

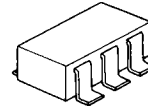
## SINGLE OPERATIONAL AMPLIFIER

### ■ GENERAL DESCRIPTION

NJM2107 is a single operational amplifier of ultra miniature surface mount package.

NJM2107 has features of low operating supply voltage and low saturation output voltage. The NJM2107 is suitable for small electronic equipments and hybrid circuits.

### ■ PACKAGE OUTLINE



NJM2107F

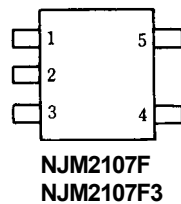


NJM2107F3

### ■ FEATURES

- Operating Voltage (  $V^+ / V^- = \pm 1.0V$  to  $\pm 3.5V$  )
- Low Output Saturation (  $4V_{P-P}$  at single 5V supply )
- V Shield Plate between +Input and -Input
- Suitable Pin Arrangement for Application
- Mounted in Ultra Miniature 2.0 X 1.25mm ( 1/8 of DMP8 package )
- Bipolar Technology

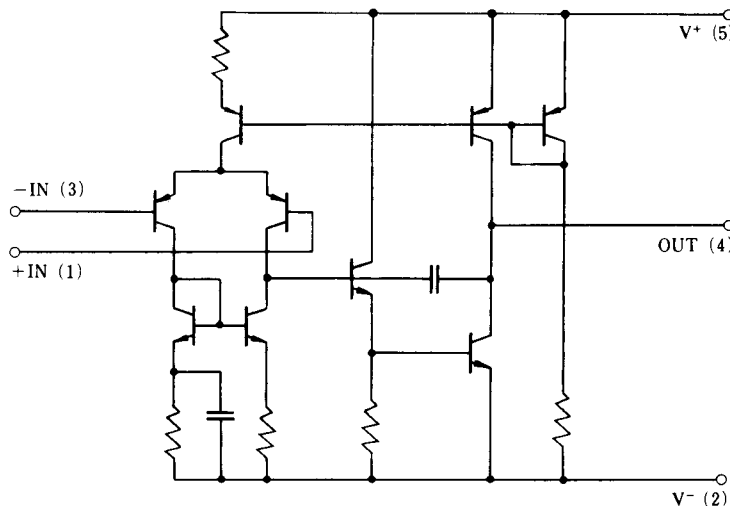
### ■ PIN CONFIGURATION



#### PIN FUNCTION

- 1. +INPUT
- 2.  $V^-$
- 3. -INPUT
- 4. OUTPUT
- 5.  $V^+$

### ■ EQUIVALENT CIRCUIT



# NJM2107

## ■ ABSOLUTE MAXIMUM RATINGS

( Ta=25°C )

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+ / V^-$	$\pm 3.5$	V
Differential Input Voltage	$V_{ID}$	$\pm 7$	V
Input Voltage	$V_{IC}$	$\pm 3.5$	V
Power Dissipation	$P_D$	( MTP5 ) 200 ( SC88A ) 250 ( note1 )	mW
Operating Temperature Range	$T_{opr}$	-40~+85	°C
Storage Temperature Range	$T_{stg}$	-40~+125	°C

( note1 ) On glass epoxy board. ( 50x50x1.6mm )

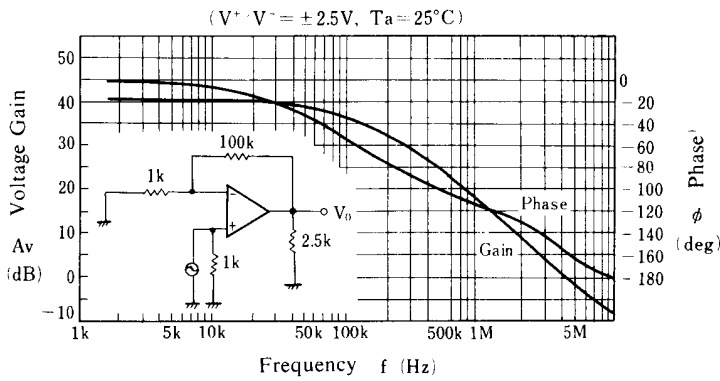
## ■ ELECTRICAL CHARACTERISTICS

(  $V^+ / V^- = \pm 2.5V, Ta = 25^\circ C$  )

