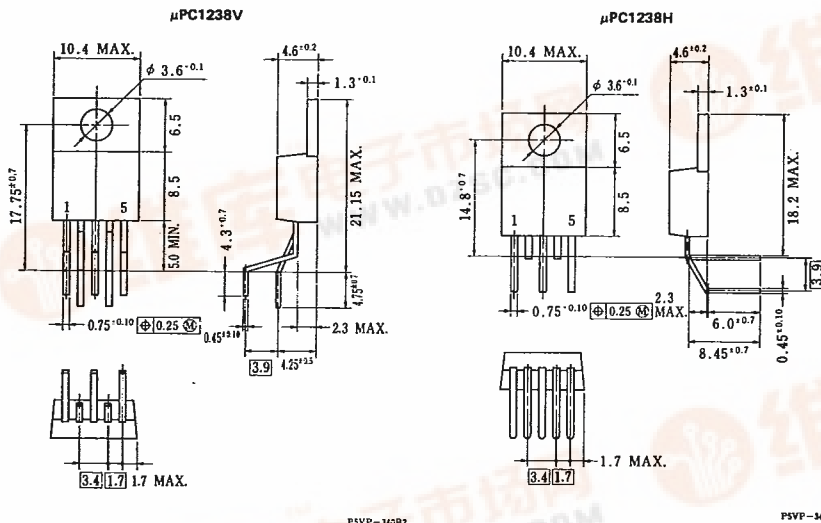
- High output power
  - 8.4 W TYP. (at 8  $\Omega$ ,  $V_{CC} = \pm 13$  V)
  - 12.5 W TYP. (at 4  $\Omega$ ,  $V_{CC} = \pm 13$  V)
- Low T.H.D.
  - 0.012 % TYP. ( $P_{out} = 2$  W,  $R_L = 8 \Omega$ )
  - 0.02 % TYP. ( $P_{out} = 2$  W,  $R_L = 4 \Omega$ )
- Low equivalent input noise voltage.
- Available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



PSVP-140B2

PSVP-140B1



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

Supply Voltage (Quiescent)	$V_{CC}$	$\pm 18$	V
Supply Voltage (Operational)	$V_{CC}$	$\pm 15$	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	$T_{\text{opt}}$	-20 to +65	$^\circ\text{C}$
Storage Temperature	$T_{\text{stg}}$	-40 to +150	$^\circ\text{C}$
Thermal Resistance Junction to Case	$R_{\text{th(j-c)}}$	3.4	$^\circ\text{C/W}$

\* $T_{\text{tab}} = 65^\circ\text{C}$

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

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

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	$V_{\text{OFF}}$	-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	$A_{vO}$		83		dB	$P_O = 0.1\text{ W}$ , $f = 500\text{ Hz}$
Equivalent Input Noise Voltage	$V_{\text{NI}}$		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.	45	51		dB	$f = 100\text{ Hz}$ , $R_G = 2.2\ \text{k}\Omega$

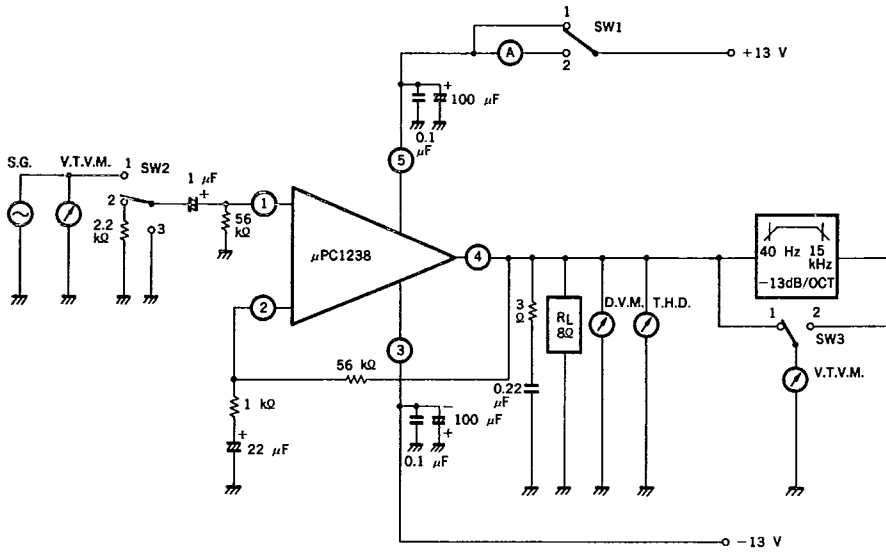
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TEST CIRCUIT & TYPICAL APPLICATIONS

