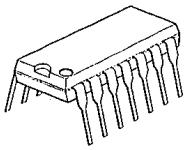
QUAD OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

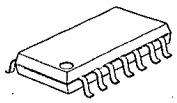
The NJM2058 integrated circuit is a quad high-gain operational amplifier internally compensated and constructed on a single silicon chip using an advanced epitaxial process.

Each amplifier of the NJM2058 has the same electrical characteristics of the NJM4558.

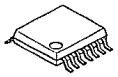
■ PACKAGE OUTLINE



NJM2058D



NJM2058M

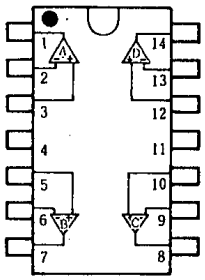


NJM2058V

■ FEATURES

- Operating Voltage (±4V～±18V)
- Package Outline DIP14, DMP14, SSOP14
- Bipolar Technology

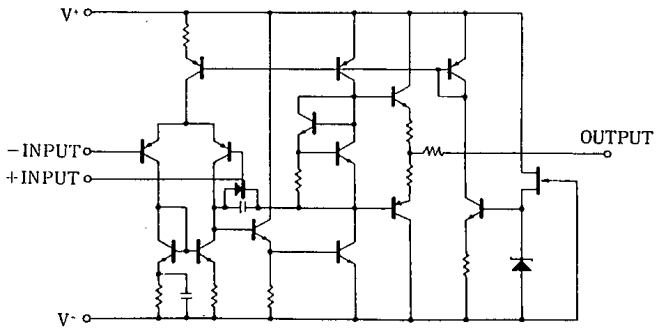
■ PIN CONFIGURATION



NJM2058D
NJM2058M
NJM2058V

PIN FUNCITON
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V+
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. C OUTPUT
9. C−INPUT
10. C+INPUT
11. V−
12. D+INPUT
13. D−INPUT
14. D OUTPUT

■ EQUIVALENT CIRCUIT (1/4 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS		UNIT
Supply Voltage	V^+/V^-	±18		V
Differential Input Voltage	V_{ID}	±30		V
Input Voltage	V_{IC}	±15	(note 1)	V
Power Dissipation	P_D	(DIP14) 700		mW
		(DIM14) 700	(note 2)	mW
		(SSOP14) 300		mW
Operating Temperature Range	T_{opr}	−40～+85		℃
Storage Temperature Range	T_{stg}	−40～+125		℃

(note 1) For supply voltage less than ±15V. the absolute maximum input voltage is equal to the supply voltage.
(note 2) At on PC board

■ ELECTRICAL CHARACTERISTICS

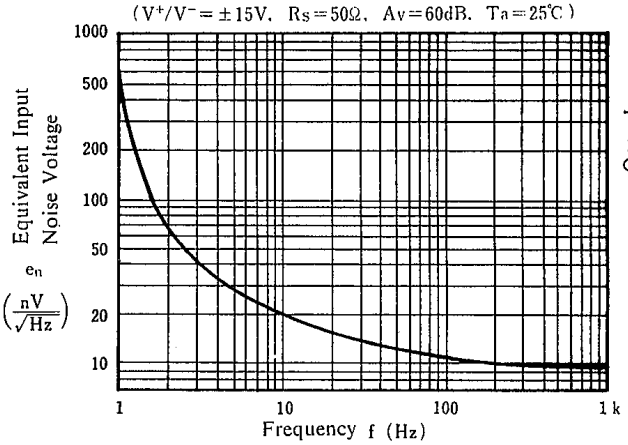
(Ta =25℃, V^+/V^-=±15V)

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	200	nA
Input Bias Current	I_B		—	20	500	nA
Input Resistance	R_{IN}		0.3	1	—	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≧10kΩ	±12	±14	—	V
Maximum Output Voltage Swing 2	V_{OM2}	R_L≧2kΩ	±10	±13	—	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
Operating Current	I_{CC}		—	7	11.3	mA
Slew Rate	SR		—	1	—	V/μs
Equivalent Input Noise Voltage	V_{NI}	RIAA, R_S=2.2kΩ, 30kHz LPF	—	1.4	—	μVrms

