NJM4556

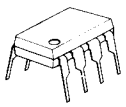
The NJM4556 integrated circuit is a high-gain, high output current dual operational amplifier capable of driving ± 70mA into 150Ω loads (±10.5V output voltage). The NJM4556 combines many of the features of the popular NJM4558 as well as having the capability of driving 150Ω loads. In addition, the wide band-width, low noise, high slew rate and low distortion of the NJM4556 make it ideal for many audio, telecommunications and instrumentation applications.

■ Absolute Maximum Ratings (Ta=25°C)

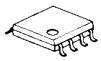
Supply Voltage	V^+/V^-	±18V
Differential Input Voltage	V_{ID}	±30V
Input Voltage(note)	V_I	±15V
Power Dissipation	P_D (D-Type)	700mW
	(M-Type)	300mW
	(L-Type)	800mW
Operating Temperature Range	T_{opr}	−20~+75°C
Storage Temperature Range	T_{stg}	−40~+125°C

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

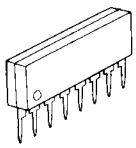
■ Package Outline



NJM4556D



NJM4556M-B



NJM4556L

■ Electrical Characteristics (NJM4556D/NJM4556L)(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}		—	±5	±60	nA
Input Bias Current	I_B		—	180	500	nA
Large Signal Voltage Gain	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	±13.5	—	V
Maximum Output Voltage Swing 2	V_{OM2}	R_L≧150Ω	±10.5	±11	—	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}		—	9	12	mA
Slew Rate	SR		—	3	—	V/μS
Unity Gain Bandwidth	GB		—	8	—	MHz

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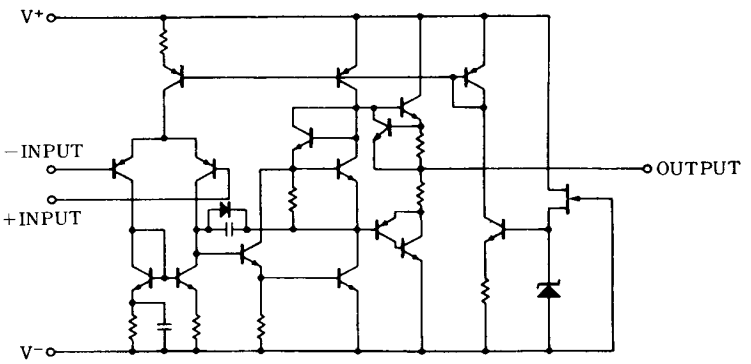
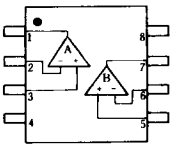
■ Equivalent Circuit (½ Shown)



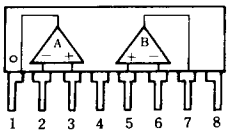
■ Connection Diagram

D,M-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)

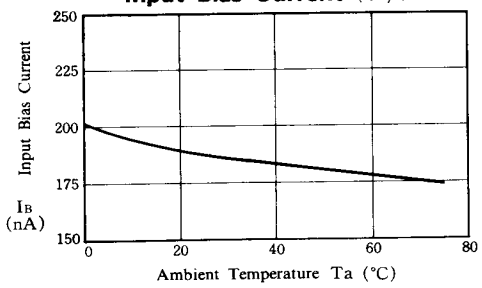


■ Electrical Characteristics (NJM4556M-B) ($V^+/V^-=\pm15V$, Ta=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	0.5	0.5	mV
Input Offset Current	I_{IO}		—	30	60	nA
Input Bias Current	I_B		—	250	500	nA
Large Signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, $V_O=\pm10V$	86	100	—	dB
Maximum Output Voltage Swing 1	V_{OM1}	$V_{IN}^+=4V$, $V_{IN}^-=3V$, $V^+=9V$ $I_{SOURCE}=40mA$	7.5			V
Maximum Output Voltage Swing 2	V_{OM2}	$V_{IN}^+=3V$, $V_{IN}^-=4V$, $V^+=9V$ $I_{SINK}=40mA$	—	—	2.1	V
Input Common Mode Voltage Range 1	V_{ICM1}	$V^+=9V$, V_{IL}	—	—	1.5	V
Input Common Mode Voltage Range 2	V_{ICM2}	$V^+=9V$, V_{IH}	8	—	—	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
Power Dissipation	P_D	$V^+=9V$	—	80	135	mW

