

## LOW VOLTAGE POWER AMPLIFIER

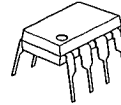
### ■ GENERAL DESCRIPTION

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

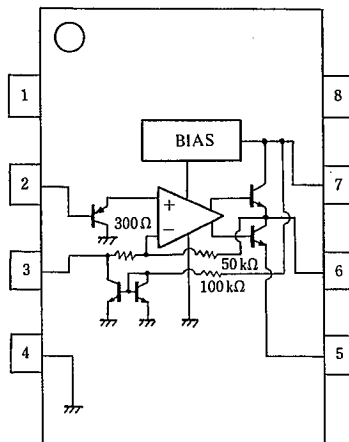


NJM2070D



NJM2070M

### ■ PIN CONFIGURATION



NJM2070D  
NJM2070M

#### PIN FUNCTION

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

## ■ 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	$^\circ\text{C}$

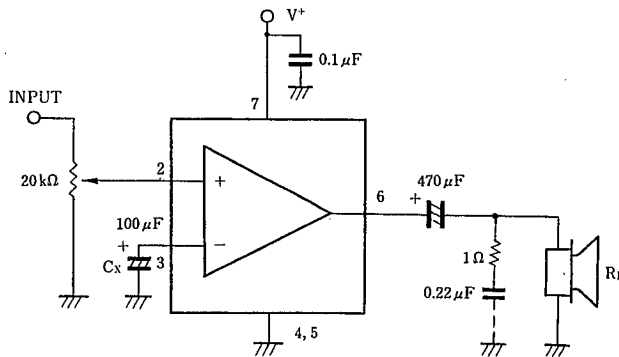
(note) At on PC board

## ■ 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 $\Omega$
Equivalent Input Noise Voltage	$V_{NI1}$	$R_S=10\text{k}\Omega$ , A Curve	—	2.5	—	$\mu\text{V}$
	$V_{NI2}$	$R_S=10\text{k}\Omega$ , B=22Hz~22kHz	—	3	—	$\mu\text{V}$
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

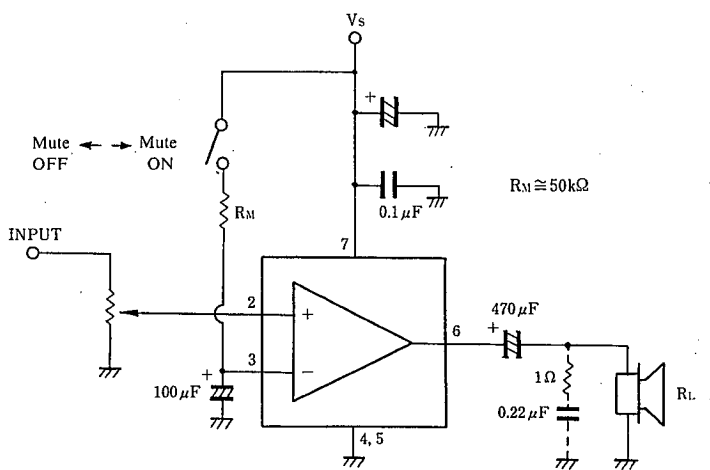
## ■ TYPICAL APPLICATION AND TEST CIRCUIT



## ■ OSCILLATION PREVENTION

Put in series a  $1\Omega$  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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