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DUAL OPERATIONAL AMPLIFIER

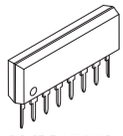
■ GENERAL DESCRIPTION

NJM4580 is the dual operational amplifier, specially designed for improving the tone control, which is most suitable for the audio application.

Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic parts of audio pre-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current, and further more, it can be applied for the handy type set operational amplifier of general purpose in application of low voltage single supply type which is properly biased of the low voltage source.

■ PACKAGE OUTLINE


NJM4580D


NJM4580L


NJM4580E

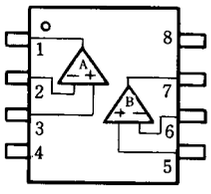

NJM4580V


NJM4580M

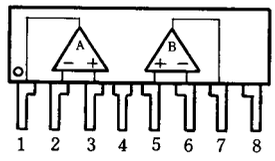
■ FEATURES

- Operating Voltage (±2V~±18V)
- Low Input Noise Voltage (0.8μVrms typ.)
- Wide Gain Bandwidth Product (15MHz typ.)
- Low Distortion (0.0005% typ.)
- Slew Rate (5V/μs typ.)
- Package Outline DIP8,SIP8,EMP8,SSOP8,DMP8
- Bipolar Technology

■ PIN CONFIGURATION



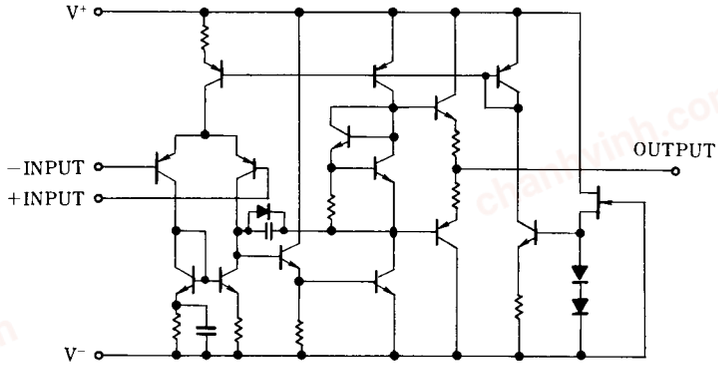
NJM4580D,NJM4580E
NJM4580M,NJM4580V



NJM4580L

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

■ EQUIVALENT CIRCUIT (1/2 Shown)



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NJM4580

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25˚C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	± 18	V
Input Voltage	V_{IC}	± 15 (Note 1)	V
Differential Input Voltage	V_{ID}	± 30	V
Output Current	I_O	± 50	mA
Power Dissipation	P_D	(DIP8) 800 (SIP8) 800 (DMP8) 300 (EMP8) 300 (SSOP8) 250	mW
Operating Temperature Range	T_{opr}	-40~+85	˚C
Storage Temperature Range	T_{stg}	-40~+125	˚C

(Note1) For supply voltage less than ±15V, the absolute maximum rating is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

(Ta=25˚C,V^+/V^-=±15V)

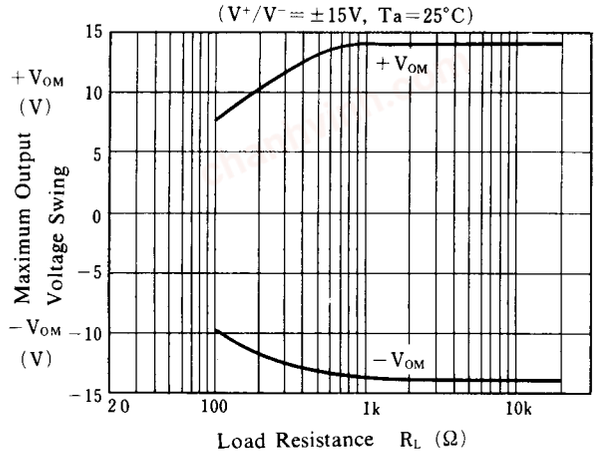
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	R_S≦10kΩ	-	0.5	3	mV
Input Offset Current	I_{IO}		-	5	200	nA
Input Bias Current	I_B		-	100	500	nA
Large Signal Voltage Gain	A_V	R_L≧2kΩ,V_O=±10V	90	110	-	dB
Output Voltage Swing	V_{OM}	R_L≧2kΩ	± 12	± 13.5	-	V
Input Common Mode Voltage Range	V_{ICM}		± 12	± 13.5	-	V
Common Mode Rejection Ratio	CMR	R_S≦10kΩ	80	110	-	dB
Supply Voltage Rejection Ratio	SVR	R_S≦10kΩ	80	110	-	dB
Operating Current	I_{CC}		-	6	9	mA
Slew Rate	SR	R_L≧2kΩ	-	5	-	V/μs
Gain Bandwidth Product	GB	f=10kHz	-	15	-	MHz
Total Harmonic Distortion	THD	A_V=20dB,V_O=5V,R_L=2kΩ,f=1kHz	-	0.0005	-	%
Input Noise Voltage (Note2)	V_{NI}	RIAA,R_S=2.2kΩ,30kHz LPF	-	0.8	-	μVrms

(Note2) In regard to Noise Standard, NJRC is preparing for special D rank type products (R_S=2.2kΩ, RIAA, V_{NI}=1.4μV MAX.) except for SSOP package.