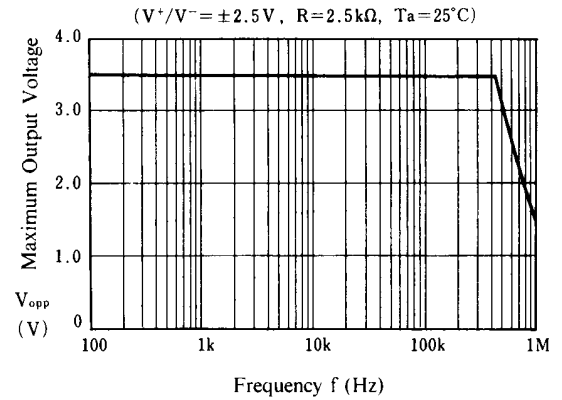
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	$V_{IO}$	$R_S = 10k\Omega$	-	1	6	mV
Input Offset Current	$I_{IO}$	$I^+ - I^-$	-	5	200	nA
Input Bias Current	$I_B$		-	100	500	nA
Input Common Mode Voltage Range	$V_{ICM}$		$\pm 1.5$	-	-	V
Large Signal Voltage Gain	$A_V$	$R_L = 10k\Omega, V_O = \pm 2.0V$	60	80	-	dB
Output Voltage Swing	$V_{OM}$	$R_L = 2.5k\Omega$	$\pm 2.0$	$\pm 2.2$	-	V
Common Mode Rejection Ratio	CMR	$R_S \leq 10k\Omega$	60	80	-	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	60	70	-	dB
Slew Rate	SR	$V_{IN} = \pm 1V_{P-P}, A_{CL} = +1$	-	3	-	V/ $\mu s$
Operating Current	$I_{CC}$		1	2	3	mA

## ■ TYPICAL CHARACTERISTICS

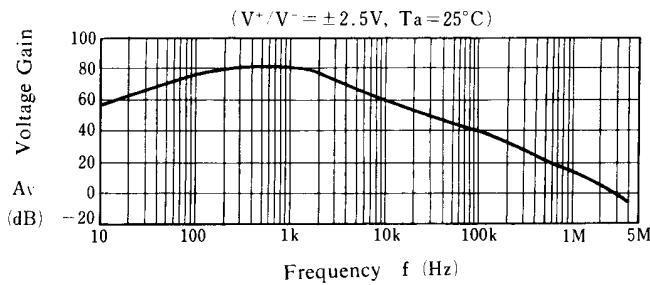
**Voltage Gain, Phase vs. Frequency**



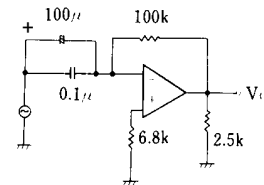
**Maximum Output Voltage vs. Frequency**



