

LOW-NOISE DUAL OPERATIONAL AMPLIFIER

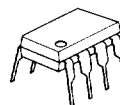
■ GENERAL DESCRIPTION

The NJM2041 is a bipolar operational amplifier which is designed as low noise version of the NJM4558 with high output current and fast slew rate ($3V/\mu s$) and wide unity gain bandwidth (7MHz) constructed using New JRC Planar epitaxial process.

■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 22V$)
- High Output Current (25mA.)
- Slew Rate ($3V/\mu s$ typ.)
- Unity Gain Bandwidth (7MHz typ.)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

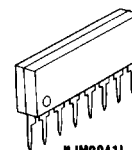
■ PACKAGE OUTLINE



NJM2041D

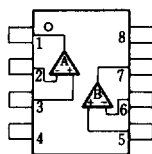
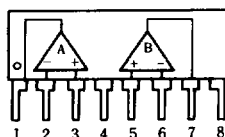


NJM2041M



NJM2041L

■ PIN CONFIGURATION

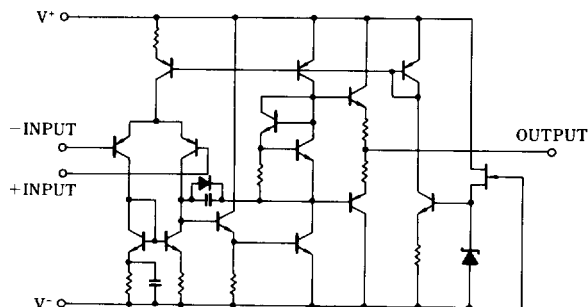
NJM2041D
NJM2041M

NJM2041L

PIN FUNCTION

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

■ EQUIVALENT CIRCUIT (1/2 Shown)





■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺ /V ⁻	±22	V
Differential Input Voltage	V _{ID}	±30	V
Input Voltage	V _I	±15 (note)	V
Power Dissipation	P _D	(DIP8) 500	mW
		(DIM8) 300	mW
		(SIP8) 800	mW
Operating Temperature Range	T _{opr}	-20 ~ +75	°C
Storage Temperature Range	T _{stg}	-40 ~ +125	°C

(note) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, V⁺/V⁻=±15V)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	R _S ≤ 10kΩ	—	0.3	3	mV
Input Offset Current	I _{IO}		—	10	200	nA
Input Bias Current	I _B		—	200	500	nA
Input Resistance	R _{IN}		50	200	—	kΩ
Large-signal Voltage Gain	A _V	R _L ≥ 2kΩ, V _O = ±10V	86	110	—	dB
Maximum Output Voltage Swing 1	V _{OM1}	R _L ≥ 10kΩ	±12	±14	—	V
Maximum Output Voltage Swing 2	V _{OM2}	I _O = 25mA	±10	±11.5	—	V
Input Common Mode Voltage Range	V _{ICM}		±12	±14	—	V
Common Mode Rejection Ratio	CMR	R _S ≤ 10kΩ	70	100	—	dB
Supply Voltage Rejection Ratio	SVR	R _S ≤ 10kΩ	76	100	—	dB
Operating Current	I _{CC}		—	6	8	mA
Slew Rate	SR		—	3	—	V/μs
Gain Bandwidth Product	GB		—	7	—	MHz
Equivalent Input Noise Voltage	V _{NI}	FLAT + JISA R _S = 300Ω	—	0.48	0.61	μV

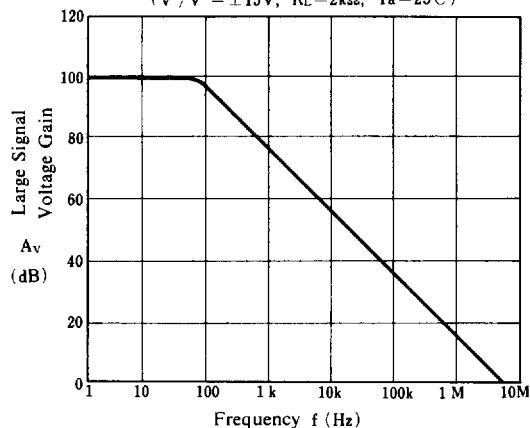
(note) New JRC's general selected products D-rank are also prepared for the noise standard (R_S=2.2kΩ, R_{IAA}, V_{NI}=1.4μV Max.)



