



DUAL HIGH VOLTAGE AND LOW POWER OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2147 is a dual high voltage and Low power operational amplifier IC.

The feature of high operating voltage is suitable for high supply voltage items, such as PBX, and others.

■ PACKAGE OUTLINE



NJM2147D

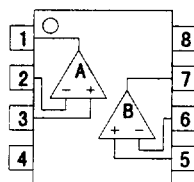


NJM2147M

■ FEATURES

- High Operating Voltage ($\pm 8V \sim \pm 28V$)
- High Slew Rate ($0.5V/\mu s$ typ.)
- Low Operating Current ($175\mu A$ typ.)
- Short-Circuit Protection
- Package Outline DIP8, DMP8
- Bipolar Technology

■ PIN CONFIGURATION



NJM2147D

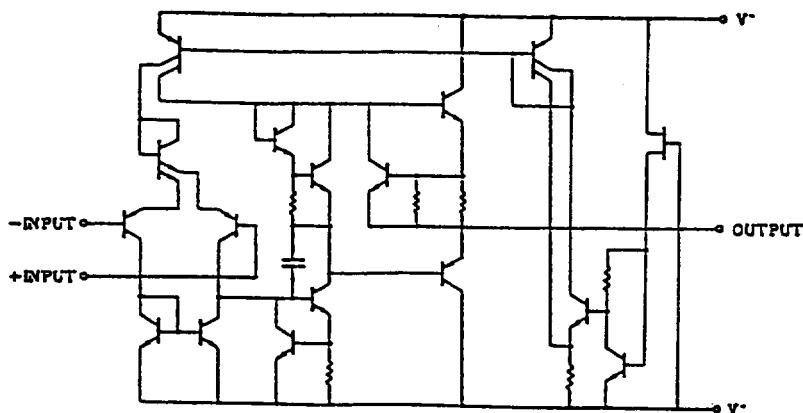
NJM2147M

PIN FUNCTION

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

4

■ EQUIVALENT CIRCUIT





■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	± 30	V
Input Voltage	V_{ic}	± 28 (note)	V
Differential Input Voltage	V_{id}	± 30	V
Power Dissipation	P_D	(DIP8) 500 (DMP8) 300	mW
Operating Temperature Range	T_{opr}	-40 ~ +85	°C
Storage Temperature Range	T_{stg}	-40 ~ +125	°C

