

NJM4560

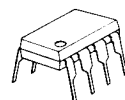
The NJM4560 integrated circuit is a high-gain, wide-bandwidth, dual operational amplifier capable of driving 20V peak-to-peak into 400 Ω loads. The NJM4560 combines many of the features of the NJM4558 as well as providing the capability of wider bandwidth, and higher slew rate make the NJM4560 ideal for active filters, data and telecommunication applications, 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.

Absolute Maximum Ratings (Ta=25°C)

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

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

Package Outline



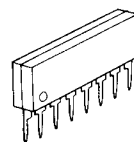
NJM4560D



NJM4560M



NJM4560E

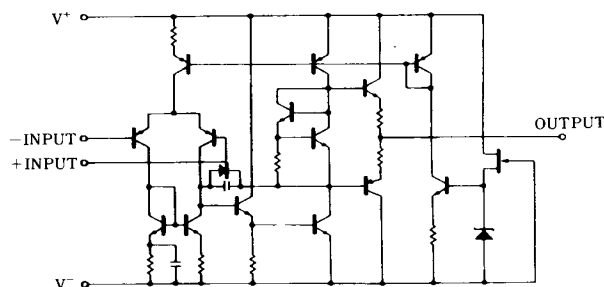


NJM4560L

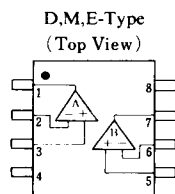
Electrical Characteristics (Ta=25°C, $V^+/V^- = \pm 15V$)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	$R_S \leq 10k\Omega$	—	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	—	M Ω
Large Signal Voltage Gain	A_V	$R_L \geq 2k\Omega, V_O = \pm 10V$	20	100	—	$\times 10^3$
Maximum Output Voltage 1	V_{OM1}	$R_L \geq 2k\Omega$	± 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	$R_S \leq 10k\Omega$	70	90	—	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	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, $R_S = 2k\Omega$, 30kHz LPF	—	1.2	—	μV_{rms}

Equivalent Circuit (1/2 Shown)

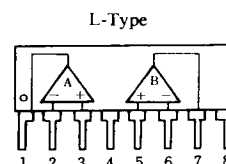


Connection Diagram



PIN FUNCTION

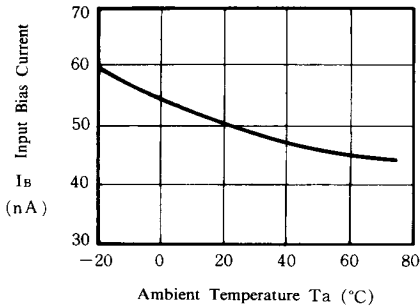
1. A OUTPUT
2. A- INPUT
3. A+ INPUT
4. V^-
5. B+ INPUT
6. B- INPUT
7. B OUTPUT
8. V^+



■ Typical Characteristics

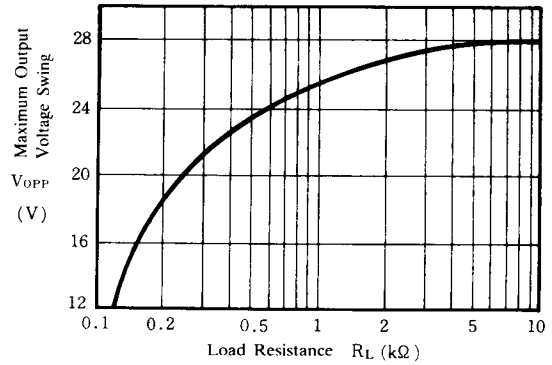
Input Bias Current vs. Ambient

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



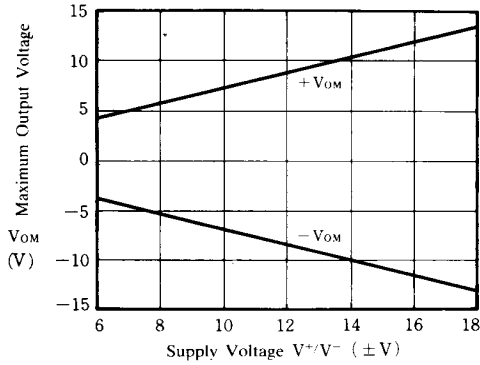
Maximum Output Voltage Swing vs. Load Resistance

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



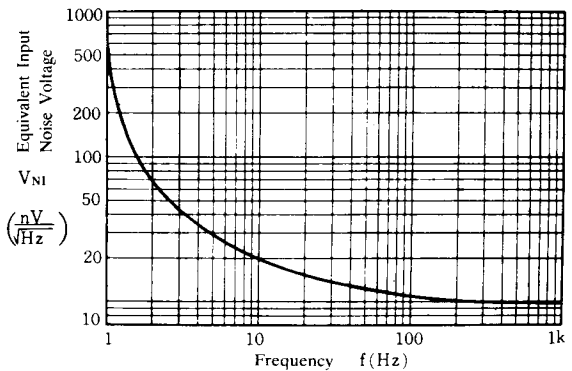
Maximum Output Voltage vs. Supply Voltage

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



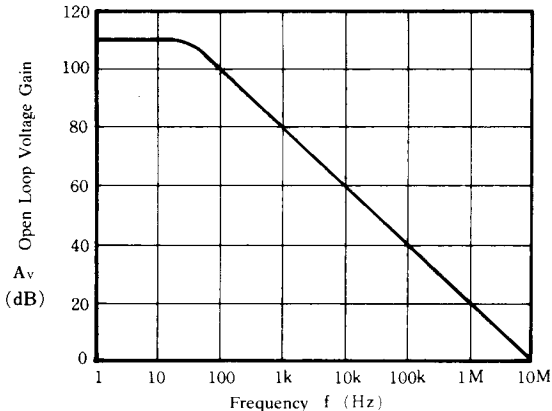
Equivalent Input Noise Voltage vs. Frequency

($V^+/V^- = \pm 15V$, $R_S = 50\Omega$, $A_v = 60dB$, $T_a = 25^\circ C$)



Open Loop Voltage Gain vs. Frequency

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



Maximum Output Voltage Swing vs. Frequency

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

