LOW-NOISE DUAL PRE-AMPLIFIER

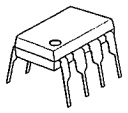
■ GENERAL DESCRIPTION

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/ μs) and wide unity gain bandwidth (14MHz) constructed using New JRC Planar epitaxial process.

■ FEATURES

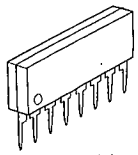
- Operating Voltage (±4V～±22V)
- High Onput Current (25mA.)
- Slew Rate (6V/ μs typ.)
- Unity Gain Bandwidth (14MHz typ.)
- Package Outline DIP8, DMP8, SIP8
- Bipolar Technology

■ PACKAGE OUTLINE



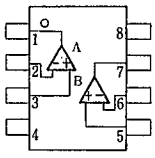
NJM2043D

NJM2043M

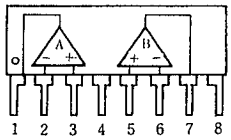


NJM2043L

■ PIN CONFIGURATION



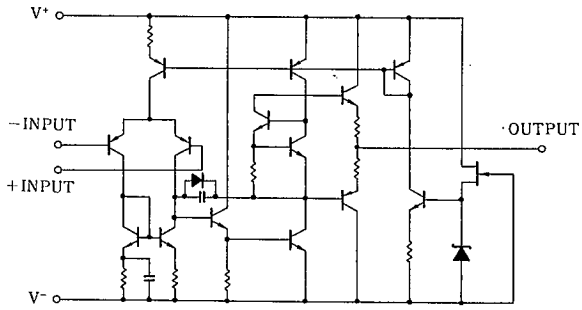
NJM2043D
NJM2043M



NJM2043L

PIN FUNCITON
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℃)

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	mW
		(DIM8) 300	mW
		(SIP8) 800	mW
Operating Temperature Range	T_{opr}	−20~+75	℃
Storage Temperature Range	T_{stg}	−40~+125	℃

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

■ ELECTRICAL CHARACTERISTICS

(Ta=25℃, V^+/V^-=±15V)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	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	—	kΩ
Large signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, V_O=±10V	86	100	—	dB
Maximum Output Voltage Swing 1	V_{OM1}	$R_L \geqq 10k\Omega$	±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 Rajection Ratio	CMR	$R_S \leqq 10k\Omega$	70	100	—	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leqq 10k\Omega$	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=300Ω	—	0.4	0.51	μVrms

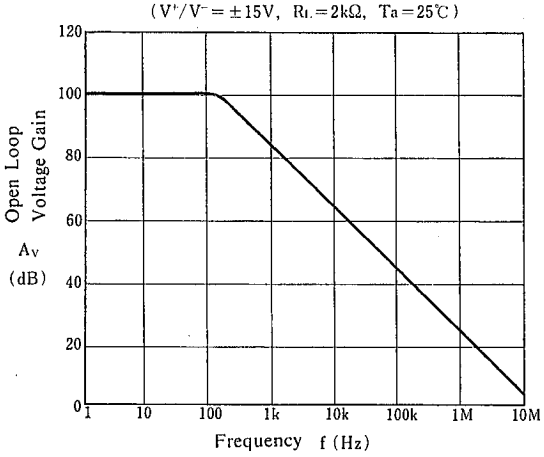
(note 1) Closed loop gain should be more than 20dB at use.

(note 2) New JRC's general selected products D rank are also prepared for the noise standared (R_S=2.2kΩ, RIAA, V_{NI}=1.4μV Max.)

■ TYPICAL CHARACTERISTICS

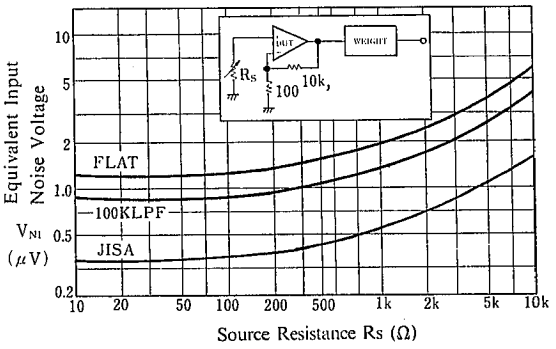
Open Loop Voltage Gain vs. Frequency

($V^+/V^-=\pm15V$, $R_L=2k\Omega$, $Ta=25°C$)



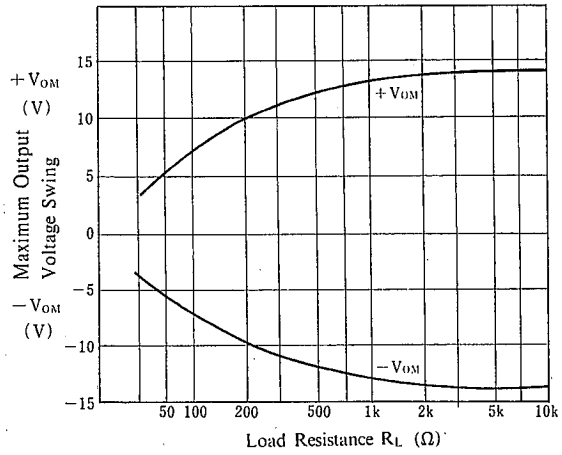
Equivalent Input Noise Voltage

($V^+/V^-=\pm15V$, $Ta=25°C$)



