

### 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/ $\mu$ s) 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.)

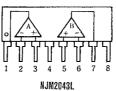
Unity Gain Bandwidth

(14MHz typ.)

Package Outline

DIP8, DMP8, SIP8

#### Bipolar Technology



**■ PACKAGE OUTLINE** 



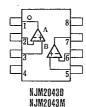


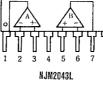
NJM2043D

NJM2043M



#### **■ PIN CONFIGURATION**

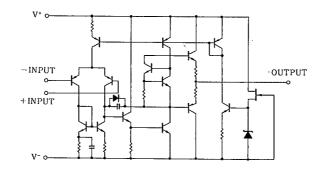




PIN FUNCITON

- 1. A OUTPUT
- 2. A-INPUT
- 3. A+INPUT
- 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 <sub>iD</sub>	±30		٧
Input Voltage	Vic	±15	(note)	V
Power Dissipation	Pp	(DIP8) 500	(DIP8) 500	
	(DIM8) 300			mW
		(SIP8) 800		mW
Operating Temperature Range	Topr	-20~+75		rc
Storage Temperature Range	Tstg	-40~+125		r

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

#### **■ ELECTRICAL CHARACTERISTICS**

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

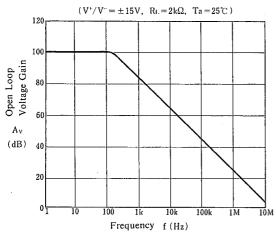
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V <sub>IO</sub>	$R_S \leq 10k\Omega$		0.3	3	mV
Input Offset Current	IIO			10	200	nΑ
Input Bias Current	IB		<u> </u>	400	1000	пA
Input Resistance	RIN		30	100		kΩ
Large signal Voltage Gain	Av	$R_L \ge 2k\Omega$ , $V_O = \pm 10V$	86	100		dВ
Maximum Output Voltage Swing 1	V <sub>OM1</sub>	$R_L \ge 10k\Omega$	±12	±14		v
Maximum Output Voltage Swing 2	V <sub>OM2</sub>	$I_0 = 25 \text{mA}$	±10	±11.5	l —	v
Input Common Mode Voltage Range	VICM		±12	±14	l —	v
Common Mode Rajection Ratio	CMR	$R_S \leq 10k\Omega$	70	100	l —	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	76	100		dB
Operating Current	lcc	•		6	8	mΑ
Slew Rate	SR			6		V/µs
Gain Bandwidth Product	GB		_	14	l —	MHz
Equivalent Input Noise Voltage	V <sub>N1</sub>	FLAT+JISA $R_S = 300\Omega$		0.4	0.51	μVrm

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

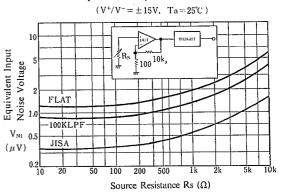
(note 2) New JRC's general selected products D rank are also prepared for the noise standared ( $R_S = 2.2k\Omega$ , RIAA,  $V_{NI} = 1.4 \mu V$  Max.)

#### ■ TYPICAL CHARACTERISTICS

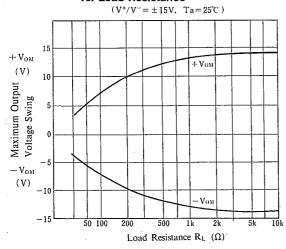
## Open Loop Voltage Gain vs. Frequency



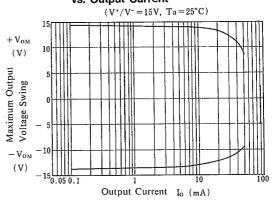
#### **Equivalent Input Noise Voltage**



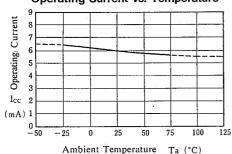
## Maximum Output Voltage Swing vs. Load Resistance



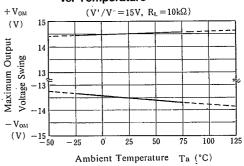
# Maximum Output Voltage Swing vs. Output Current



#### Operating Current vs. Temperature



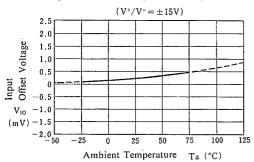
## Maximum Output Voltage Swing vs. Temperature



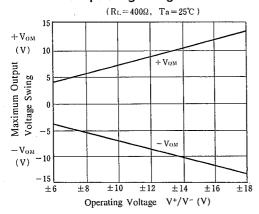
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### **TYPICAL CHARACTERISTICS**

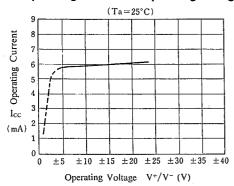
#### Input Offset Voltage vs. Temperature



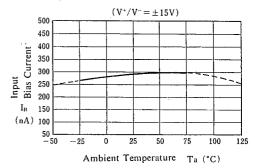
# Maximum Output Voltage Swing vs. Operating Voltage



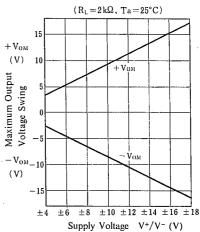
#### **Operating Current vs. Operating Voltage**



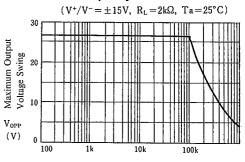
#### Input Bias Current vs. Temperature



## Maximum Output Voltage Swing vs. Supply Voltage



## Maximum Output Voltage Swing vs. Frequency



Frequency f (Hz)

### NJM2043

### **MEMO**

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