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New Japan Radio Co.,Ltd.

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LOW-NOISE DUAL OPERATIONAL AMPLIFIER

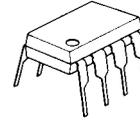
■ GENERAL DESCRIPTION

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

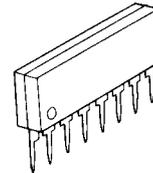
■ PACKAGE OUTLINE



NJM2041D

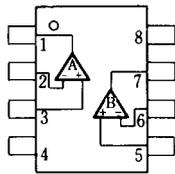


NJM2041M

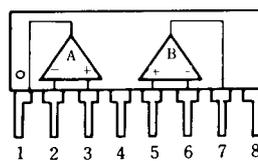


NJM2041L

■ PIN CONFIGURATION



NJM2041D
NJM2041M

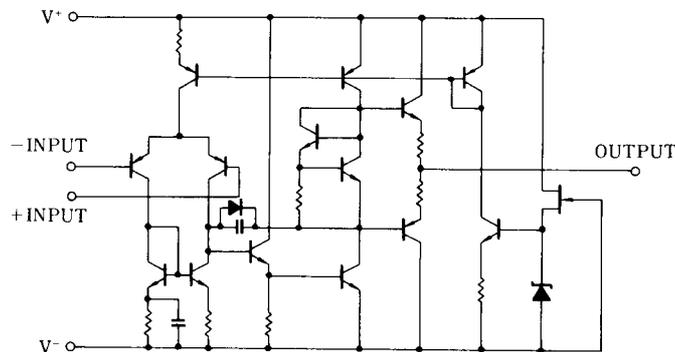


NJM2041L

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)



NJM2041

■ 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_{IC}	± 15 (note)	V
Power Dissipation	P_D	(DIP8) 500 (DMP8) 300 (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

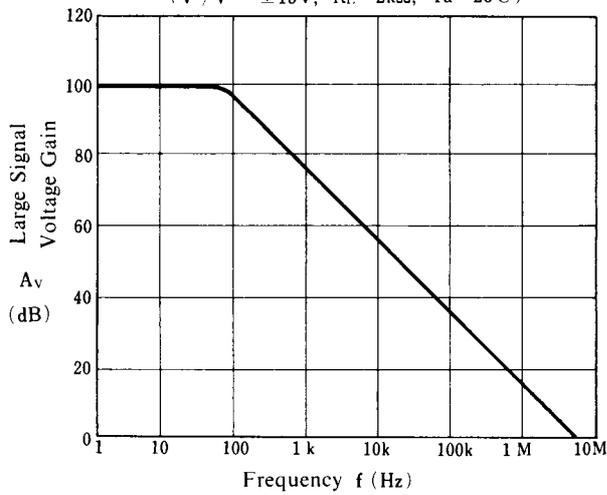
(Ta=25°C, $V^+ / V^- = \pm 15V$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leq 10k\Omega$	-	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	$R_L \geq 2k\Omega, V_O = \pm 10V$	86	110	-	dB
Maximum Output Voltage Swing 1	V_{OM1}	$R_L \geq 10k\Omega$	± 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	$R_S \leq 10k\Omega$	70	100	-	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	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 $R_S = 300\Omega$	-	0.48	0.61	μVrms

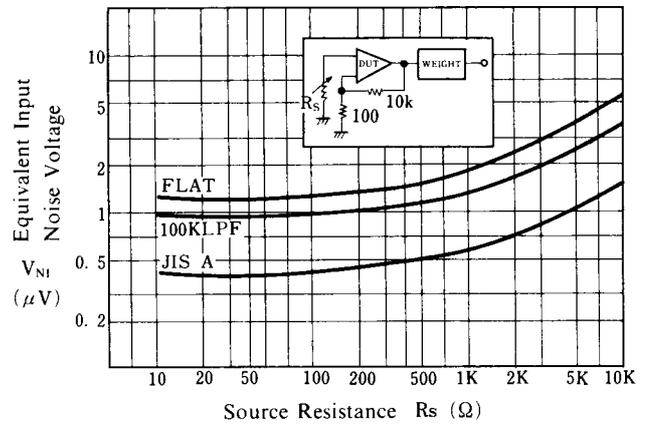
(note) New JRC's general selected products D rank are also prepared for the noise standard ($R_S = 2.2k\Omega, R_{IAA}, V_{NI} = 1.4\mu V$ Max.)