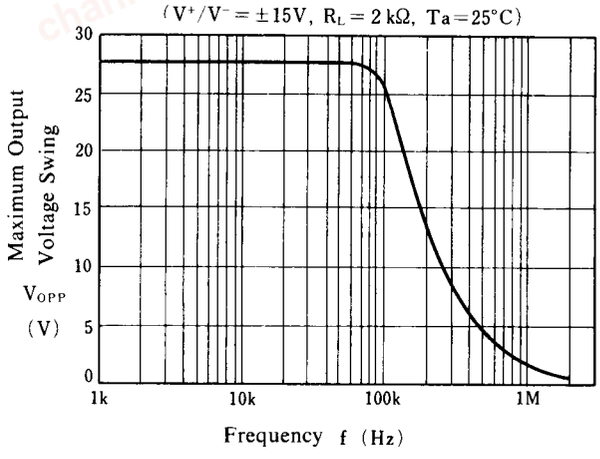
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■ TYPICAL CHARACTERISTICS

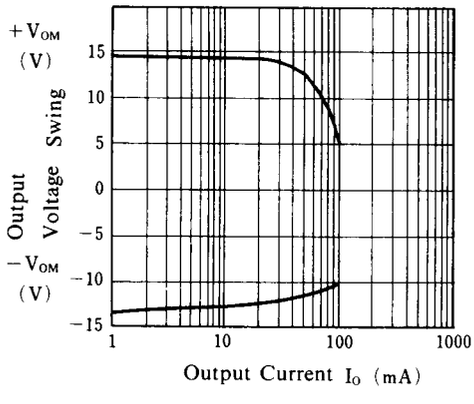
Maximum Output Voltage Swing vs. Load Resistance



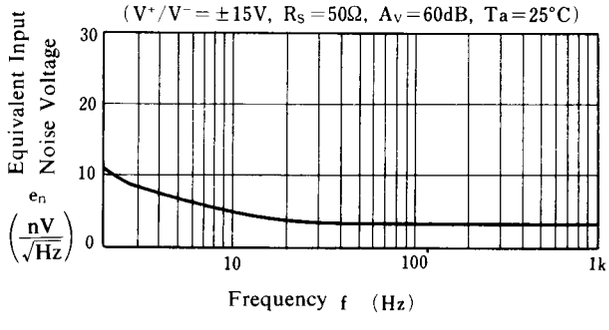
Maximum Output Voltage Swing vs. Frquency



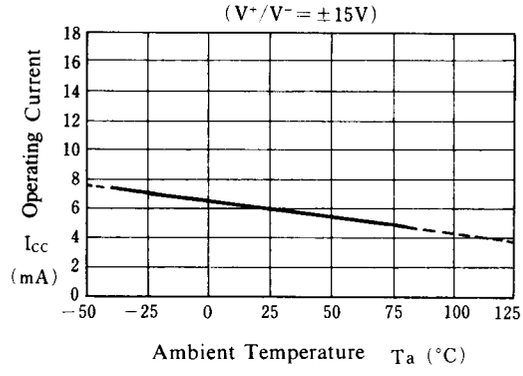
Output Voltage Swing vs. Output Current



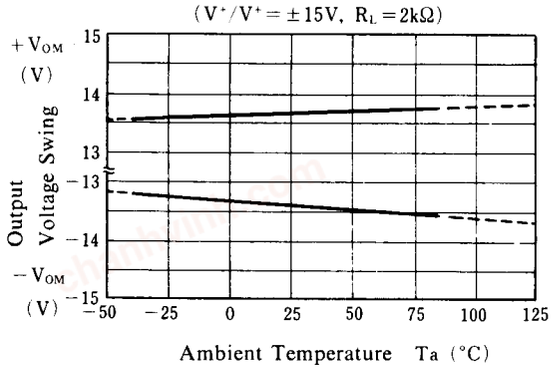
Equivalent Input Noise Voltage vs. Frequency



Operating Current vs. Temperature



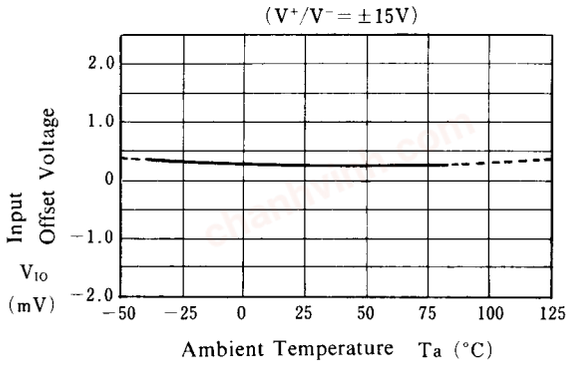
Output Voltage Swing vs. Temperature



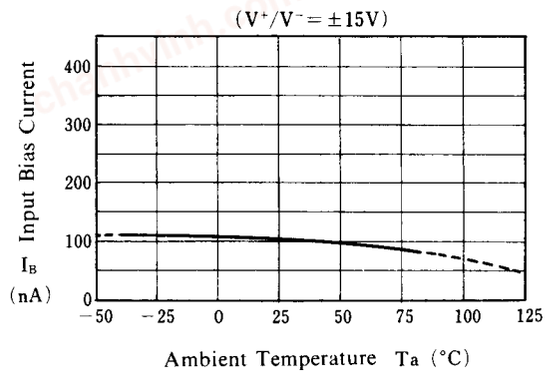
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■ TYPICAL CHARACTERISTICS

