NJM4558/4559

The NJM4558/4559 integrated circuit are a dual high-gain operational amplifier internally compensated and constru -cted on a single silicon chip using an advanced epitaxial process.

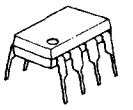
Combining the features of the NJM741 with the close parameter matching and tracking of a dual device on a mono -lithic chip results in unique performance characteristics. Excellent channel separation allow the use of the dual device in single NJM741 operational amplifier applications providing density. It is especially well suited for applications in di -fferential-in, differential-out as well as in potentiometric amplifiers and where gain and phase matched channels are ma -ndatory.

■ 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-Type)	300mW
	(V-Type)	250mW
	(L-Type)	800mw
Operating Temperature Range	T_{opr}	−20~+75°C
Storage Temperature Range	T_{stg}	−40~+125°C

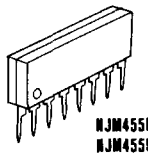
(note) For supply voltage less than ±15V,the absolute maximum input voltage is equal to the supply voltage.

■ Package Outline



NJM4558D
NJM4559D

NJM4558/4559M
NJM4558/4559E



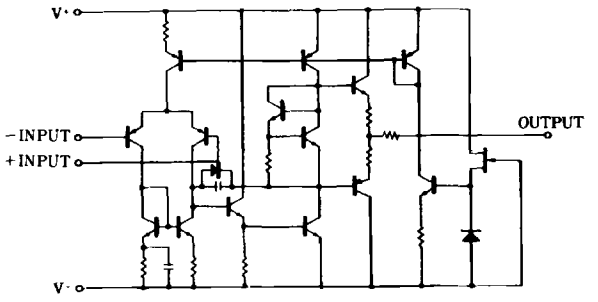
NJM4558L
NJM4559L

NJM4558V
NJM4559V

■ Electrical Characteristics ($V^+/V^-=\pm15V$, Ta25℃)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	0.5	6	mV
Input Offset Current	I_{IO}		—	5	200	nA
Input Bias Current	I_B		—	25	500	nA
Input Resistance	R_{IN}		0.3	5	—	MΩ
Large Signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, $V_O=\pm10V$	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}	$R_L \geqq 2\Omega$	±10	±13	—	V
Input Common Mode Voltage Range	V_{ICM}		±12	14	—	V
Common Mode Rejection Ratio	CMR	$R_S \leqq 10k\Omega$	70	90	—	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leqq 10k\Omega$	76.5	90	—	dB
Supply Current	I_{CC}		—	3.5	5.7	mA
Slew Rate						
NJM4558	SR		—	1	—	V/μS
JM4559	SR		—	2	—	V/μS
Equivalent Input Noise Voltage	V_{NI}	RIAA, $R_S=1k\Omega$, 30kHz LPF	—	1.4	—	μVrms
Unity Gain Bandwidth	GB					
NJM4558				3		MHz
NJM4559				6		MHz

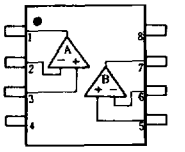
■ Equivalent Circuit (½ Shown)



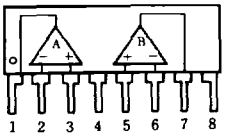
■ Connection Diagram

D,M,V-Type

(Top View)



L-Type

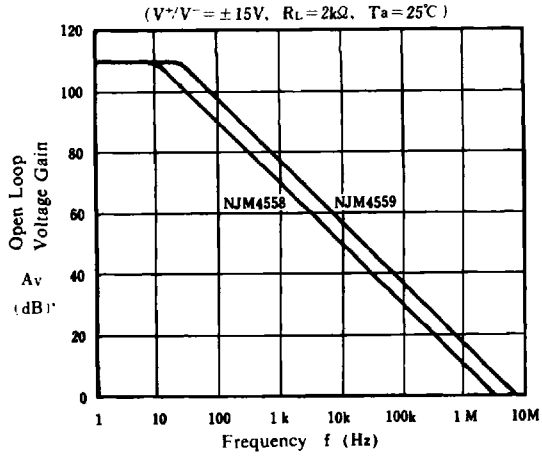


PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V-
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

