NJM4556A

The NJM4556A integrated circuit is a high-gain, high output current dual operational amplifier capable of driving ±70mA into 15Ω loads (±10.5V output voltage), and operating Low supply voltage (V^+/V^-=±2V~).

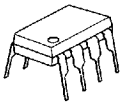
The NJM4556A combines many of the fetures of the popular NJM4558 as well as having the capability of driving 150Ω loads. In addition, the wide band-width, low noise, high slew rate and low distortion of the NJM4556A make it ideal for many audio, telecommunications and instrumentation applications.

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

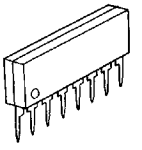
(note) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ Package Outiline

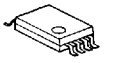


NJM4556AD

NJM4556AM



NJM4556AL



NJM4556AV

4

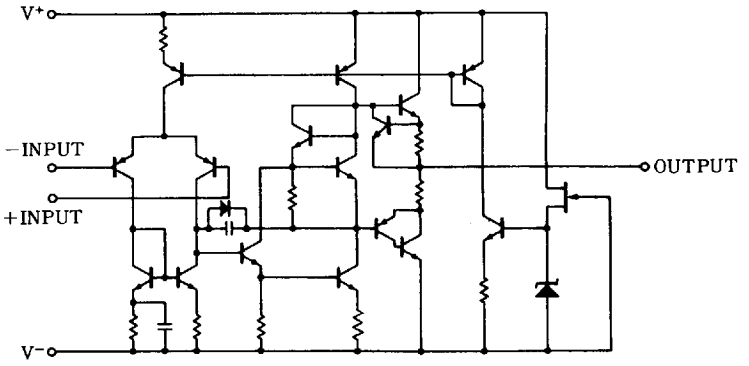
■ Electrical Characteristics (NJM4556D/NJM4556S) (V^+/V^-=±15V Ta=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	R_S ≦10kΩ	—	0.5	6.0	mV
Input Offset Current	I_{IO}		—	5	60	nA
Input Bias Current	I_B		—	50	500	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	±13.5	—	V
Maximum Output Voltage Swing 2	V_{OM2}	R_L ≧150Ω	±10.5	±11	—	V
Input Common Mode Voltage Range	V_{ICM}		±13.5	±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

■ Electrical Characteristics (NJM4556AM/NJM4556AV) (V^+/V^-=±15V, Ta=25°C)

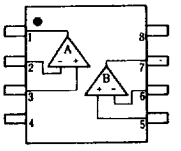
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	R_s ≦10kΩ	—	0.5	6.0	mV
Input Offset Current	I_{IO}		—	5	60	nA
Input Bias Current	I_B		—	50	500	nA
Large Signal Voltage Gain	A_V	R_L ≧2kΩ, V_O=±10V	86	100	—	dB
Maximum Output Voltage Swing 1	V_{OM1}	V_{IN}^+=4V, V_{IN}^-=3V, V^+=9V Insource=40mA	7.5	—	—	V
Maximum Output Voltage Swing 2	V_{OM2}	V_{IN}^+=3V, V_{IN}^-=4V, V^+=9V Isink=40A	—	—	2.1	V
Input Common Mode Voltage Range 1	V_{ICM}1	V^+=9V, V_{IL}	—	—	1.5	V
Input Common Mode Voltage Range 2	V_{ICM}2	V^+=9V, V_{IH}	8	—	—	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}	V^+=9V	—	8	12	mA
Slew Rate	SR		—	3	—	V/μS
Unity Gain Bandwidth	GB		—	8	—	MHz

■ **Equivalent Circuit** (½ Shown)



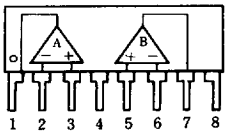
■ **Connection Diagram**

D,M,V-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)

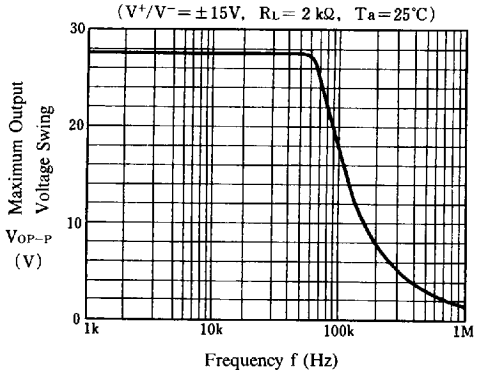


4

■ Typicai Characteristics

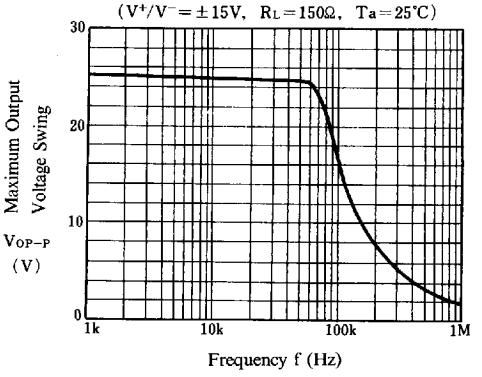
Maximum Output Voltage Swing vs. Frequency

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



Maximum Output Voltage Swing vs. Frequency

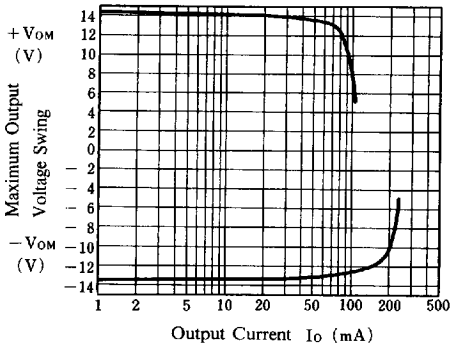
($V^+/V^-=\pm15V$, $R_L=150\Omega$, $Ta=25°C$)