■ TYPICAL CHARACTERISTICS

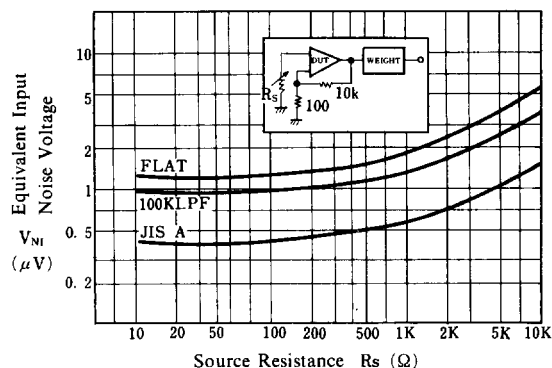
Large Signal Voltage Gain vs. Frequency

($V^+/V^- = \pm 15V$, $R_L = 2k\Omega$, $T_a = 25^\circ C$)



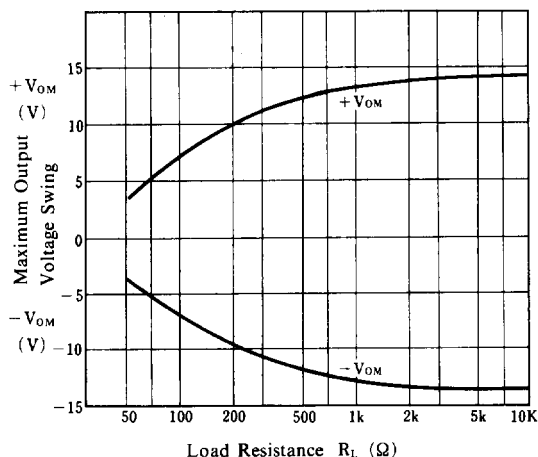
Equivalent Input Noise Voltage

($V^+/V^- = \pm 15V$, $T_a = 25^\circ C$)



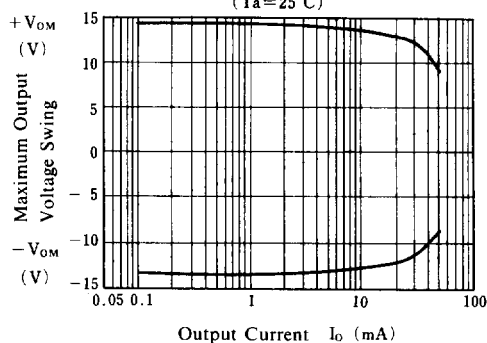
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^- = \pm 15V$, $T_a = 25^\circ C$)



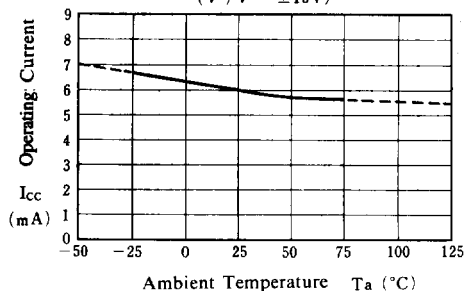
Maximum Output Voltage Swing vs. Output Current

($T_a = 25^\circ C$)