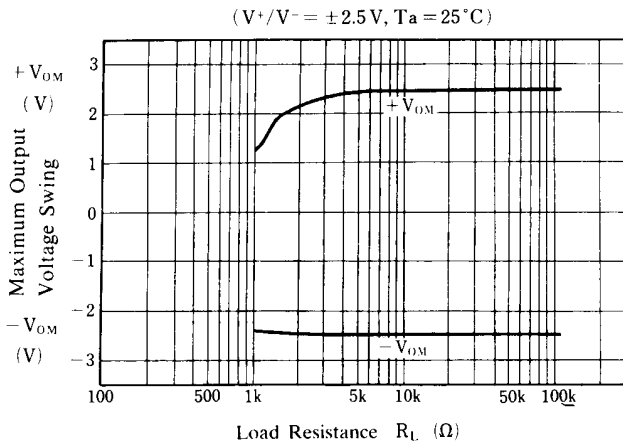
**Voltage Gain, vs. Frequency**



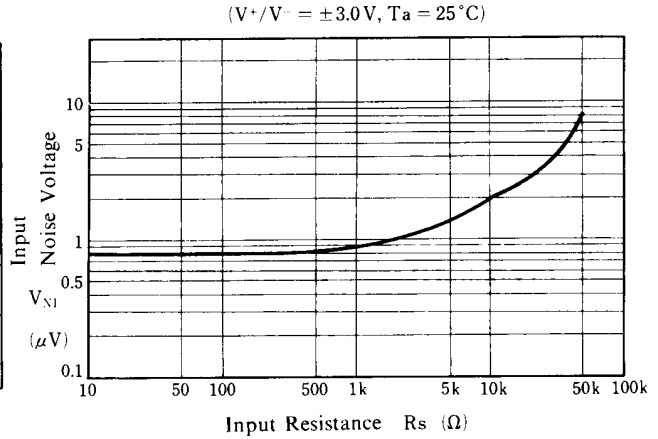
**Test Circuit**



**Maximum Output Voltage Swing vs. Load Resistance**

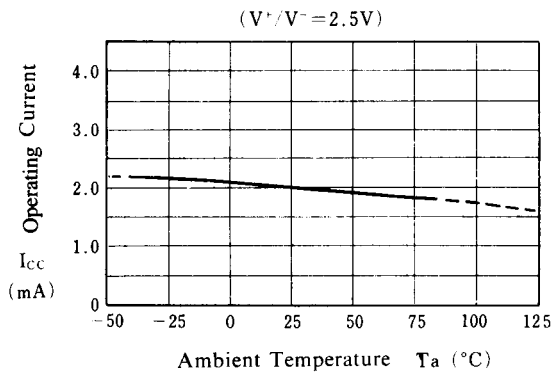


**Input Noise Voltage vs. Input Resistance**

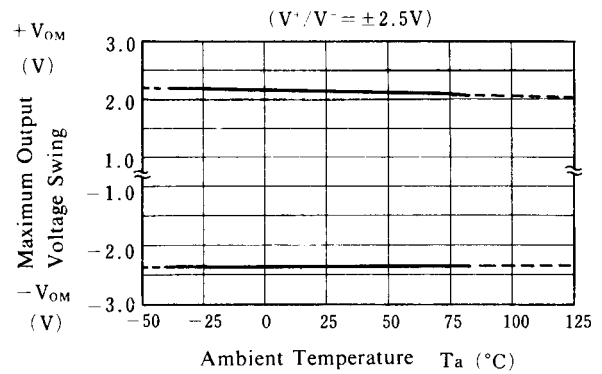


## ■ TYPICAL CHARACTERISTICS

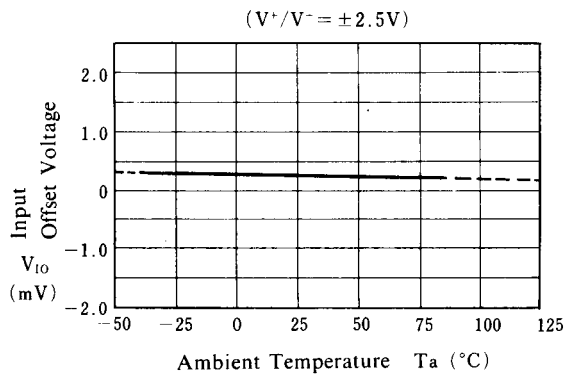
### Operating Current vs. Temperature



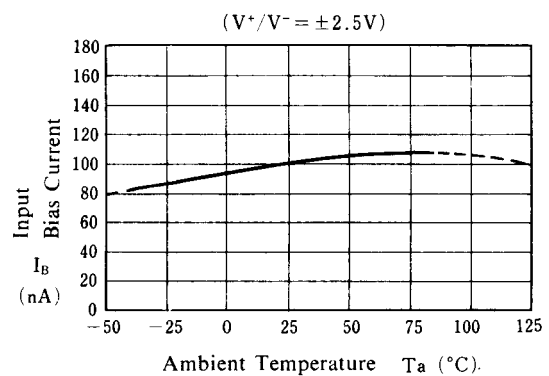
### Maximum Output Voltage Swing vs. Temperature



