

LOW-NOISE DUAL PRE-AMPLIFIER

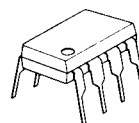
■ GENERAL DESCRIPTION

The NJM2043 is a bipolar operational amplifier which is designed as low noise version of the NJM4558 with high output current and fast slew rate (6V/ μ s) and wide unity gain bandwidth (14MHz) constructed using New JRC Planar epitaxial process.

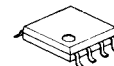
■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 22V$)
- High Output Current (25mA.)
- Slew Rate (6V/ μ s typ.)
- Unity Gain Bandwidth (14MHz typ.)
- Package Outline DIP8,DMP8,SIP8
- Bipolar Technology

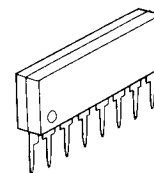
■ PACKAGE OUTLINE



NJM2043D

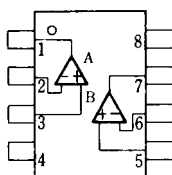


NJM2043M

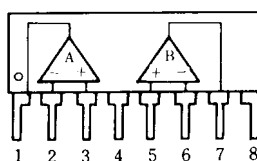


NJM2043L

■ PIN CONFIGURATION



NJM2043D
NJM2043M

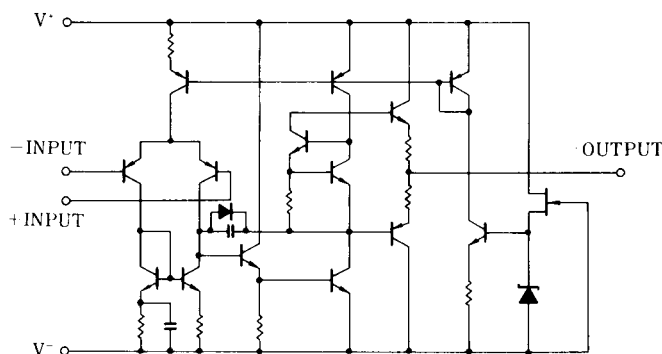


NJM2043L

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_{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 $\pm 15V$, 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		-	400	1000	nA
Input Resistance	R_{IN}		30	100	-	k Ω
Large signal Voltage Gain	A_V	$R_L \geq 2k\Omega, V_O = \pm 10V$	86	100	-	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		-	6	-	V/ μs
Gain Bandwidth Product	GB		-	14	-	MHz
Equivalent Input Noise Voltage	V_{NI}	FLAT+JISA $R_S = 300\Omega$	-	0.4	0.51	μV_{rms}

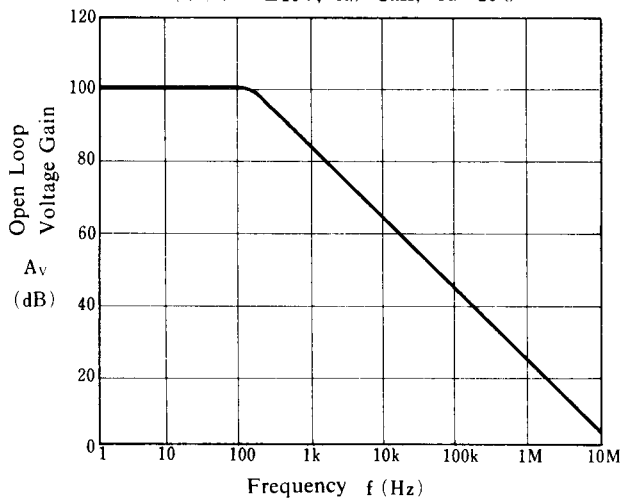
(note1) Closed loop gain should be more than 20dB at use.

(note2) 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

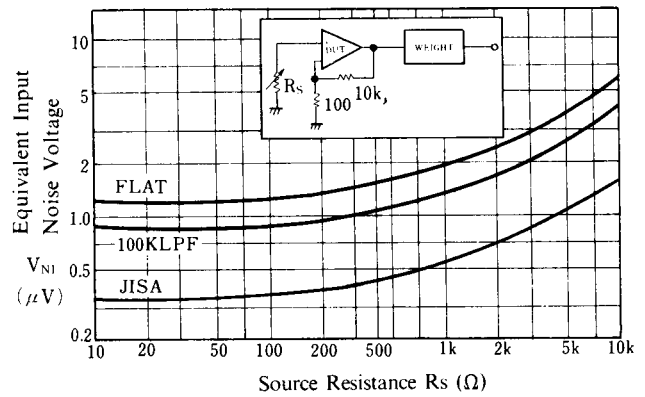
**Open Loop Voltage Gain
vs. Frequency**

