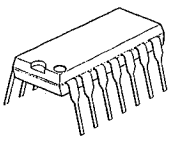
QUAD OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

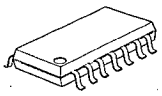
The NJM2058 integrated circuit is a quad high-gain operational amplifier internally compensated and constructed on a single silicon chip using an advanced epitaxial process.

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

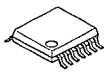
■ PACKAGE OUTLINE



NJM2058D



NJM2058M

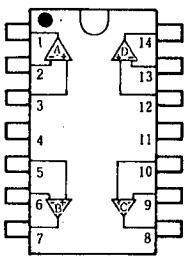


NJM2058V

■ FEATURES

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

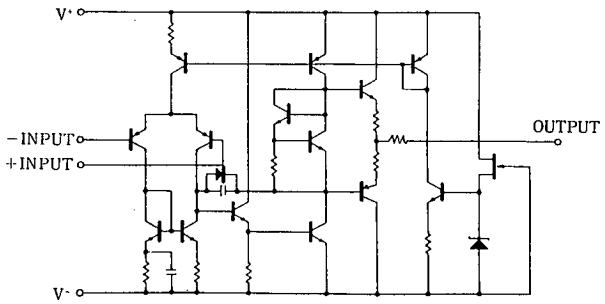
■ PIN CONFIGURATION



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

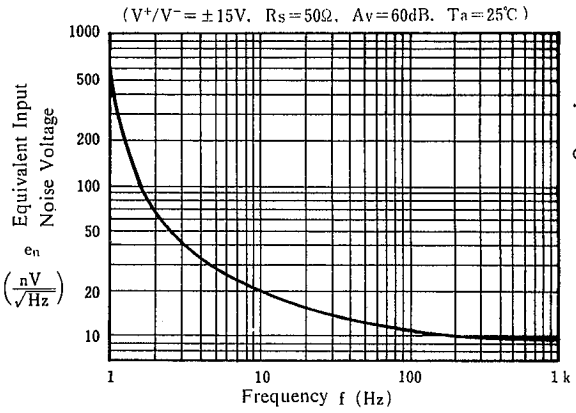
■ ELECTRICAL CHARACTERISTICS

($Ta=25℃$, $V^+/V^-=±15V$)

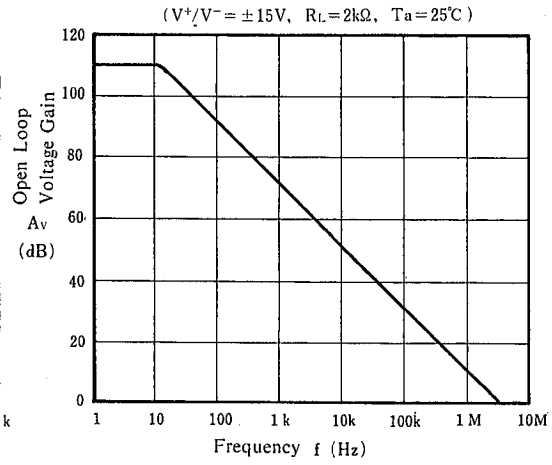
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S≦10kΩ$	—	0.5	6	mV
Input Offset Current	I_{IO}		—	5	200	nA
Input Bias Current	I_B		—	20	500	nA
Input Resistance	R_{IN}		0.3	1	—	MΩ
Large signal Voltage Gain	A_V	$R_L≧2kΩ$, $V_O=±10V$	86	100	—	dB
Maximum Output Voltage 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

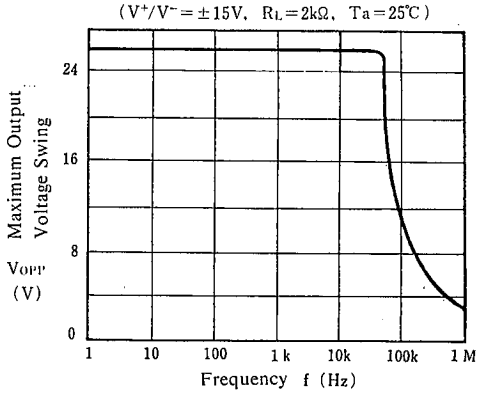
Equivalent Input Noise Voltage vs. Frequency



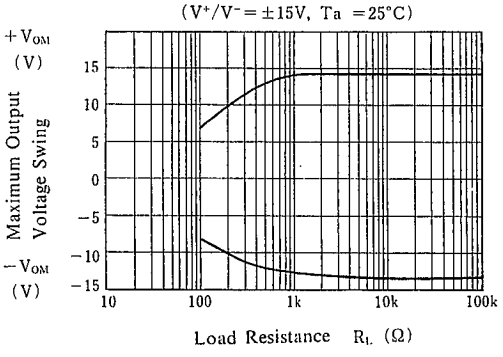
Open Loop Voltage Gain vs. Frequency



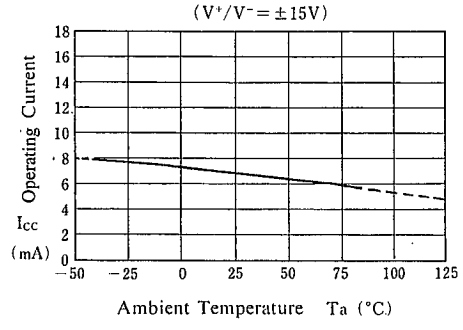
Maximum Output Voltage Swing vs. Frequency