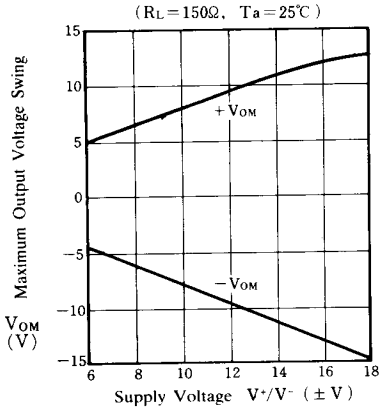
■ Typical Characteristics

Input Bias Current ($V^+/V^-=\pm15V$)



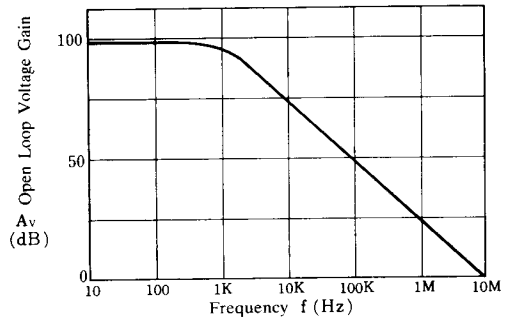
Maximum Output Voltage Swing vs. Supply Voltage

($R_L=150\Omega$, $Ta=25°C$)



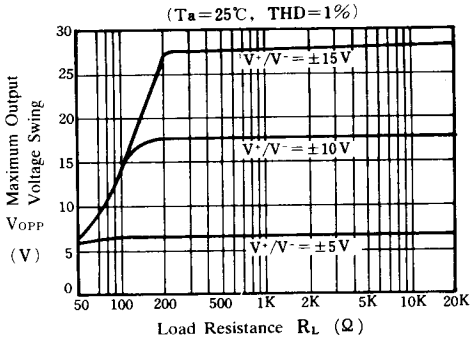
Open Loop Voltage Gain vs. Frequency

($V^+/V^-=\pm15V$, $R_L=150\Omega$, $Ta=25°C$)



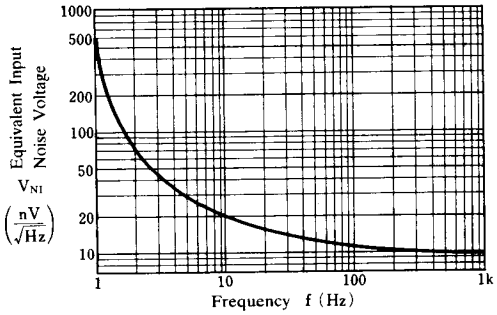
Maximum Output Voltage Swing vs. Load Resistance

($Ta=25°C$, $THD=1\%$)



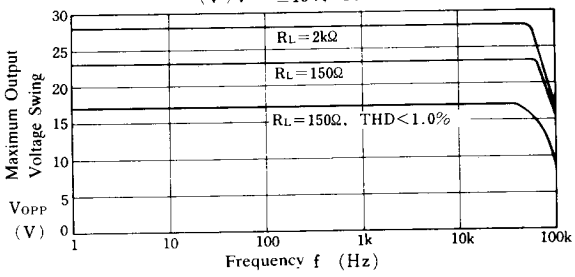
Equivalent Input Noise Voltage vs. Frequency

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



Maximum Output Voltage Swing vs. Frequency

($V^+/V^-=\pm15V$, $Ta=25°C$)



Total Harmonic Distortion vs. Output Voltage

($V^+/V^-=\pm15V$, $Av=30dB$, $R_L=200\Omega$, $Ta=25°C$)