■ TYPICAL CHARACTERISTICS

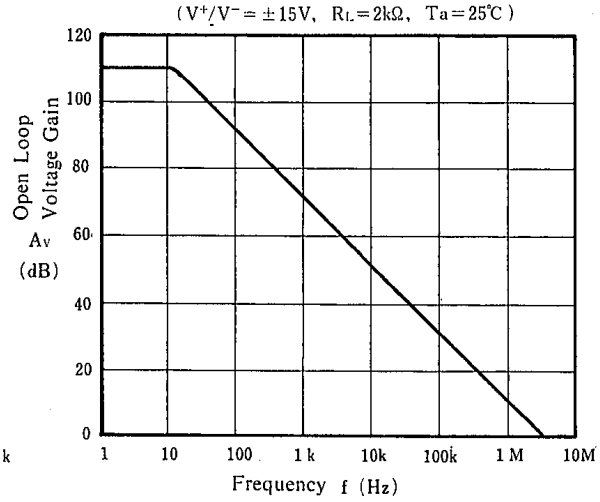
Equivalent Input Noise Voltage vs. Frequency

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



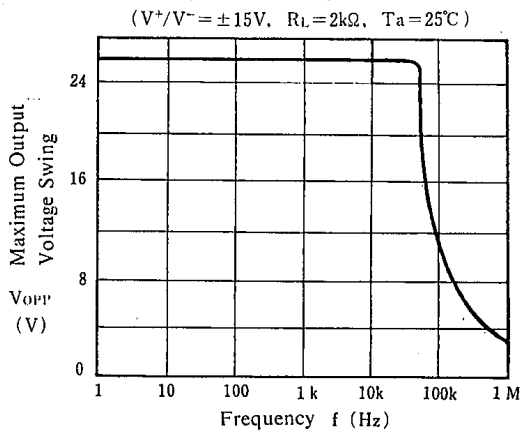
Open Loop Voltage Gain vs. Frequency

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



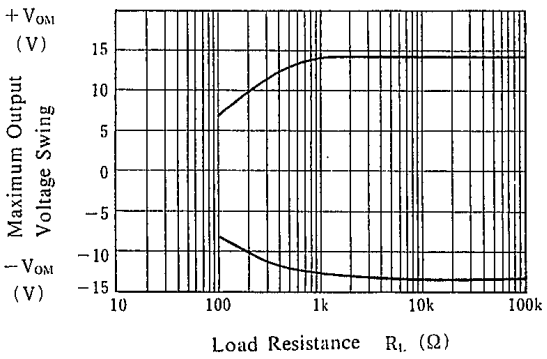
Maximum Output Voltage Swing vs. Frequency

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



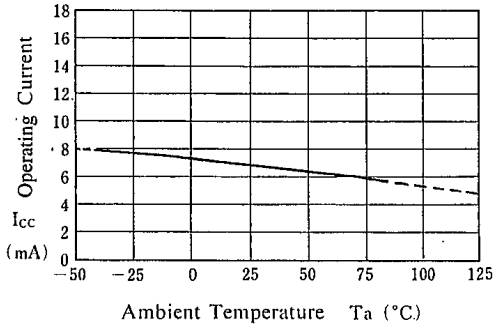
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, $Ta=25°C$)



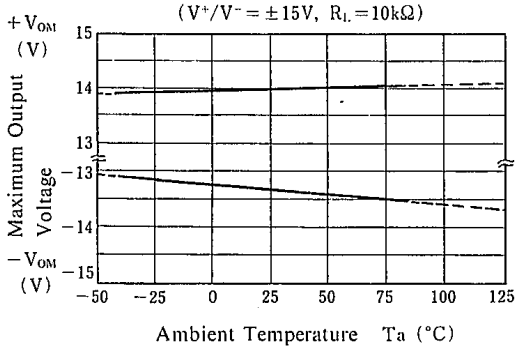
Operating Current vs. Temperature

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



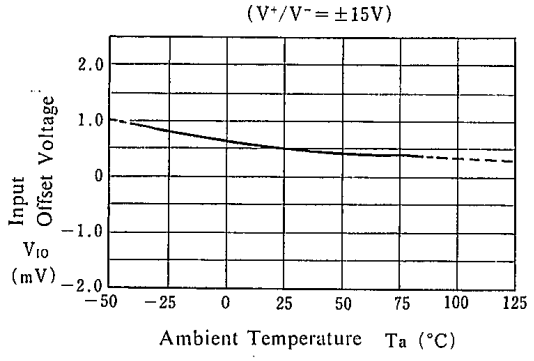
Maximum Output Voltage Swing vs. Tempertature