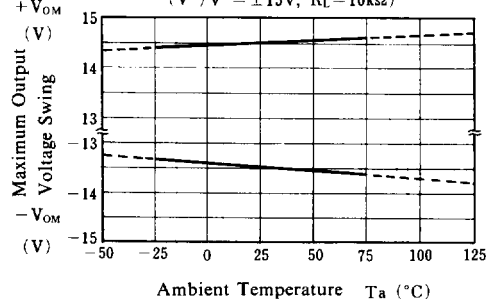
Operating Current vs. Temperature

($V^+/V^- = \pm 15V$)



Maximum Output Voltage Swing vs. Temperature

($V^+/V^- = \pm 15V$, $R_L = 10k\Omega$)

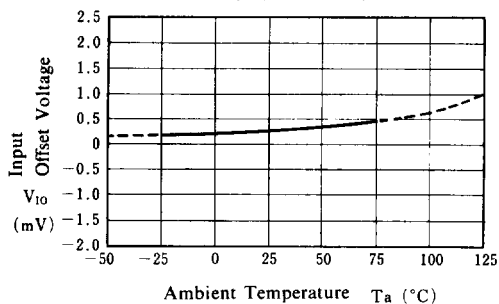




■ TYPICAL CHARACTERISTICS

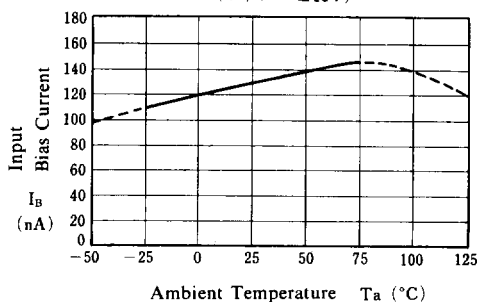
Input Offset Voltage vs. Temperature

($V^+/V^- = \pm 15V$)



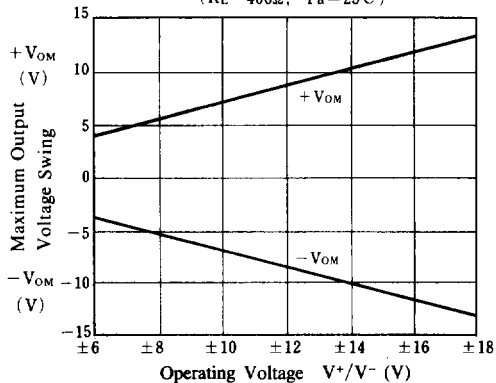
Input Bias Current vs. Temperature

($V^+/V^- = \pm 15V$)



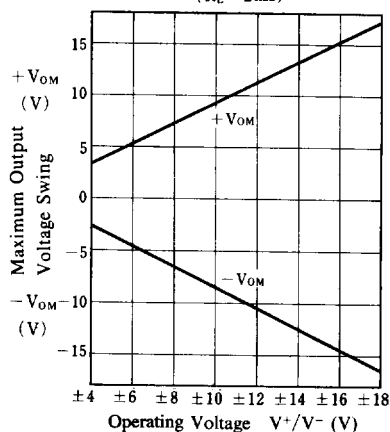
Maximum Output Voltage Swing vs. Operating Voltage

($R_L = 400\Omega$, $T_a = 25^\circ C$)



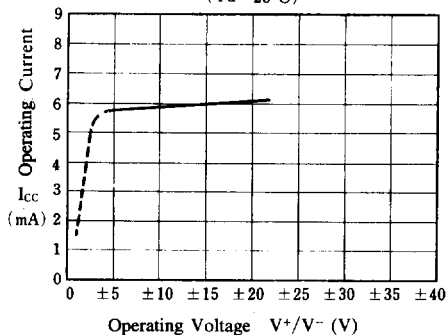
Maximum Output Voltage Swing vs. Operating Voltage

($R_L = 2k\Omega$)



Operating Current vs. Operating Voltage

($T_a = 25^\circ C$)



Maximum Output Voltage Swing vs. Frequency

($V^+/V^- = \pm 15V$, $R_L = 2k\Omega$, $T_a = 25^\circ C$)