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Switch Position

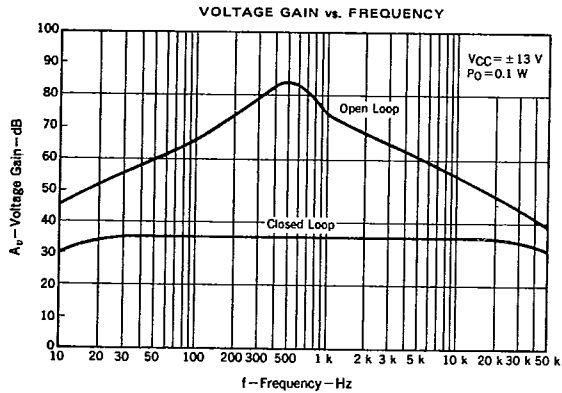
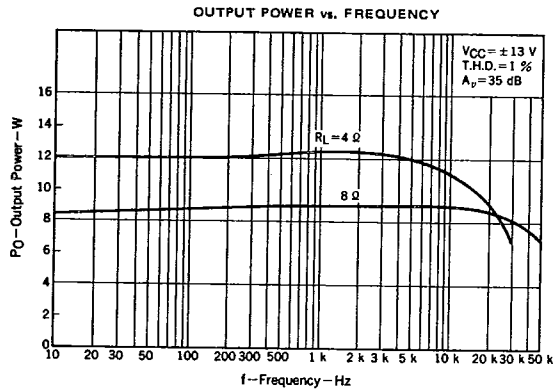
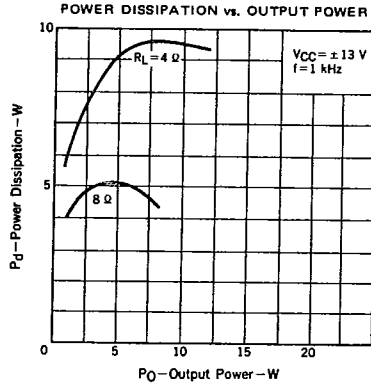
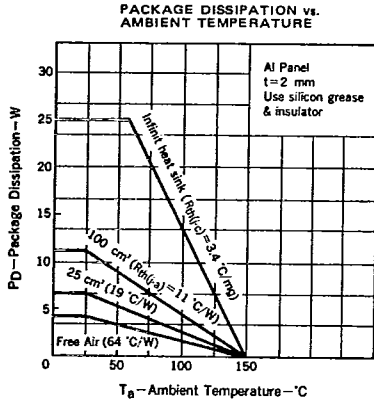
TEST ITEM	SYMBOL	SW1.	SW2.	SW3.
Output Offset Voltage	V <sub>OFF</sub>	1	3	1
Circuit Current	I <sub>CC</sub>	2	3	1
Output Power	P <sub>O</sub>	1	1	1
Total Harmonic Distortion	T.H.D.	1	1	1
Equivalent Input Noise Voltage	V <sub>NI</sub>	1	2	2
Supply Voltage Rejection Ratio	S.V.R.	1	2	1

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



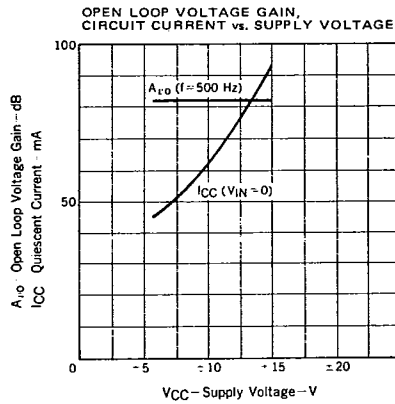
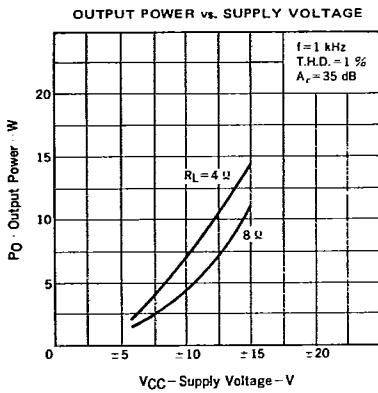
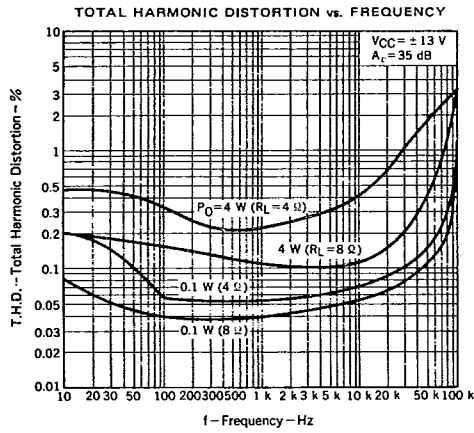
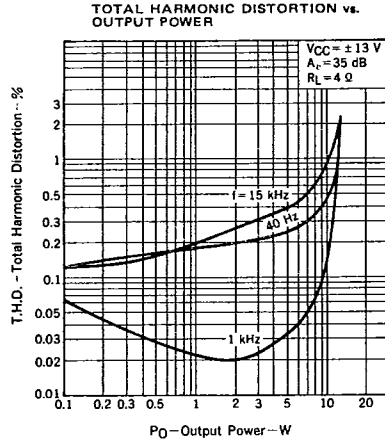
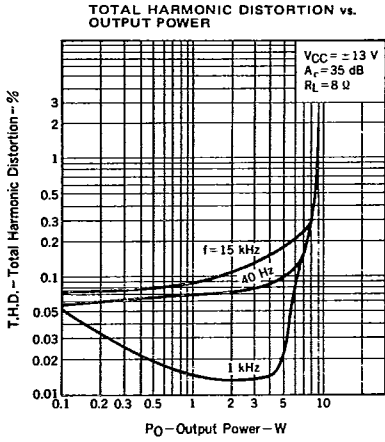
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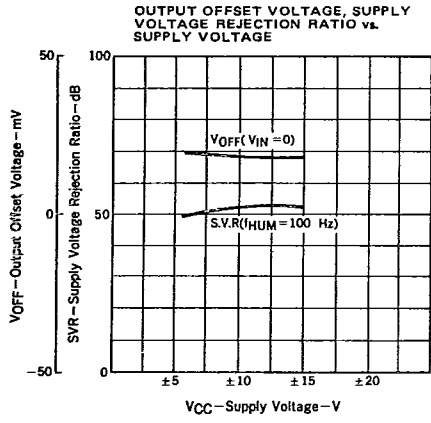
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