■ TYPICAL CHARACTERISTICS

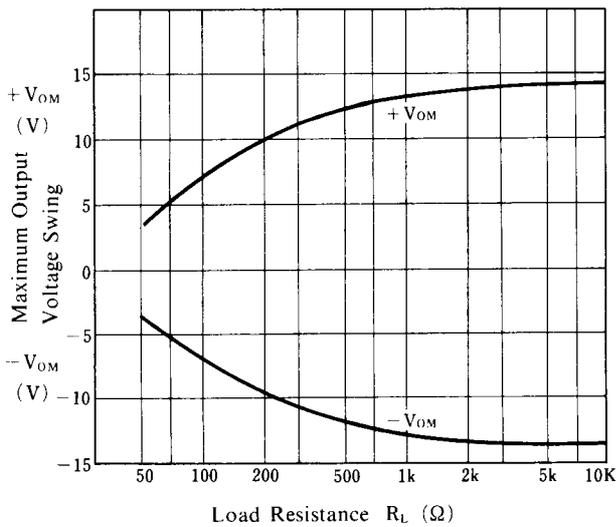
Large Signal Voltage Gain vs. Frequency
 (V⁺/V⁻ = ±15V, R_L = 2kΩ, T_a = 25°C)



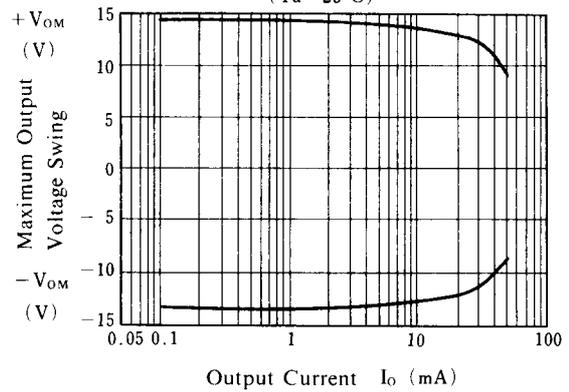
Equivalent Input Noise Voltage
 (V⁺/V⁻ = ±15V, T_a = 25°C)



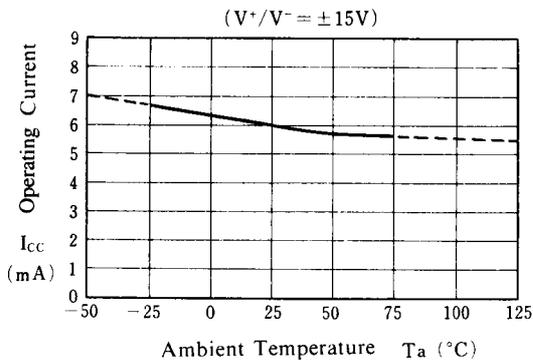
Maximum Output Voltage Swing vs. Load Resistance
 (V⁺/V⁻ = ±15V, T_a = 25°C)



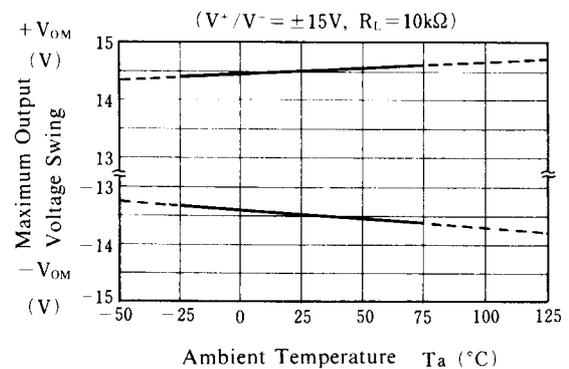
Maximum Output Voltage Swing vs. Output Current
 (T_a = 25°C)



Operating Current vs. Temperature
 (V⁺/V⁻ = ±15V)



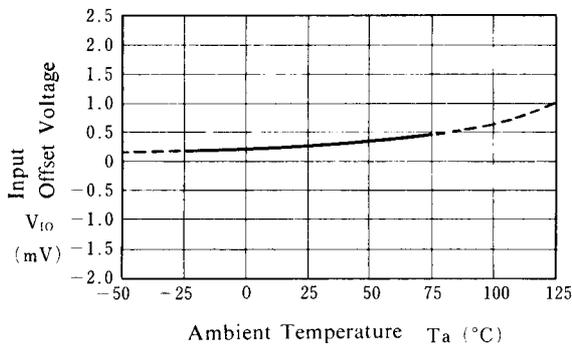
Maximum Output Voltage Swing vs. Temperature
 (V⁺/V⁻ = ±15V, R_L = 10kΩ)