4

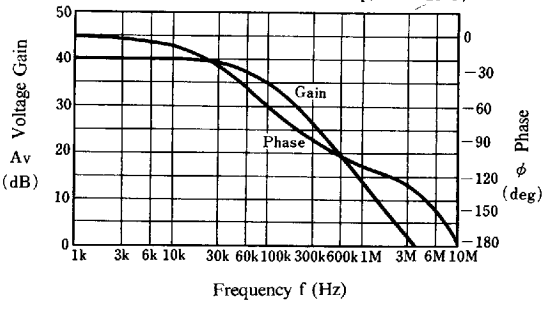
Maximum Output Voltage Swing vs. Output Current

($V^+/V^-=\pm15V$, $Ta=25°C$)



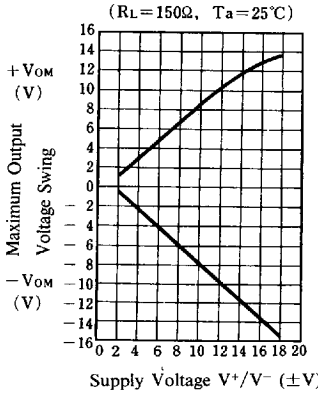
Voltage Gain, Plase Shift vs. Frequency

($V^+/V^-=\pm15V$, $R_L=2\,k\Omega$, 40dBAmp, $Ta=25°C$)



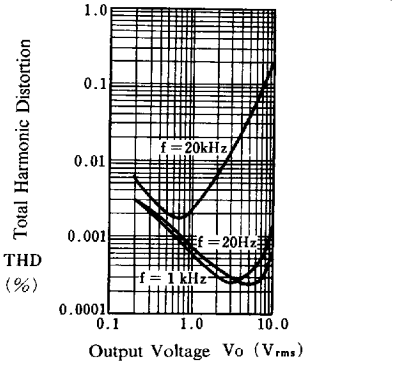
Maximum Output Voltage Swing vs. Supply Voltage

($R_L=150\Omega$, $Ta=25°C$)



Total Harmonic Distortion vs. Output Voltage

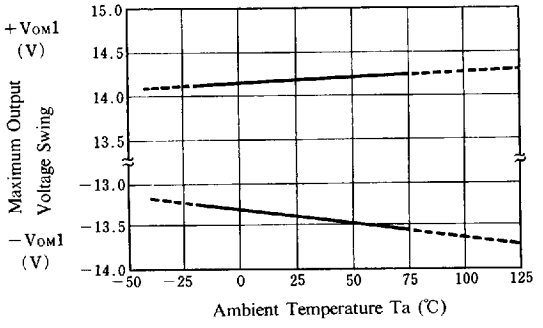
($V^+/V^-=\pm15V$, $R_L=200\Omega$, $G_{ain}=30dB$, $Ta=25°C$)



■ Typical Characteristics

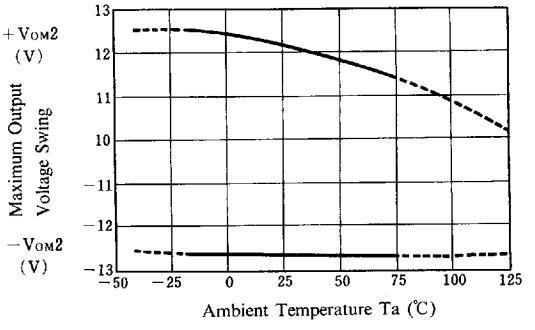
Maximum Output Voltage Swing vs. Temperature

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



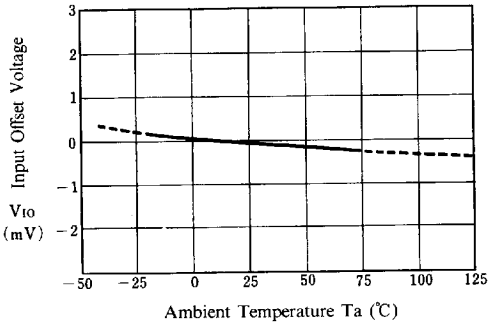
Maximum Output Voltage Swing vs. Temperature

($V^+/V^-=\pm15V$, $R_L=150\Omega$)



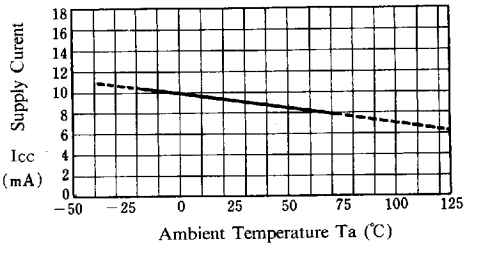
Input Offset Voltage vs. Temperature

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



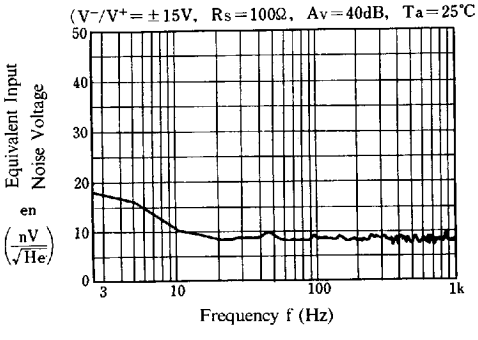
Supply Current vs. Temperature

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



Equivalent Input Noise Voltage vs. Frequency

($V^-/V^+=\pm15V$, $R_S=100\Omega$, $A_V=40dB$, $Ta=25℃$)



Supply Current vs. Supply Voltage

(Ta=25℃)