

DUAL OPERATIONAL AMPLIFIER

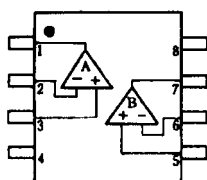
■ GENERAL DESCRIPTION

The NJM4565 is a high-gain, wide-bandwidth, dual low noise operational amplifier capable of driving 20V peak-to-peak into 400Ω loads. The NJM4565 is good characteristics compared to the NJM4560.

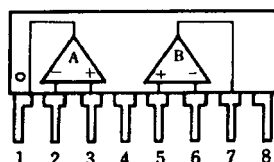
■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 18V$)
- Wide Gain Bandwidth Product (4MHz typ.)
- Slew Rate ($4V/\mu s$ typ.)
- Package Outline DIP8, DMP8, EMP8, SSOP8, SIP8
- Bipolar Technology

■ PIN CONFIGURATION



NJM4565D
NJM4565M
NJM4565E
NJM4565V



NJM4565L

PIN FUNCTION

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

■ PACKAGE OUTLINE



NJM4565D



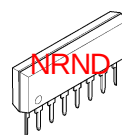
NJM4565M



NJM4565E

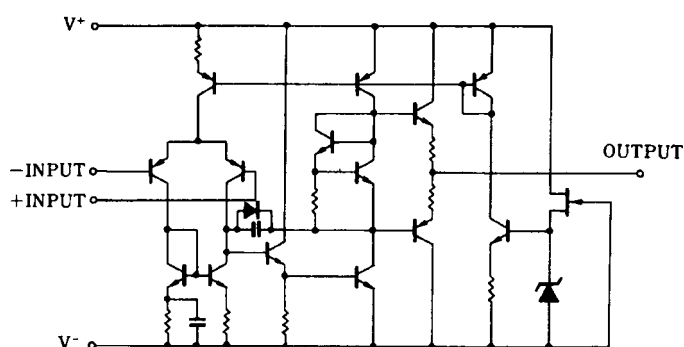


NJM4565V



NJM4565L

■ EQUIVALENT CIRCUIT (1/2 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺ /V ⁻	± 18	V
Differential Input Voltage	V _{ID}	± 30	V
Input Voltage	V _{IC}	± 15 (note)	V
Power Dissipation	P _D	(DIP8) 500 (DMP8) 300 (EMP8) 300 (SSOP8) 250 (SIP8) 800	mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