■ TYPICAL CHARACTERISTICS

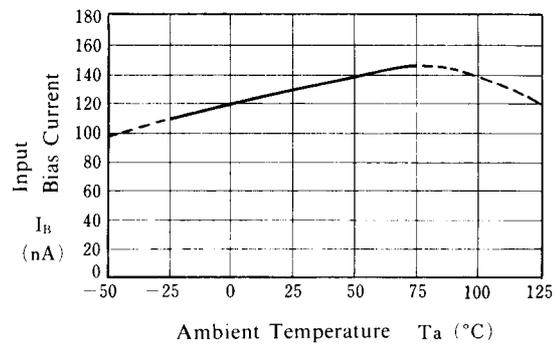
Input Offset Voltage vs. Temperature

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



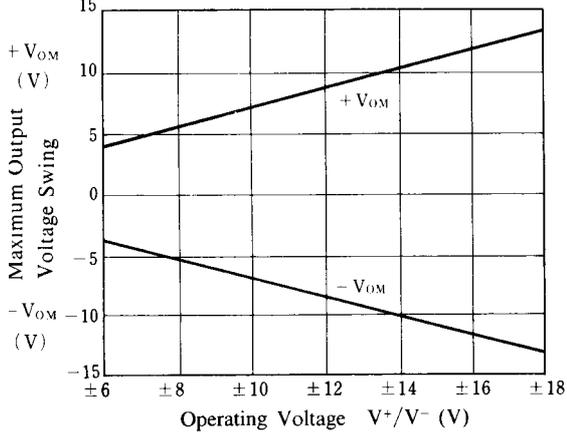
Input Bias Current vs. Temperature

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



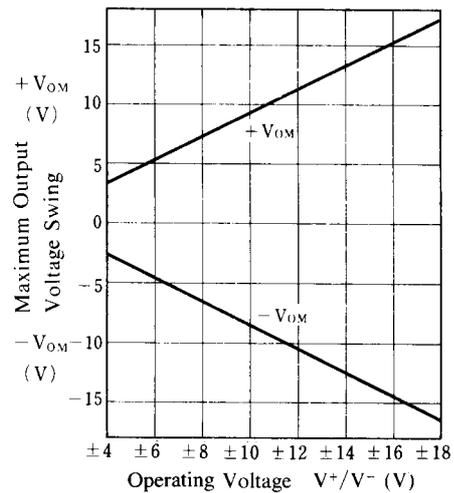
Maximum Output Voltage Swing vs. Operating Voltage

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



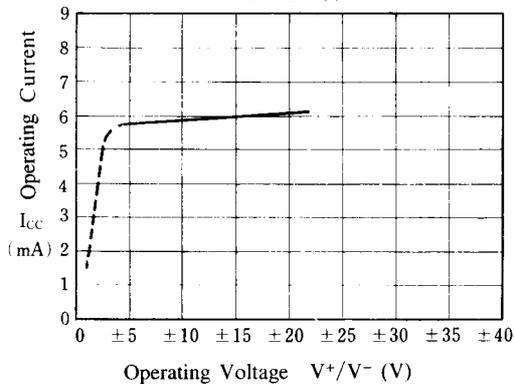
Maximum Output Voltage Swing vs. Operating Voltage

($R_L = 2k\Omega$)



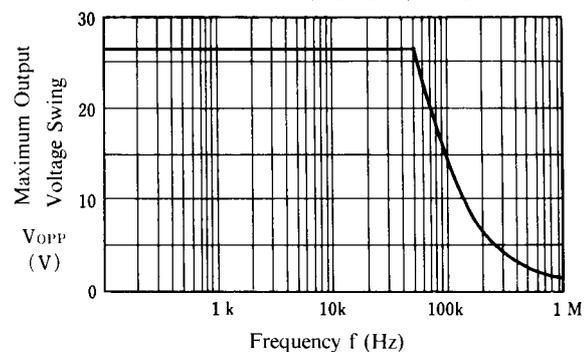
Operating Current vs. Operating Voltage

($T_a = 25^\circ C$)



Maximum Output Voltage Swing vs. Frequency

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



[CAUTION]

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