

DUAL SINGLE-SUPPLY OPERATIONAL AMPLIFIER

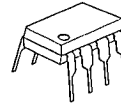
■ GENERAL DESCRIPTION

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 μ V Typ.)
- Low Input Bias Current (18nA Typ.)
- Low Input Offset Voltage Drift (4.0 μ V/ $^{\circ}$ C Typ.)
- Package Outline .DIP8, .DMP8
- Bipolar Technology

■ PACKAGE OUTLINE

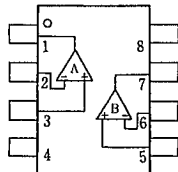


NJM2119D



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⁺

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■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V*(V+/V-)	36(±18)	V
Differential Input Voltage	V _{ID}	-0.3~+36	V
Input Voltage	V _{IC}	+36 (note)	V
Power Dissipation	P _D	(DIP8) 700	mW
		(DMP8) 300	mW
Operating Temperature Range	T _{opr}	-30~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

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

■ ELECTRICAL CHARACTERISTICS

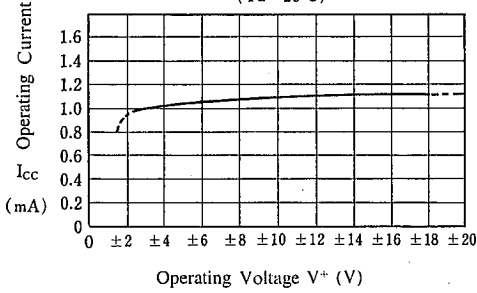
(V+=5.0V, Ta=25±2°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	R _S ≤ 50Ω	—	90	450	μV
V _{IO} Drift	ΔV _{IO} /ΔT	T _a = -30~+85°C	—	4.0	—	μV/°C
Input Offset Current	I _{IO}		—	0.3	7.0	nA
Input Bias Current	I _B		—	18	50	nA
Operating Current	I _{CC}	R _L = ∞	—	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 = 600Ω	90	105	—	dB
Maximum Output Voltage Swing 1	+V _{OM1}	R _L = 600Ω	3.4	4.0	—	V
Maximum Output Voltage Swing 1	-V _{OM1}	R _L = 600Ω	—	5.0	10.0	mV
Maximum Output Voltage Swing 2	-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

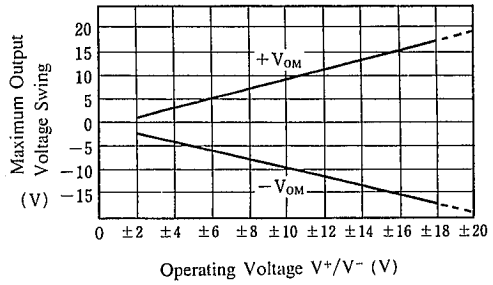
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■ TYPICAL CHARACTERISTICS

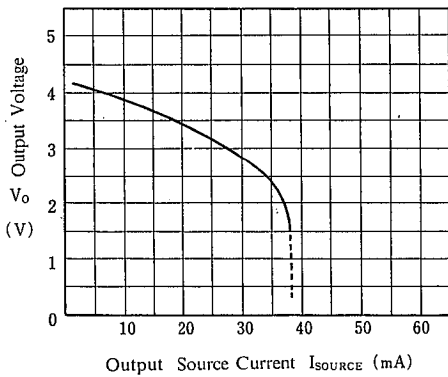
Operating Current vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



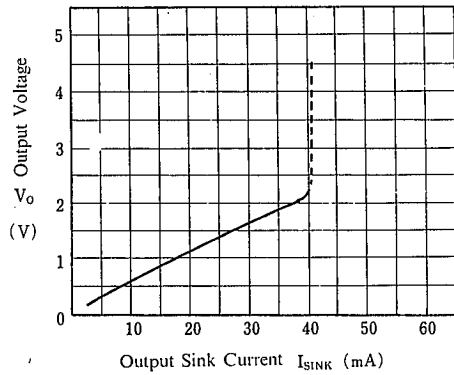
Maximum Output Voltage Swing vs. Operating Voltage
($T_a = 25^\circ\text{C}$, $R_L = 2\text{k}\Omega$)



Output Source Current
($V^+ = 5\text{V}$, $T_a = 25^\circ\text{C}$)

