NJM4560

The NJM4560 integrated circuit is a high-gain, wide-bandwidth, dual operational amplifier capable of driving 20V peak-to-peak into 400Ω loads. The NJM4560 combines many of the features of the NJM4558 as well as providing the capability of wider bandwidth, and higher slew rate make the NJM4560 ideal for active filters, data and telecommunications, and many instrumentation applications. The availability of the NJM4560 in the surface mounted micro-package allows the NJM4560 to be used in critical applications requiring very high packing densities.

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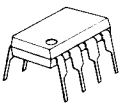
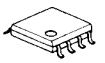
■ Absolute Maximum Ratings (Ta=25°C)

Supply Voltage	V^+/V^-	±18V
Differential Input Voltage	V_{ID}	±30V
Input Voltage (note)	V_I	±15V
Power Dissipation	P_D (D-Type)	500mW
	(M,E-Type)	300mW
	(L-Type)	800mW
Operating Temperature Range	T_{opr}	−20~+ 75°C
Storage Temperature Range	T_{stg}	−40~+125°C

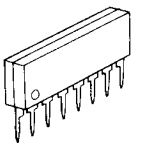
(note) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ Package Outline


NJM4560D


NJM4560M

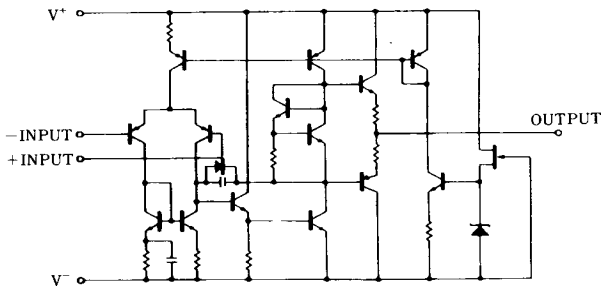

NJM4560E


NJM4560L

■ Electrical Characteristics (Ta=25°C, V^+/V^- = ±15V)

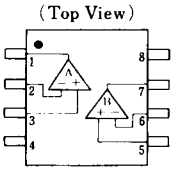
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	R_S≦10kΩ	—	0.5	6	mV
Input Offset Current	I_{IO}		—	10	200	nA
Input Bias Current	I_B		—	40	500	nA
Input Resistance	R_{IN}		0.3	5	—	MΩ
Large Signal Voltage Gain	A_V	R_L≧2kΩ, V_O=±10V	20	100	—	$\times 10^3$
Maximum Output Voltage 1	V_{OM1}	R_L≧2kΩ	±12	±14	—	V
Maximum Output Voltage 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
Supply Current	I_{CC}		—	3.5	5.7	mA
Slew Rate	SR		—	4	—	V/μs
Unity Gain Bandwidth	GB		—	10	—	MHz
Equivalent Input Noise Voltage	V_{NI}	RIAA, R_S=2kΩ, 30kHz LPF	—	1.2	—	μV_{rms}

■ Equivalent Circuit (½ Shown)



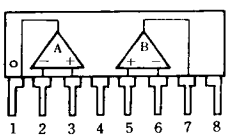
■ Connection Diagram

D,M,E-Type
(Top View)



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

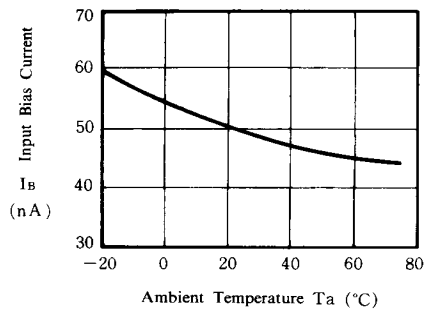
L-Type



■ Typical Characteristics

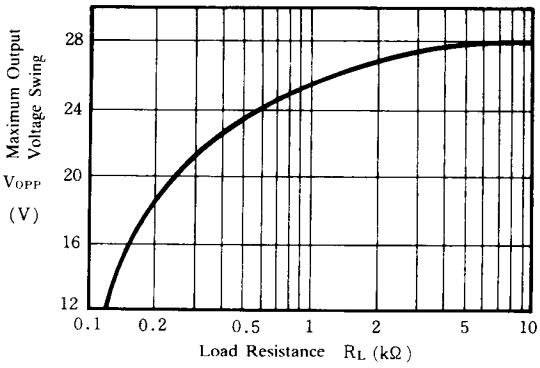
Input Bias Current vs. Ambient

($V^+/V^-=\pm15V$)



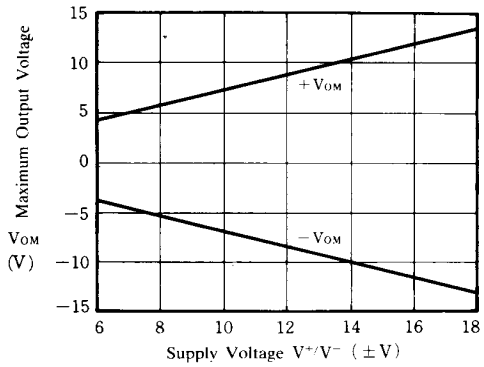
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, Ta=25°C)



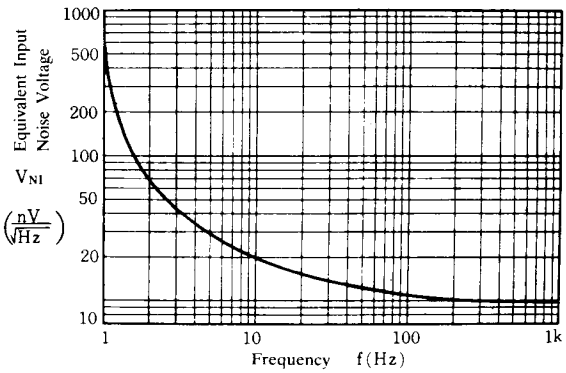
Maximum Output Voltage vs. Supply Voltage

($R_L=400\Omega$, Ta=25°C)



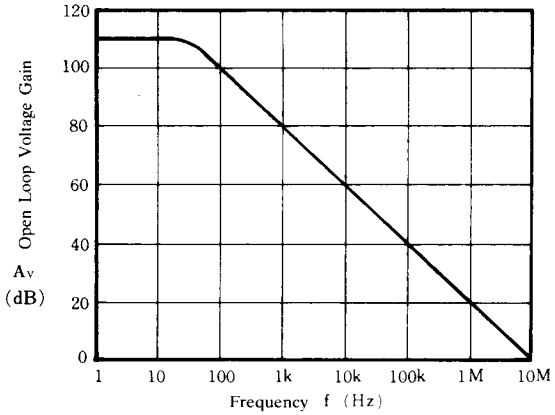
Equivalent Input Noise Voltage vs. Frequency

($V^+/V^-=\pm15V$, $R_S=50\Omega$, Av=60dB, Ta=25°C)



Open Loop Voltage Gain vs. Frequency

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



Maximum Output Voltage Swing vs. Frequency

($V^+/V^-=\pm15V$, Ta=25°C)