■ Typical Characteristics

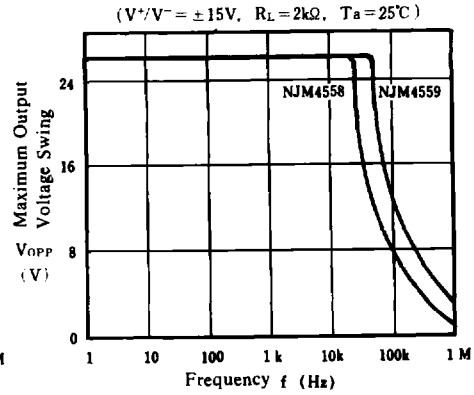
Open Loop Voltage Gain vs. Frequency

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



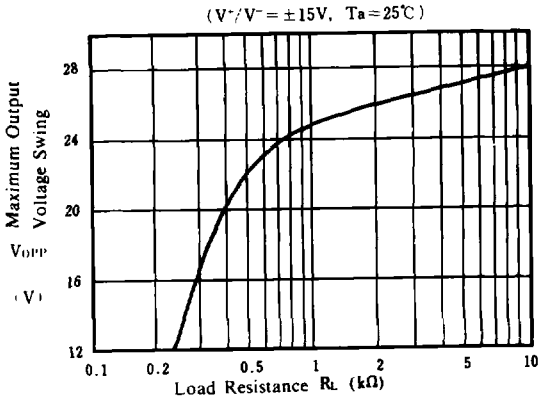
Maximum Output Voltage Swing vs. Frequency

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



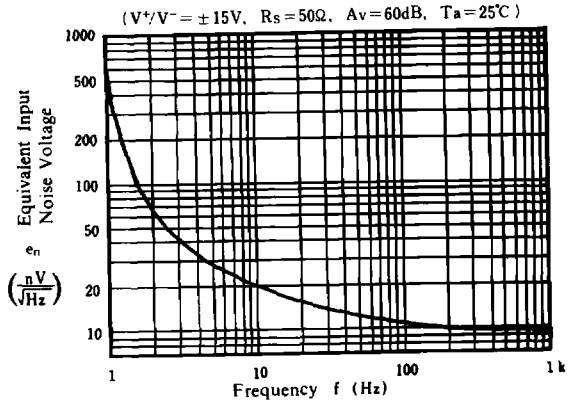
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, $Ta=25°C$)



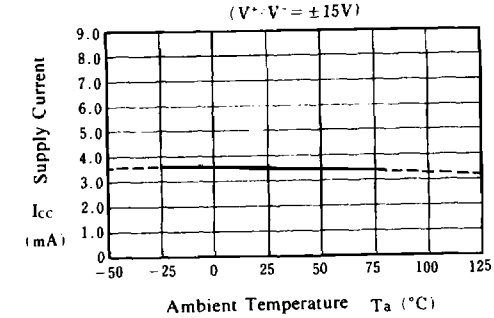
Equivalent Input Noise Voltage vs. Frequency

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



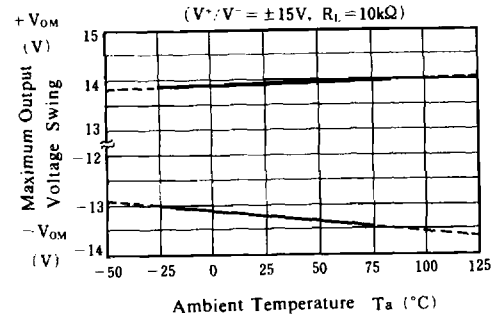
Supply Current vs. Temperature

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



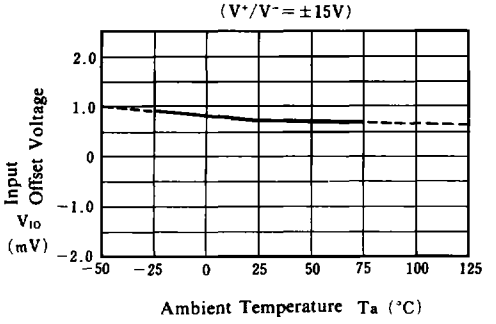
Maximum Output Voltage Swing vs. Temperature

($V^+/V^-=\pm15V$, $R_L=10k\Omega$)

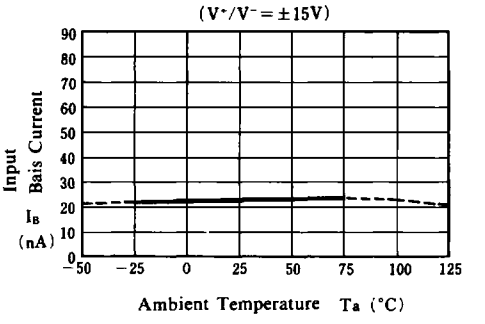


■ Typical Characteristics

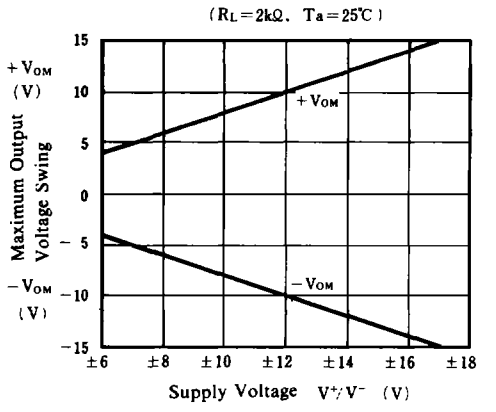
Input Offset Voltage vs. Temperature



Input Bias Current vs. Temperature



Maximum Output Voltage Swing vs. Supply Voltage



Supply Current vs. Supply Voltage