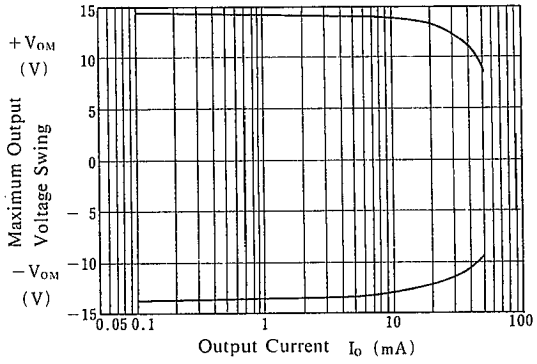
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, $Ta=25°C$)

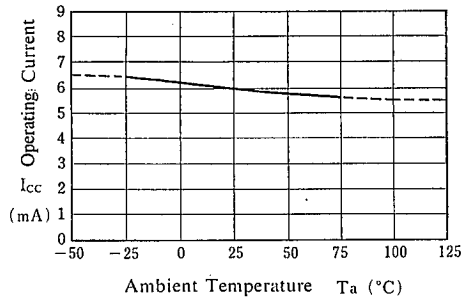


Maximum Output Voltage Swing vs. Output Current

($V^+/V^-=15V$, $Ta=25°C$)

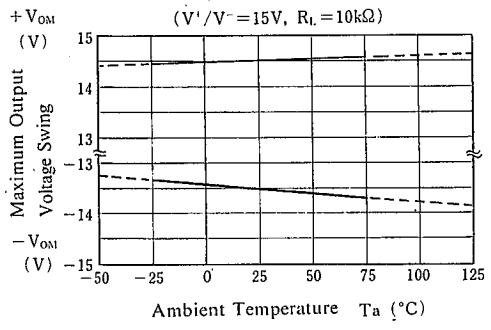


Operating Current vs. Temperature



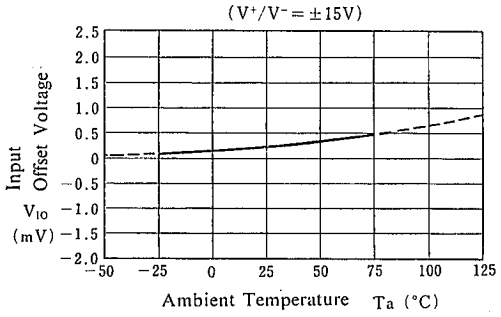
Maximum Output Voltage Swing vs. Temperature

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

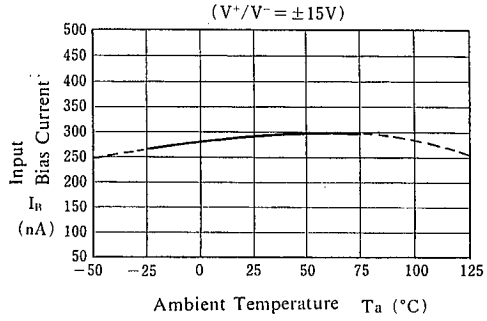


■ TYPICAL CHARACTERISTICS

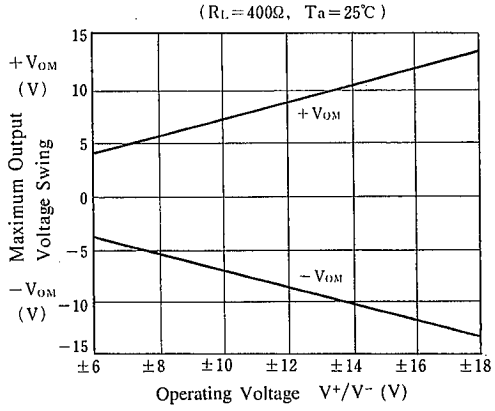
Input Offset Voltage vs. Temperature



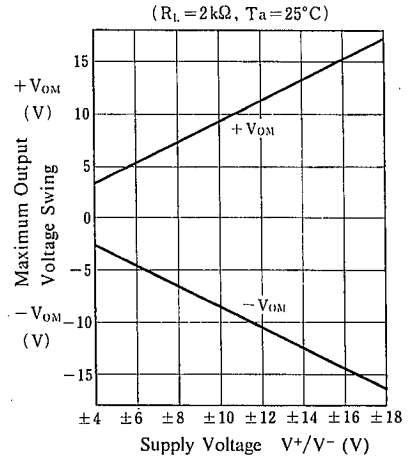
Input Bias Current vs. Temperature



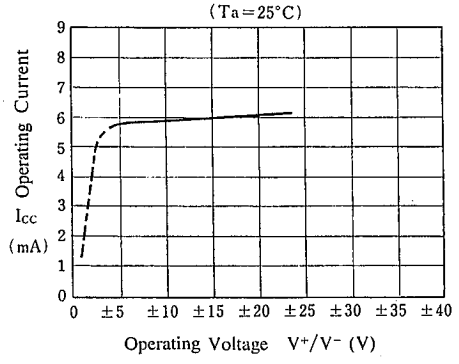
Maximum Output Voltage Swing vs. Operating Voltage



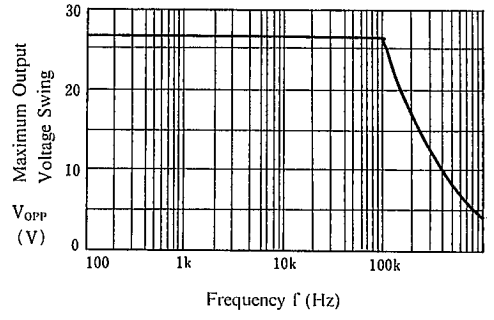
Maximum Output Voltage Swing vs. Supply Voltage



Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Frequency



MEMO