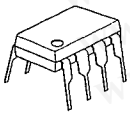
DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

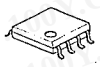
NJM4580 is the dual operational amplifier, specially designed for improving the tone control, which is most suitable for the audio application.

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 genenal purpose in application of low voltage single supply type which is properly biased of the input low voltage source.

■ PACKAGE OUTLINE

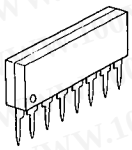


NJM4580D



NJM4580M

NJM4580E



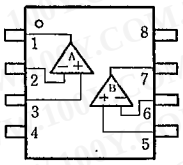
NJM4580L

NJM4580V

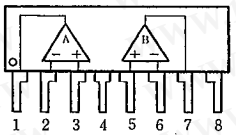
■ FEATURES

- Operating Voltage (±2V～±18V)
- Low Input Noise Voltage (0.8 μVrms 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



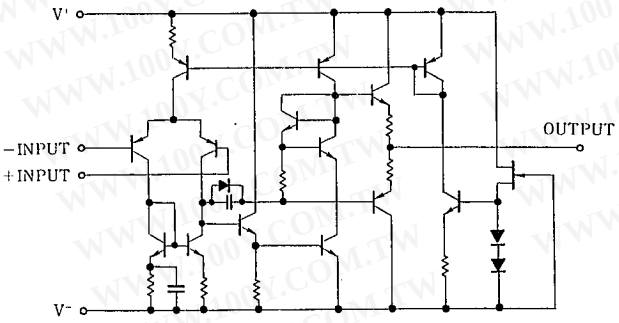
NJM4580D, NJM4580E
NJM4580M, NJM4580V



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)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

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

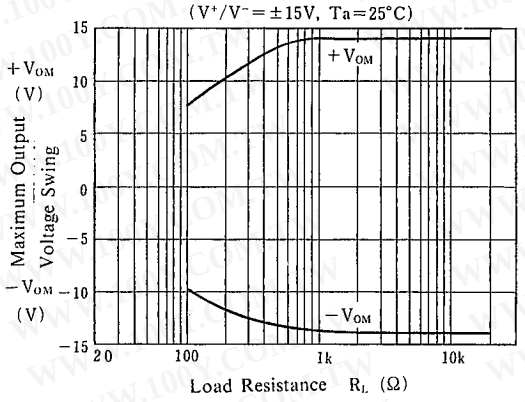
■ ELECTRICAL CHARACTERISTICS

($Ta=25℃$, $V^+/V^-=±15V$)

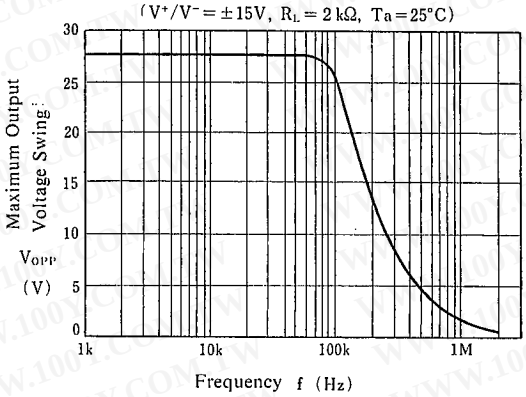
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	0.5	3	mV
Input Offset Current	I_{IO}		—	5	200	nA
Input Bias Current	I_B		—	100	500	nA
Large Signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, $V_O=±10V$	90	110	—	dB
Output Voltage Swing	V_{OM}	$R_L \geqq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

■ TYPICAL CHARACTERISTICS

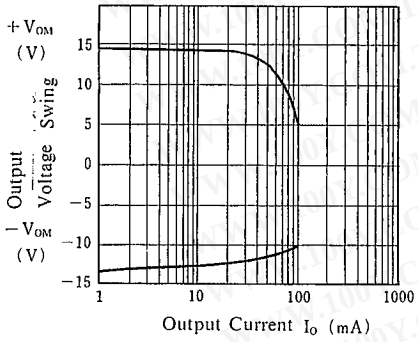
Maximum Output Voltage Swing vs. Load Resistance



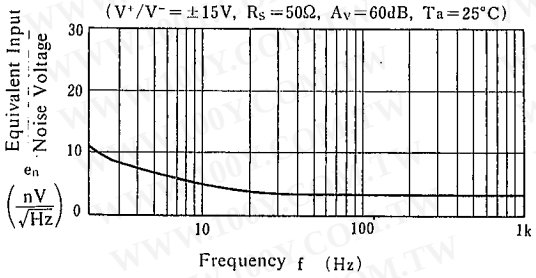
Maximum Output Voltage Swing vs. Frquency



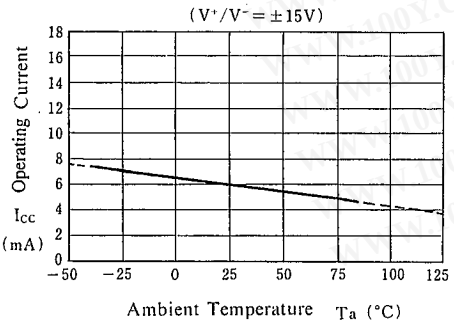
Output Voltage Swing vs. Output Current



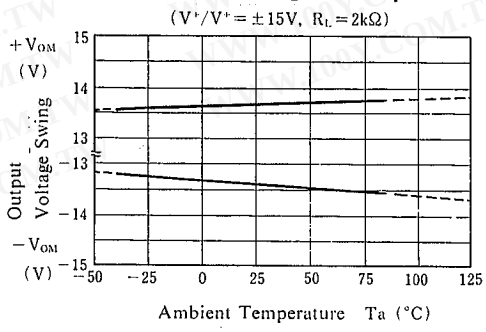
Equivalent Input Noise Voltage vs. Frequency



