

LOW VOLTAGE POWER AMPLIFIER

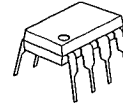
■ GENERAL DESCRIPTION

NJM2070 is a power amplification monolithic IC of wide Operating voltage range. It is applied for audio power amplifier in portable radio and handy cassette player.

■ FEATURES

- Operating Voltage (1.8V~15V)
- Low Operating Current 4mA (typ : $V^+=6V$)
- Package Outline DIP8, DMP8
- Bipolar Technology

■ PACKAGE OUTLINE

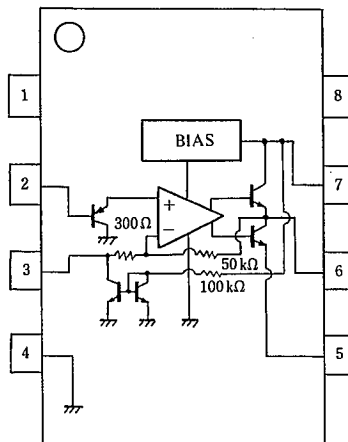


NJM2070D



NJM2070M

■ PIN CONFIGURATION



NJM2070D
NJM2070M

PIN FUNCTION

- 1. NC
- 2. +INPUT
- 3. -INPUT
- 4. GND
- 5. GND
- 6. OUTPUT
- 7. V^+
- 8. NC

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■ ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	15	V
Output Peak Current	I_{OP}	1	A
Power Dissipation	P_D	(DIP8) 700 (DMP8) 500 (note)	mW
Operating Temperature Range	T_{opr}	-40 ~ +85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 ~ +125	$^\circ\text{C}$

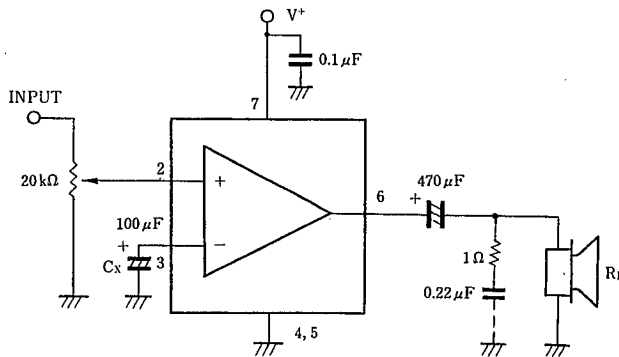
(note) At on PC board

■ ELECTRICAL CHARACTERISTICS

($V^+=6\text{V}$, $T_a=25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V^+		1.8	—	15	V
Output Voltage	V_O		—	2.7	—	V
Operating Current	I_{CC}	$R_L = \infty$	—	4	7	mA
Input Bias Current	I_{IB}		—	200	—	nA
Output Power	P_O	THD=10%, $f=1\text{kHz}$				
	P_O	$V^+=6\text{V}$, $R_L=4\Omega$	0.5	0.6	—	W
	P_O	$V^+=4.5\text{V}$, $R_L=4\Omega$	—	0.32	—	W
	P_O	$V^+=3\text{V}$, $R_L=4\Omega$	—	120	—	mW
	P_O	$V^+=2\text{V}$, $R_L=4\Omega$	—	30	—	mW
	P_O	THD=1%, $f=1\text{kHz}$				
	P_O	$V^+=6\text{V}$, $R_L=4\Omega$	—	500	—	mW
	P_O	$V^+=4.5\text{V}$, $R_L=4\Omega$	—	250	—	mW
Total Harmonic Distortion	THD	$P_O=0.4\text{W}$, $R_L=4\Omega$, $f=1\text{kHz}$	—	0.25	—	%
Voltage Gain	A_V	$f=1\text{kHz}$	41	44	47	dB
Input Impedance	Z_{IN}	$f=1\text{kHz}$	100	—	—	k Ω
Equivalent Input Noise Voltage	V_{NI1}	$R_S=10\text{k}\Omega$, A Curve	—	2.5	—	μV
	V_{NI2}	$R_S=10\text{k}\Omega$, B=22Hz~22kHz	—	3	—	μV
Ripple Rejection	RR	$f=100\text{Hz}$, $C_X=100\mu\text{F}$	24	30	—	dB
Cut Off Frequency	f_H	$A_V=-3\text{dB}$ from $f=1\text{kHz}$ $R=8\Omega$, $P_O=250\text{mW}$	—	200	—	kHz

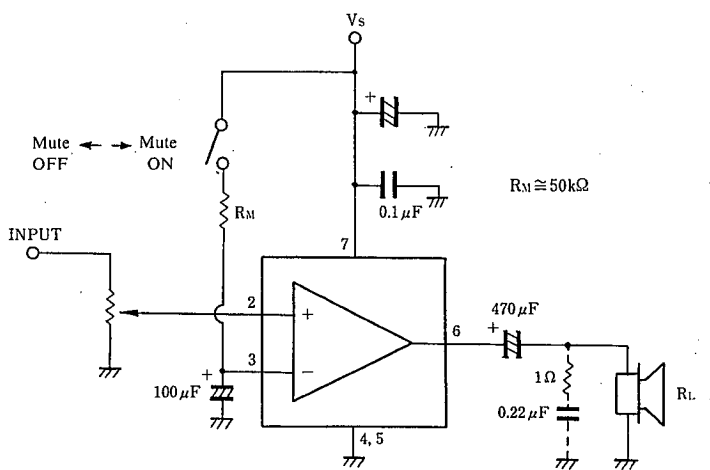
■ TYPICAL APPLICATION AND TEST CIRCUIT



■ OSCILLATION PREVENTION

Put in series a 1Ω resistor and a $0.22\mu\text{F}$ capacitor on parallel to load, if the load is speaker. Recommend putting in parallel between pin 4 and pin 7, $0.1\mu\text{F}$ and more than $100\mu\text{F}$ capacitors with good high frequency characteristics near to the ground and supply voltage pins on parallel.

■ MUTING CIRCUIT



MEMO

[CAUTION]

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