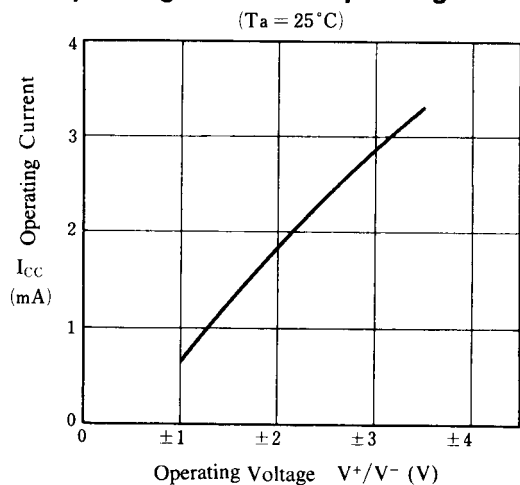
### Input Offset Voltage vs. Temperature



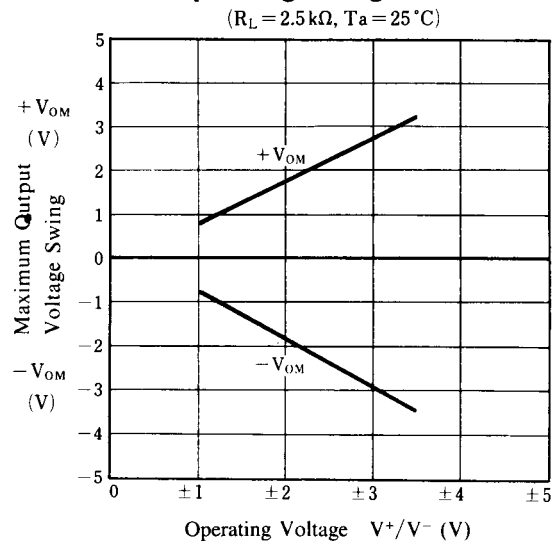
### Input Bias Current vs. Temperature



### Operating Current vs. Operating Voltage

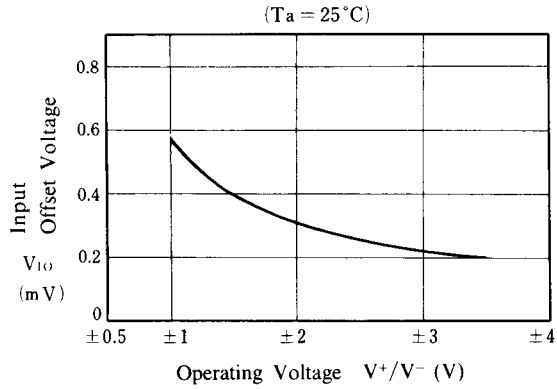


### Maximum Output Voltage Swing vs. Operating Voltage



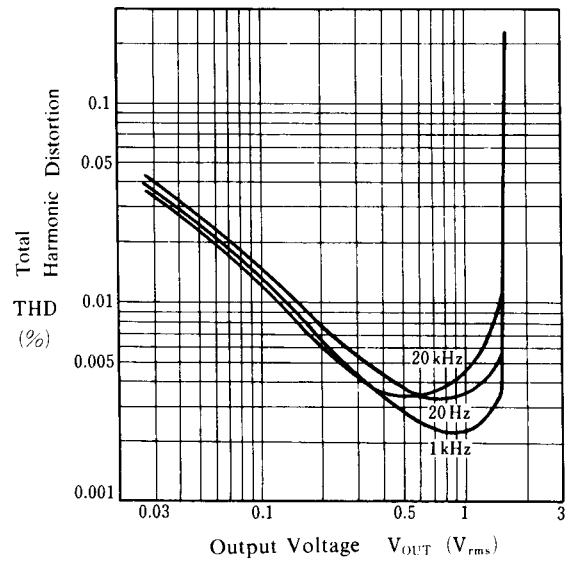
## ■ TYPICAL CHARACTERISTICS

**Input Offset Voltage vs. Operating Voltage**



**Total Harmonic Distortion vs. Output Voltage**

( $V^+/V^- = \pm 2.5\text{V}$ ,  $R_L = 2.5\text{k}\Omega$ , Gain = 10dB,  $T_a = 25^\circ\text{C}$ )



**[CAUTION]**

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