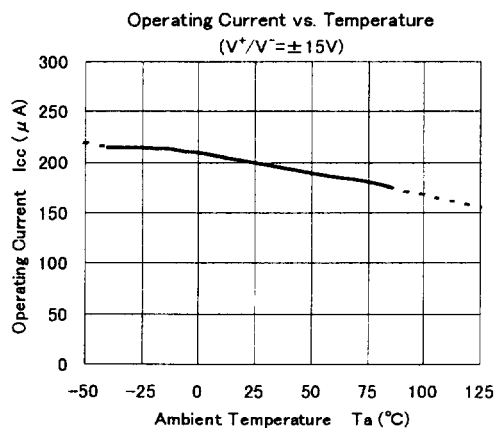
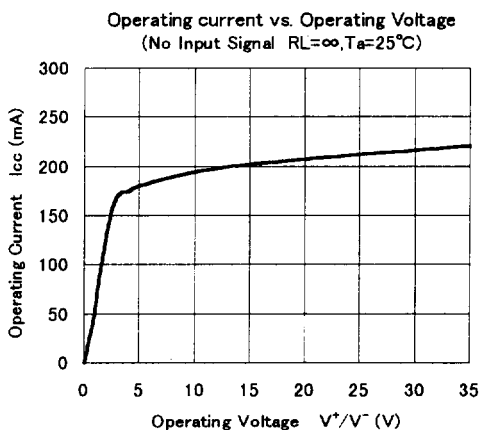
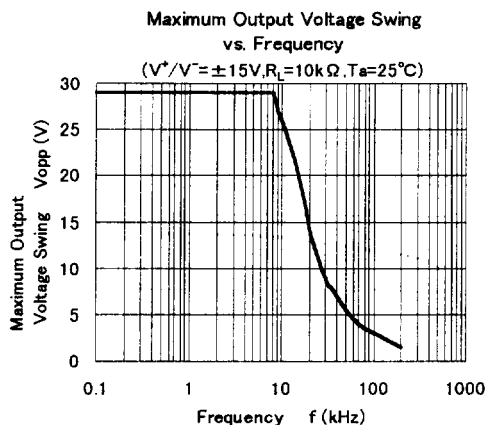
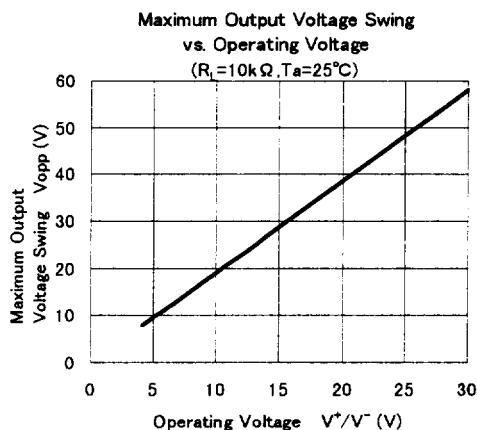
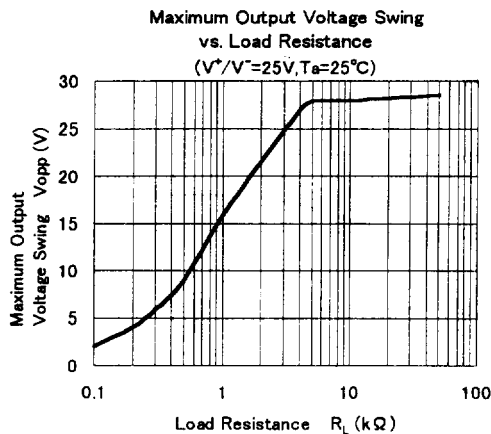
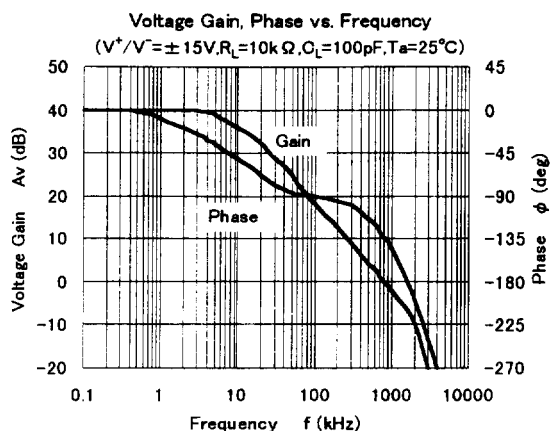
(note) When supply voltage is less than $\pm 15V$,
the absolute maximum input voltage is equal supply voltage.

■ ELECTRICAL CHARACTERISTICS ($V^+/V^- = \pm 15V, T_a = 25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V^+		± 8	± 15	± 28	V
Input Offset Voltage	V_{io}	$R_s \leq 10k\Omega$	—	1.0	5.0	mV
Input Bias Current	I_b		—	15	250	nA
Input Offset Voltage	I_{io}		—	1	80	nA
Large Signal Voltage Gain	A_v	$R_L \geq 10k\Omega, V_o = \pm 10V$	60	88	—	dB
Input Common Mode Voltage Range	V_{icm}		± 12	± 13	—	V
Common Mode Rejection Ratio	CMR	$R_s \leq 10k\Omega, V_{ic} = \pm 12V$	60	90	—	dB
Supply Voltage Rejection Ratio	SVR	$R_s \leq 10k\Omega, V^+/V^- = \pm 14V \sim \pm 28V$	74	110	—	dB
Maximum Peak-to-peak Output Voltage Swing 1	V_{om1}	$R_L \geq 10k\Omega$	± 10	± 14	—	V
Maximum Peak-to-peak Output Voltage Swing 2	V_{om2}	$R_L \geq 50k\Omega$	± 13	± 14	—	V
Operating Current	I_{cc}	$R_L = \infty$ (All Circuit)	—	175	300	μA
Short-circuit Output Current	I_{os}		—	± 6	—	mA
Slew Rate	SR	$R_L = 10k\Omega, C_L = 100pF, V_{in} = 10V$	—	0.5	—	V/ μs
Response Time (Rise Time)	t_R	$R_L = 10k\Omega, C_L = 100pF, V_{in} = 20mV$	—	0.3	—	μs
Equivalent Input Noise Voltage	e_n	$A_v = 20dB, f = 1kHz$	—	50	—	$nV/\sqrt{Hz}$



■ TYPICAL CHARACTERISTICS



4



TYPICAL CHARACTERISTICS