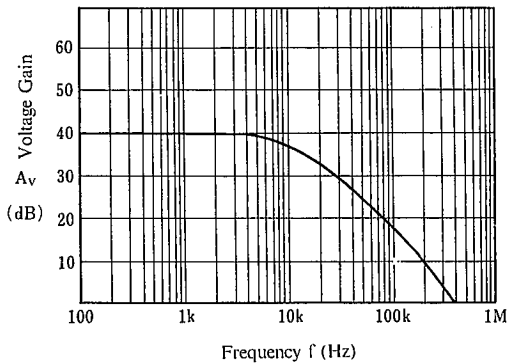


Output Sink Current
($V^+ = 5\text{V}$, $T_a = 25^\circ\text{C}$)



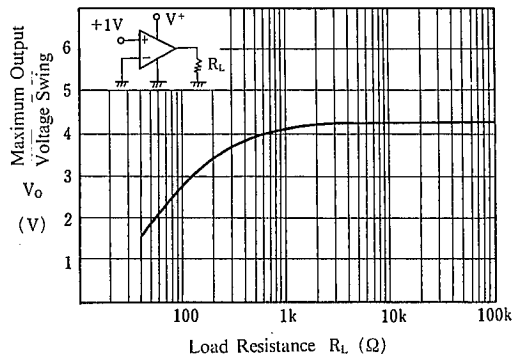
Voltage Gain vs. Frequency

($V^+/V^- = \pm 2.5\text{V}$, $R_L = 2\text{k}\Omega$, $A_v = 40\text{dB}$, $T_a = 25^\circ\text{C}$)

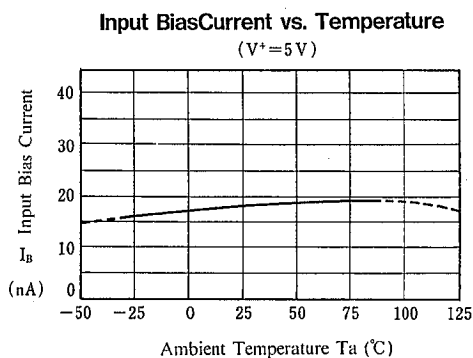
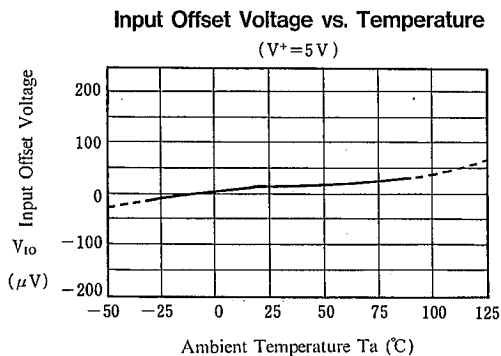
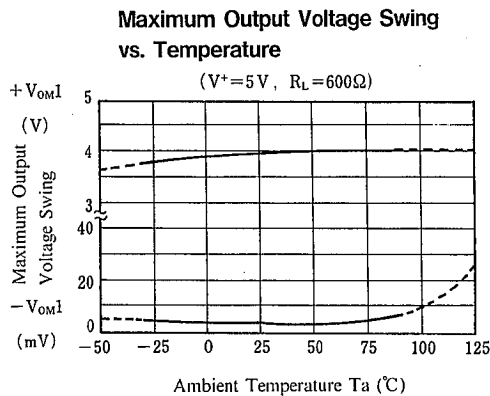
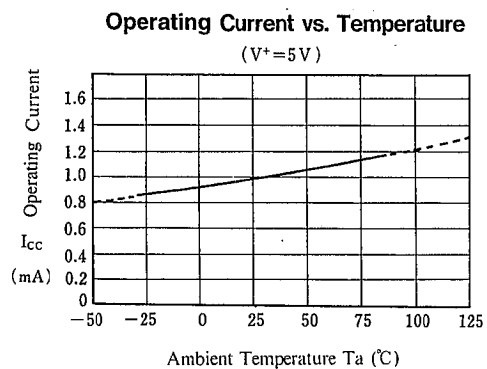


Maximum Output Voltage Swing vs. Load Resistance

($V^+ = 5\text{V}$, $T_a = 25^\circ\text{C}$)



■ TYPICAL CHARACTERISTICS



MEMO

[CAUTION]

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