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

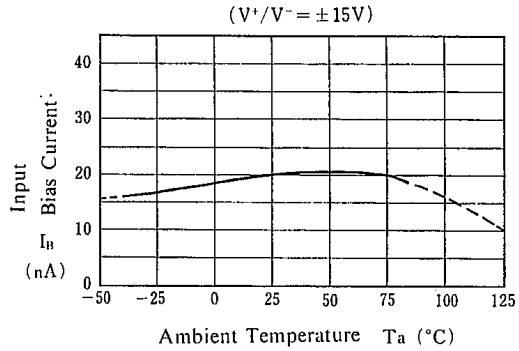


■ TYPICAL CHARACTERISTICS

Input Offset Voltage vs. Temperature



Input Bias Current vs. Temperature



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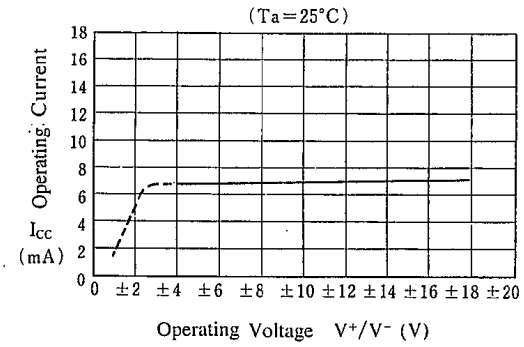
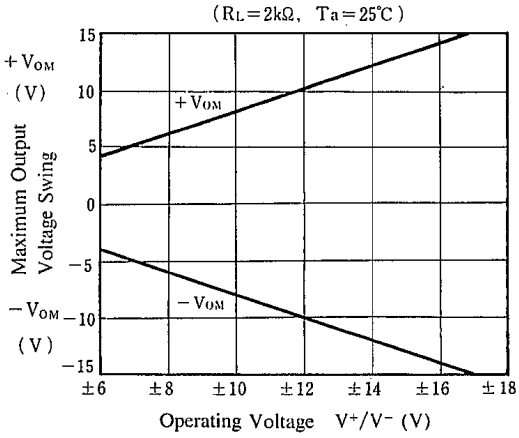
Operating Current vs. Operating Voltage



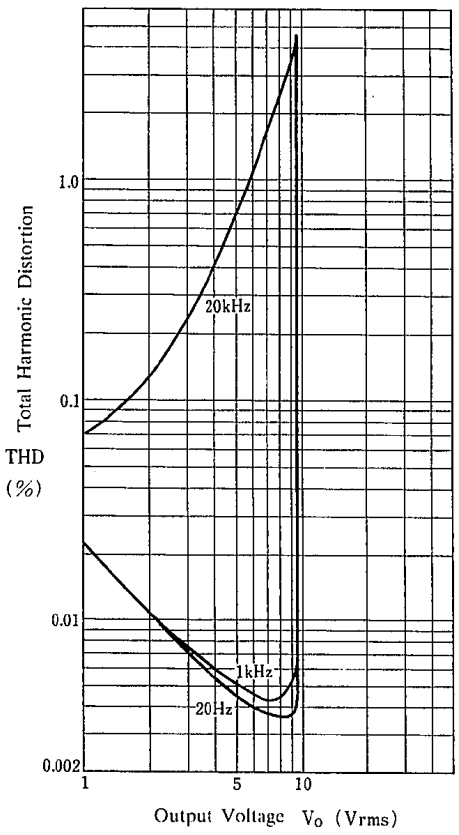
Maximum Output Voltage Swing vs. Operating Voltage



■ TYPICAL CHARACTERISTICS

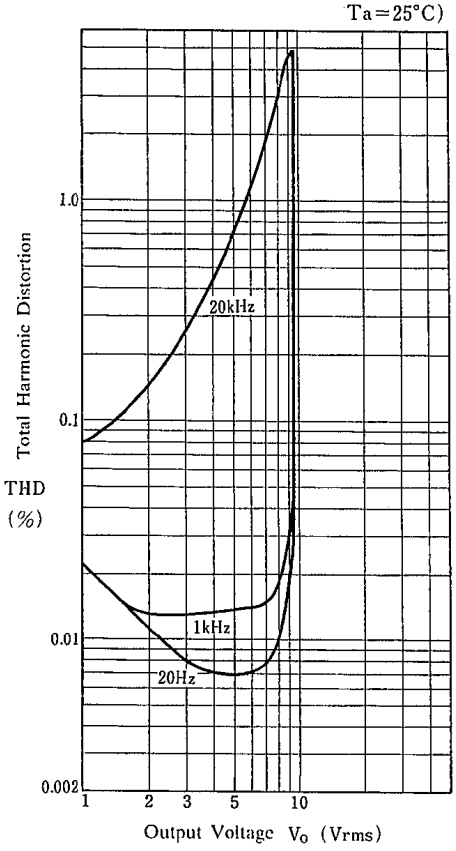
Total Harmonic Distortion

($V^+/V^-=\pm15V$, Gain=40dB, $R_L=10k\Omega$, Ta=25°C)



Total Harmonic Distortion

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



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