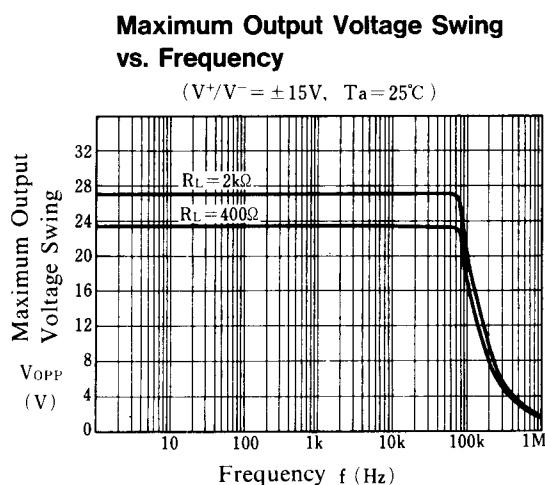
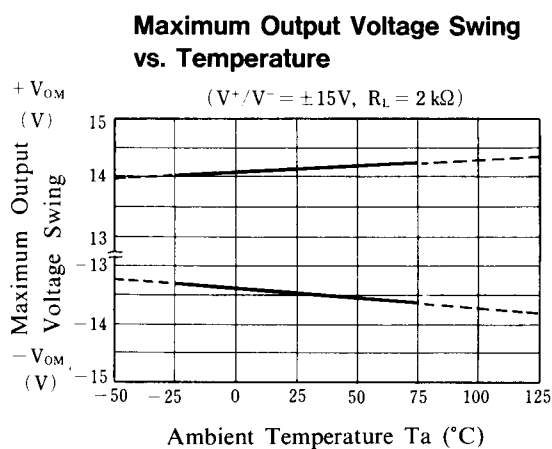
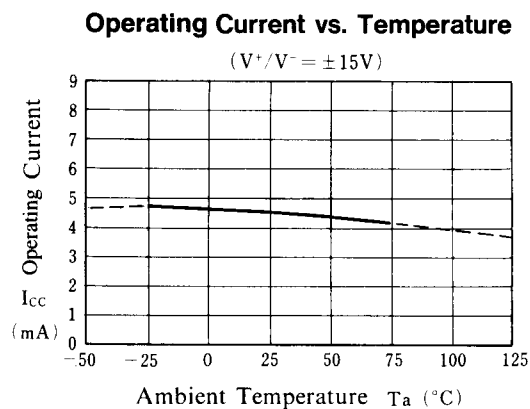
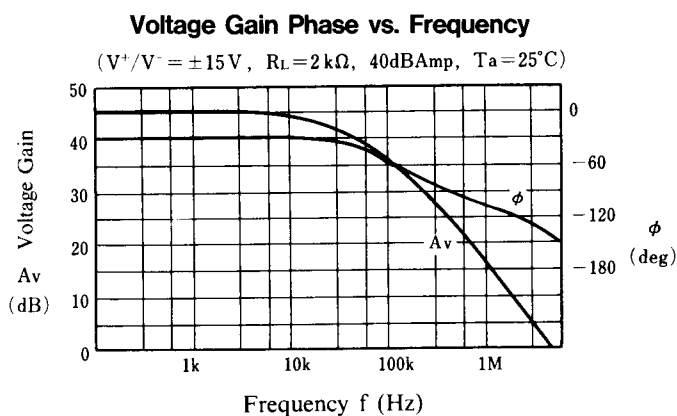
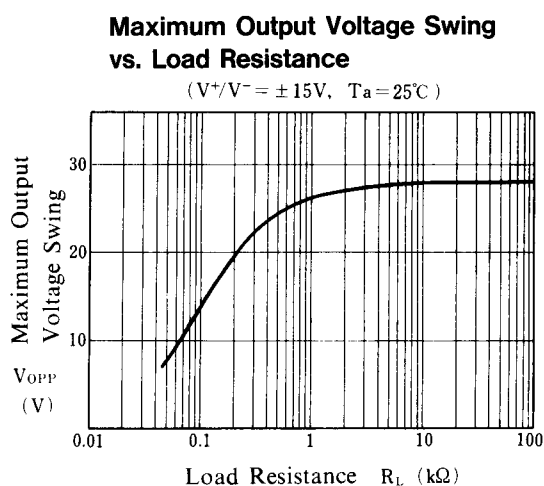
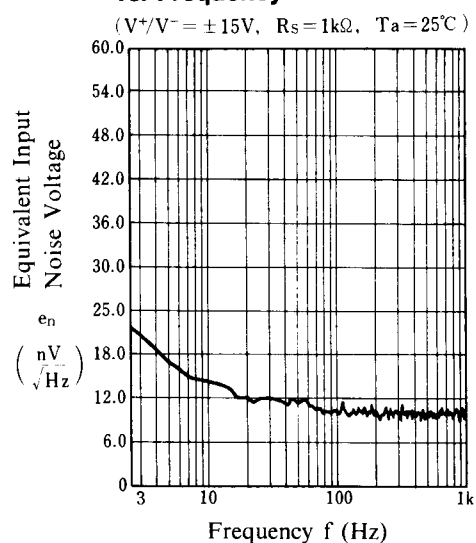
(note) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

