DUAL SINGLE-SUPPLY OPERATIONAL AMPLIFIER

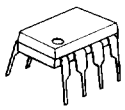
■ GENERAL DESCRIPTION

NJM 2119 is a ultra-low input offset voltage and bias current, low drift and single supply dual operational amplifier. NJM2119 is suitable for a high accurated instrumental amplifier and sensor amplifier.

■ FEATURES

- Single Supply
- Operating Voltage (+4V～+36V)
- Low Input Offset Voltage (90 μV Typ.)
- Low Input Bias Current (18nA Typ.)
- Low Input Offset Voltage Drift (4.0 μV/℃ Typ.)
- Package Outline DIP8, DMP8
- Bipolar Technology

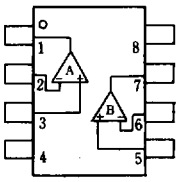
■ PACKAGE OUTLINE



NJM2119D

NJM2119M

■ PIN CONFIGURATION



NJM2119D
NJM2119M

PIN FUNCTION

1. A OUTPUT
2. A −INPUT
3. A +INPUT
4. V⁻
5. B +INPUT
6. B −INPUT
7. B OUTPUT
8. V⁺

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+(V^+/V^-)$	36(±18)	V
Differential Input Voltage	V_{ID}	−0.3～+36	V
Input Voltage	V_{ID}	+36 (note)	V
Power Dissipation	P_D	(DIP8) 700	mW
		(DMP8) 300	mW
Operating Temperature Range	T_{opr}	−30～+85	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

(note) For supply voltage less than ±18V, the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

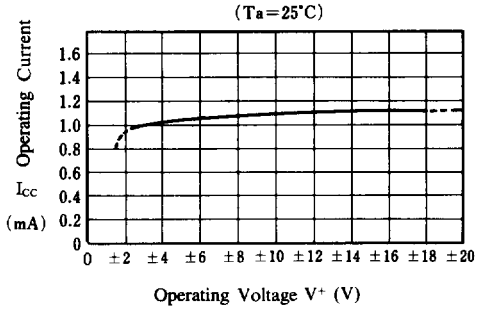
(V^+=5.0V, Ta=25±2℃)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leqq 50\Omega$	—	90	450	μV
V_{IO} Drift	$\Delta V_{IO}/\Delta T$	Ta=-30～+85℃	—	4.0	—	μV/℃
Input Offset Current	I_{IO}		—	0.3	7.0	nA
Input Bias Current	I_B		—	18	50	nA
Operating Current	I_{CC}	$R_L=\infty$	—	1.0	1.5	mA
Input Common Mode Voltage Range	V_{ICM}		0～3.5	—	—	V
Common Mode Rejection Ratio	CMR		85	100	—	dB
Supply Voltage Rejection Ratio	SVR		85	100	—	dB
Large Signal Voltage Gain	A_V	$R_L=600\Omega$	90	105	—	dB
Maximum Output Voltage Swing	$+V_{OM1}$	$R_L=600\Omega$	3.4	4.0	—	V
	$-V_{OM1}$	$R_L=600\Omega$	—	5.0	10.0	mV
	$-V_{OM2}$	I_{SINK}=1mA	—	220	350	mV
Slew Rate	SR	A_V=1	—	0.3	—	V/μs
Gain Bandwidth Product	GB		—	1.0	—	MHz

■ TYPICAL CHARACTERISTICS

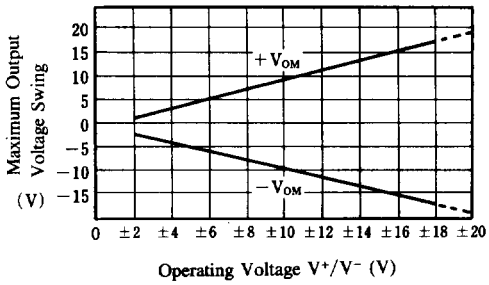
Operating Current vs. Operating Voltage

(Ta=25°C)



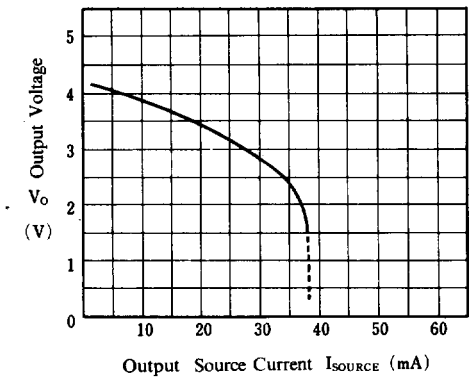
Maximum Output Voltage Swing vs. Operating Voltage