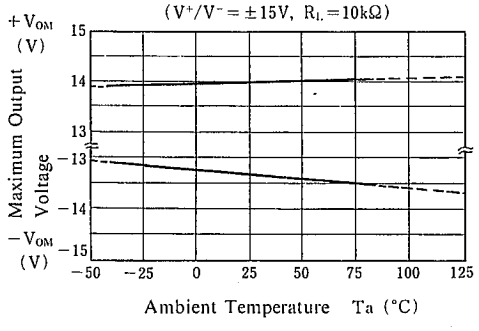
Maximum Output Voltage Swing vs. Load Resistance



Operating Current vs. Temperature

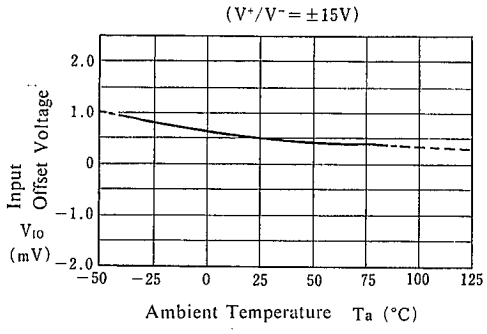


Maximum Output Voltage Swing vs. Tempertature

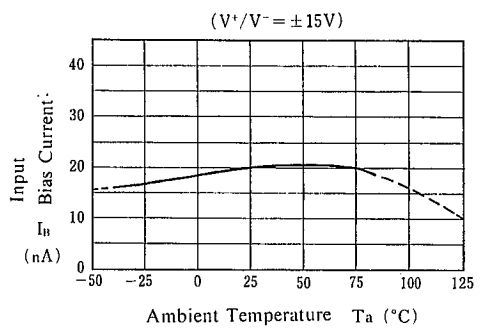


■ TYPICAL CHARACTERISTICS

Input Offset Voltage vs. Temperature



Input Bias Current vs. Temperature



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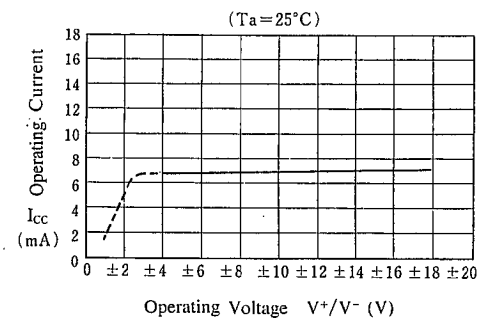
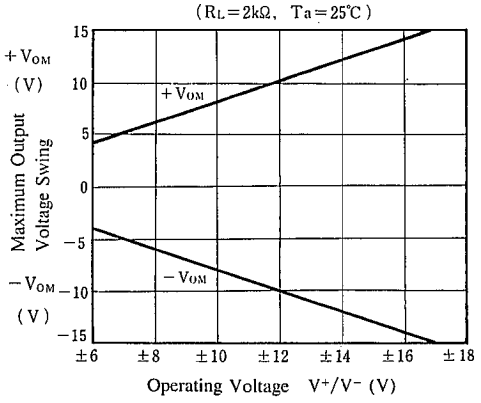
Operating Current vs. Operating Voltage



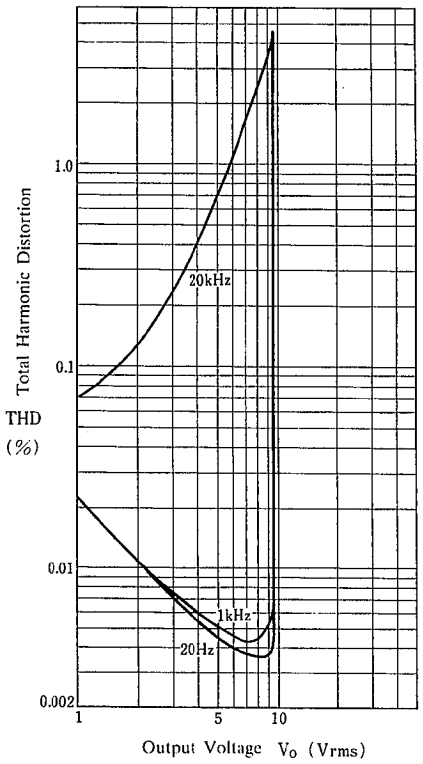
Maximum Output Voltage Swing vs. Operating Voltage



■ TYPICAL CHARACTERISTICS

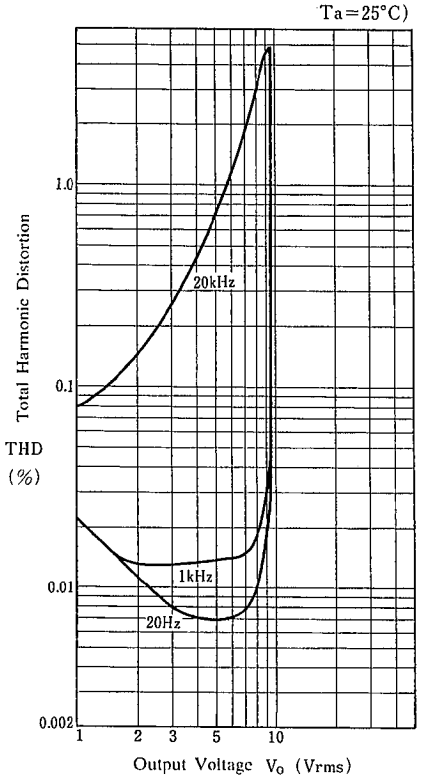
Total Harmonic Distortion

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



Total Harmonic Distortion

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



MEMO