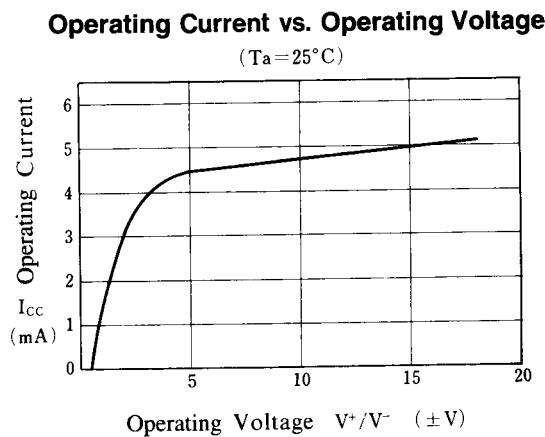
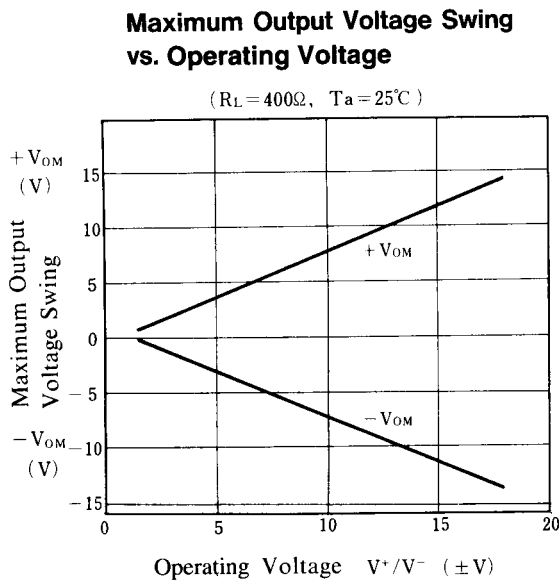
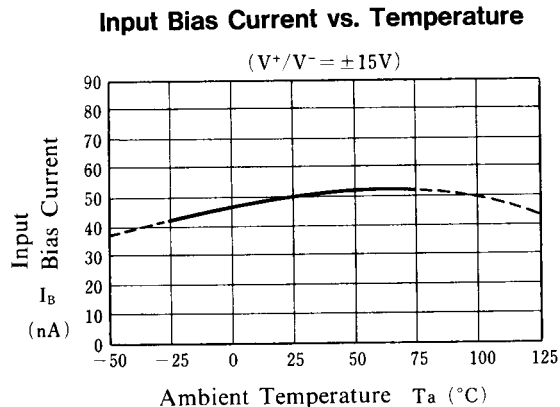
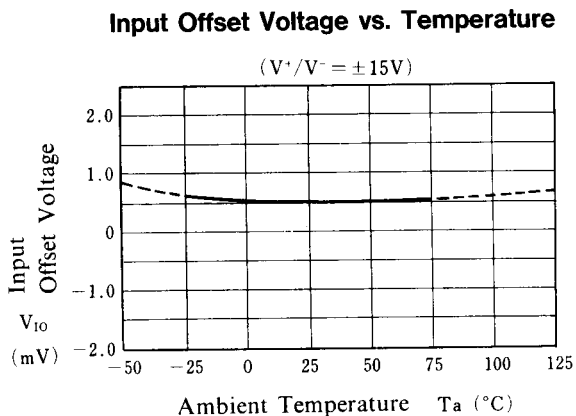
(Ta=25°C, V⁺/V⁻=±15V)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	R _S ≤10kΩ	-	0.5	3.0	mV
Input Offset Current	I _{IO}		-	2	50	nA
Input Bias Current	I _B		-	50	200	nA
Input Resistance	R _{IN}		0.3	5	-	MΩ
Large Signal Voltage Gain	A _V	R _L ≥2kΩ, V _O =±10V	86	100	-	dB
Maximum Output Voltage Swing 1	V _{OM1}	R _L ≥2kΩ	± 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	90	-	dB
Supply Voltage Rejection Ratio	SVR	R _S ≤10kΩ	76.5	90	-	dB
Operating Current	I _{CC}		-	4.5	7	mA
Slew Rate	SR		-	4	-	V/μs
Gain Bandwidth Product	GB		-	10	-	MHz
Equivalent Input Noise Voltage	V _{NI}	RIAA, R _S =2.2kΩ, 30kHz LPF	-	1.2	-	μVrms

■ TYPICAL CHARACTERISTICS

**Equivalent Input Noise Voltage vs. Frequency**

■ TYPICAL CHARACTERISTICS



[CAUTION]
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