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



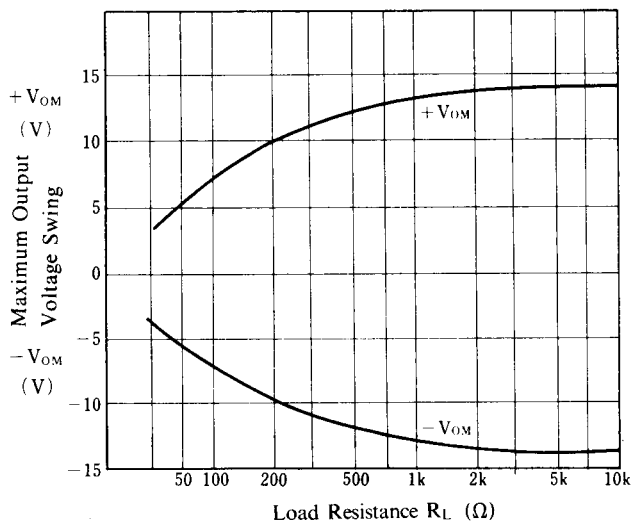
Equivalent Input Noise Voltage

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



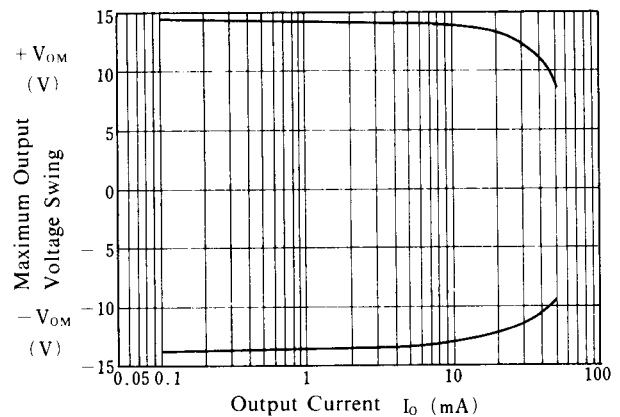
**Maximum Output Voltage Swing
vs. Load Resistance**

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

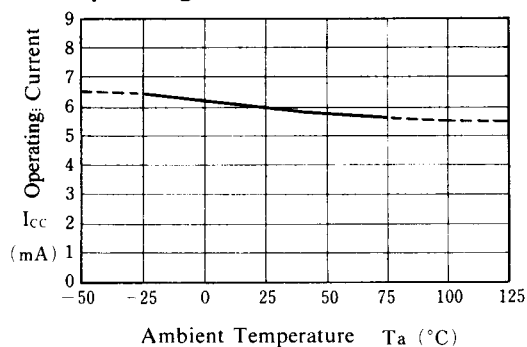


**Maximum Output Voltage Swing
vs. Output Current**

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

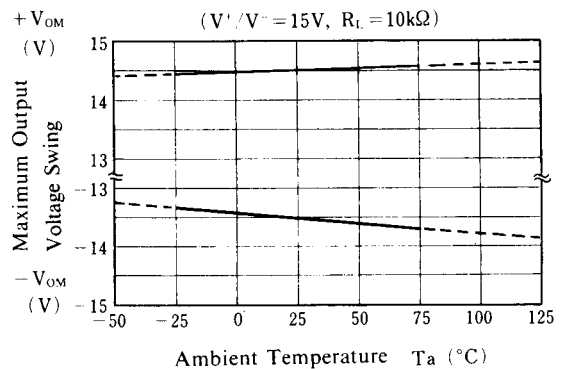


Operating Current vs. Temperature



**Maximum Output Voltage Swing
vs. Temperature**

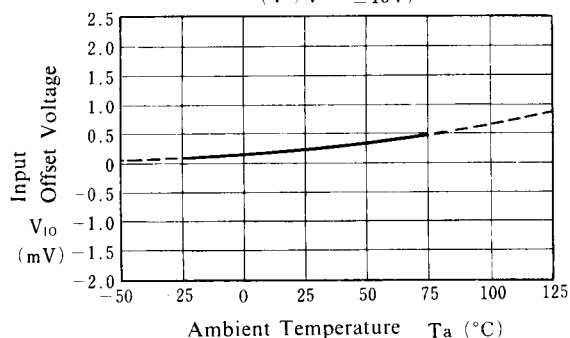
($V^+/V^- = \pm 15V$, $R_L = 10k\Omega$)