Operating Current vs. Temperature

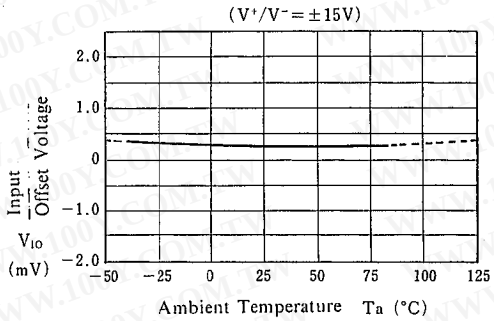


Output Voltage Swing vs. Temperature

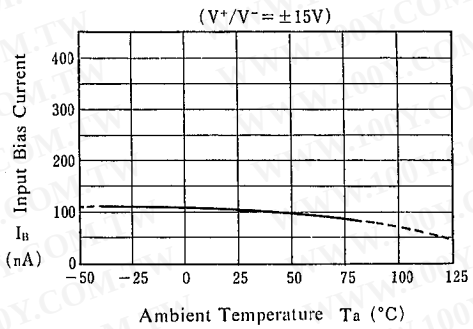


■ TYPICAL CHARACTERISTICS

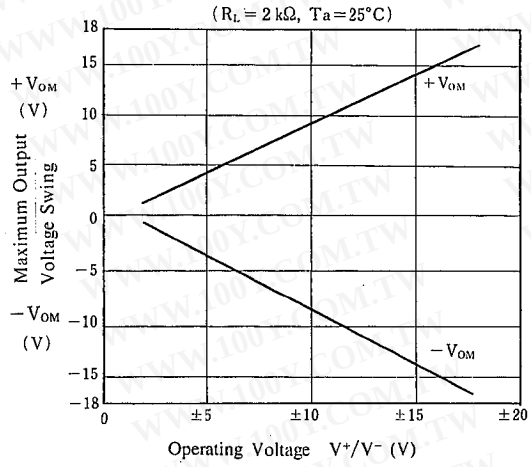
Input Offset Voltage vs. Temperature



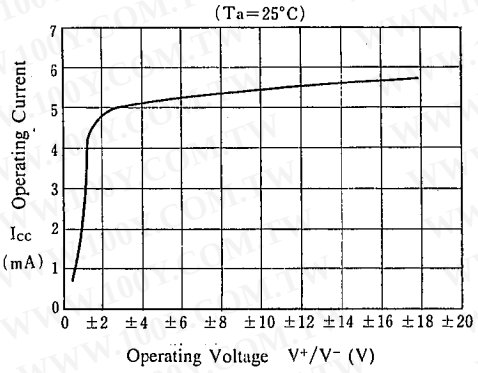
Input Bias Current vs. Temperature



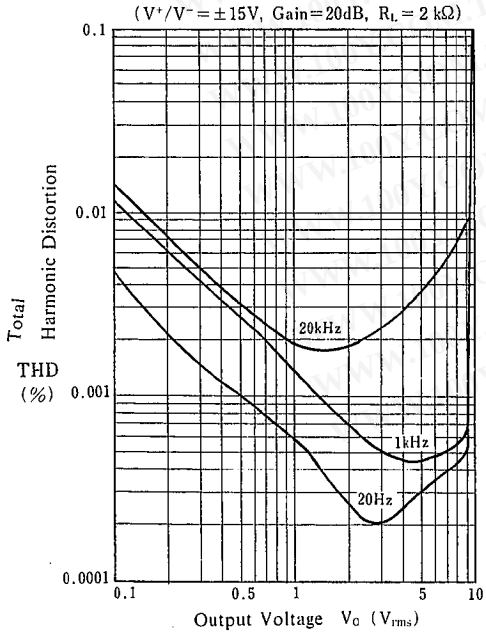
Maximum Output Voltage Swing vs. Operating Voltage



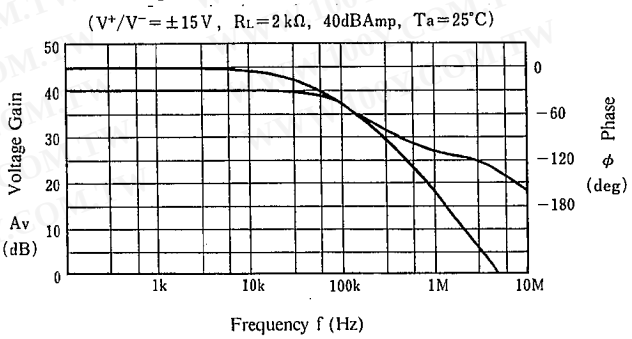
Operating Current vs. Operating Voltage



Total Harmonic Distortion vs. Output Voltage



Voltage Gain, Phase vs. Frequency



MEMO