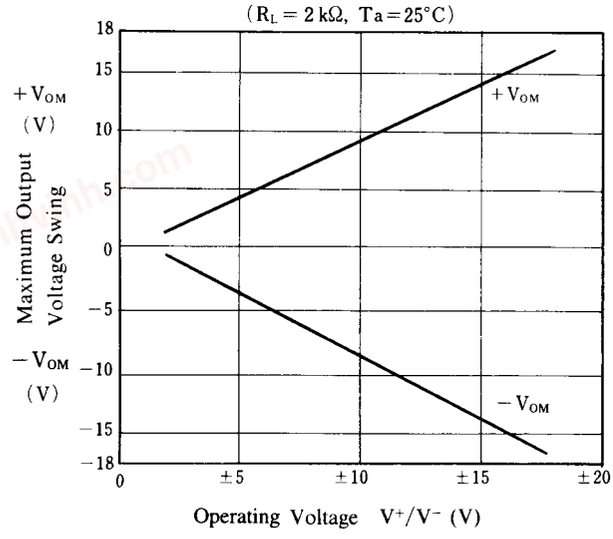
Input Offset Voltage vs. Temperature



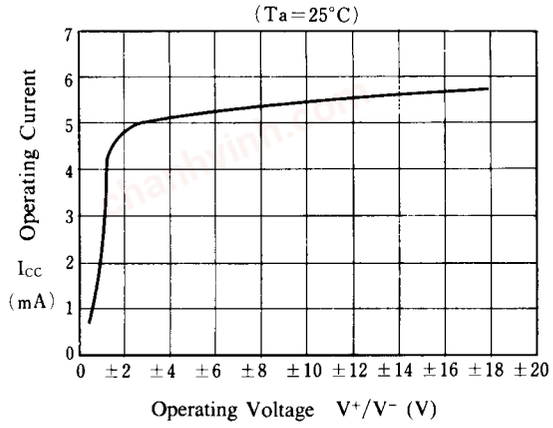
Input Bias Current vs. Temperature



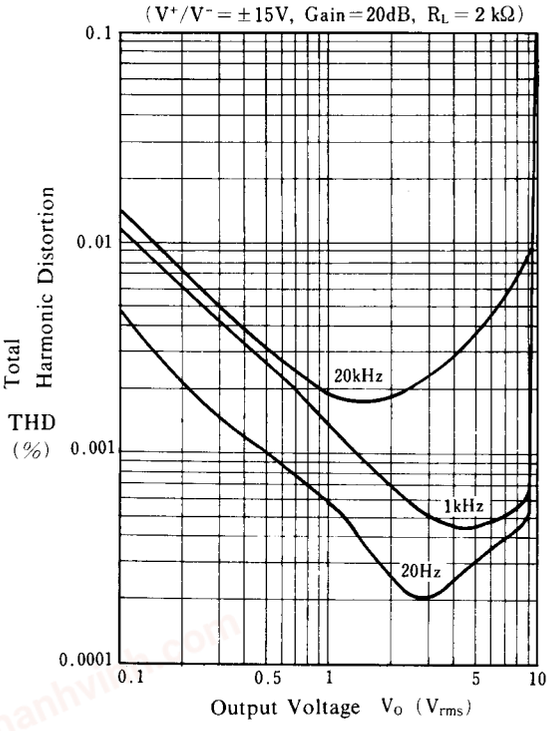
Maximum Output Voltage Swing vs. Operating Voltage



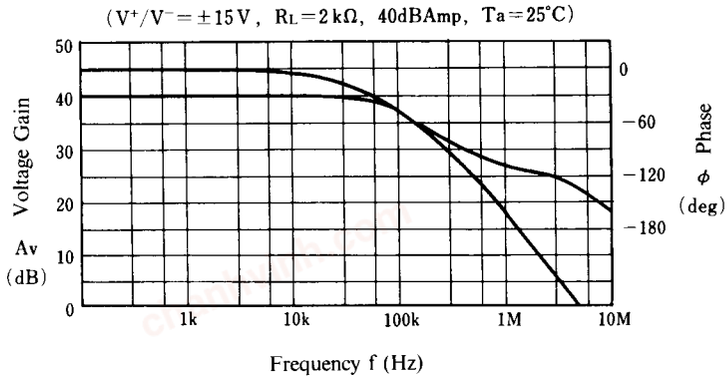
Operating Current vs. Operating Voltage



Total Harmonic Distortion vs. Output Voltage



Voltage Gain, Phase vs. Frequency



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