■ TYPICAL CHARACTERISTICS

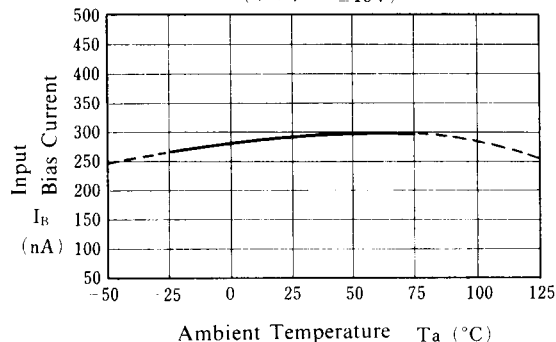
Input Offset Voltage vs. Temperature

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



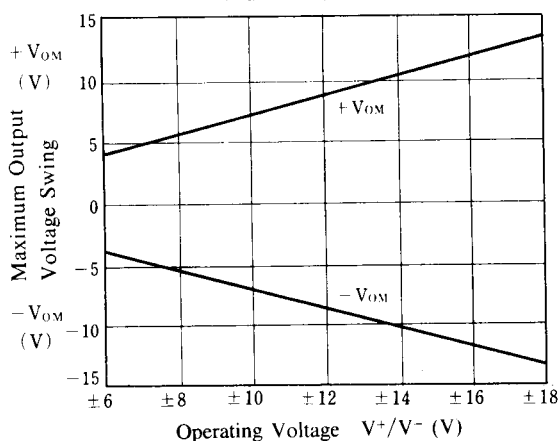
Input Bias Current vs. Temperature

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



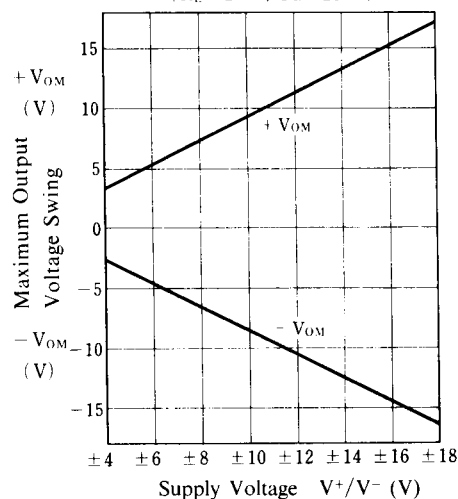
Maximum Output Voltage Swing vs. Operating Voltage

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



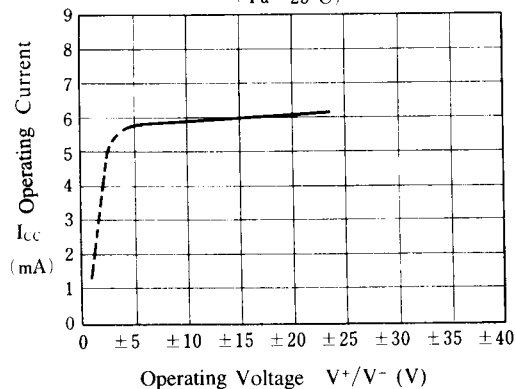
Maximum Output Voltage Swing vs. Supply Voltage

($R_L = 2k\Omega$, $T_a = 25^\circ C$)



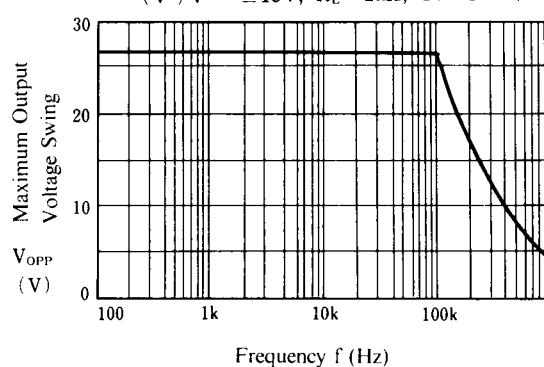
Operating Current vs. Operating Voltage

($T_a = 25^\circ C$)



Maximum Output Voltage Swing vs. Frequency

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



[CAUTION]

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