(Ta=25°C, R_L=2kΩ)



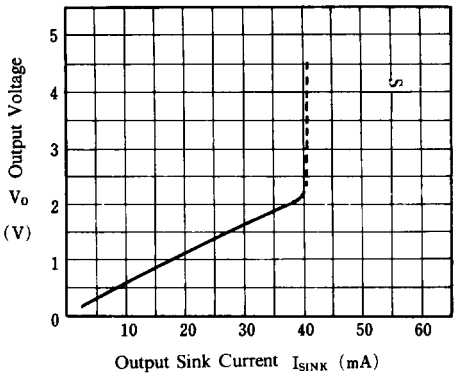
Output Source Current

(V+=5V, Ta=25°C)



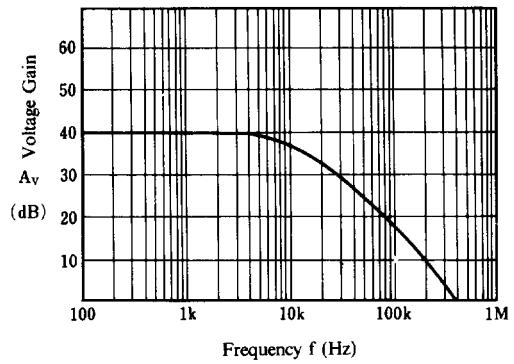
Output Sink Current

(V+=5V, Ta=25°C)



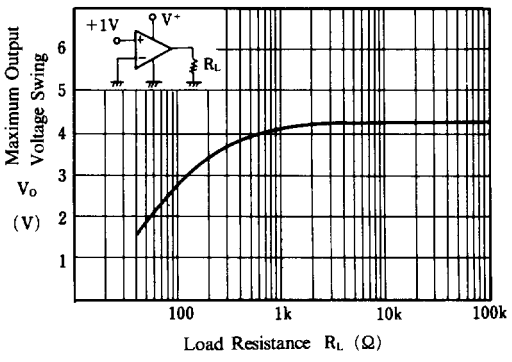
Voltage Gain vs. Frequency

(V+/V−=±2.5V, R_L=2kΩ, A_V=40dB, Ta=25°C)



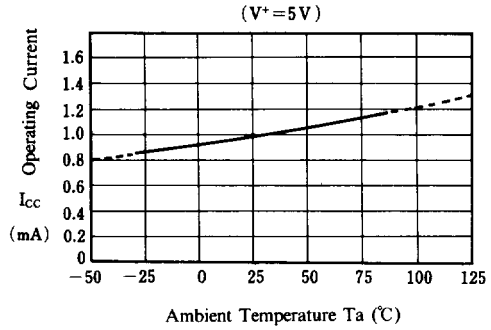
Maximum Output Voltage Swing vs. Load Resistance

(V+=5V, Ta=25°C)

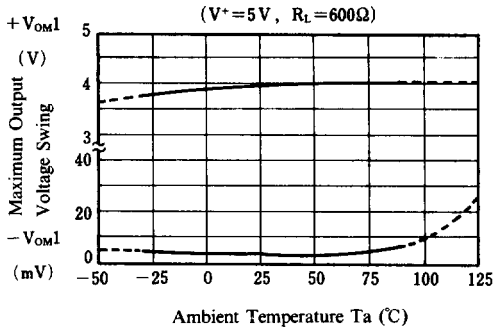


■ TYPICAL CHARACTERISTICS

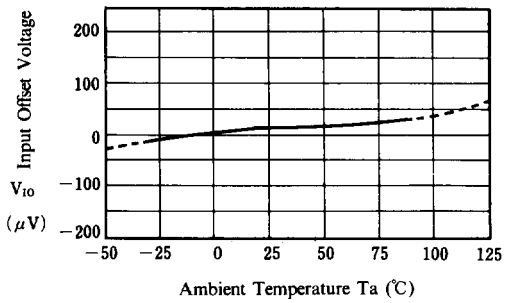
Operating Current vs. Temperature



Maximum Output Voltage Swing vs. Temperature



Input Offset Voltage vs. Temperature



Input BiasCurrent vs. Temperature