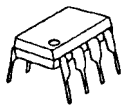
DUAL HIGH VOLTAGE AND LOW POWER OPERATIONAL AMPLIFIER

■ 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



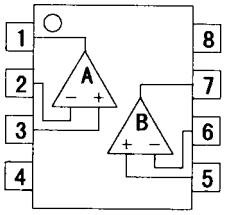
NJM2147D

NJM2147M

■ FEATURES

- High Operating Voltage (±8V~±28V)
- High Slew Rate (0.5V/μs typ.)
- Low Operating Current (175μA typ.)
- Short-Circuit Protection
- Package Outline DIP8,DMP8
- Bipolar Technology

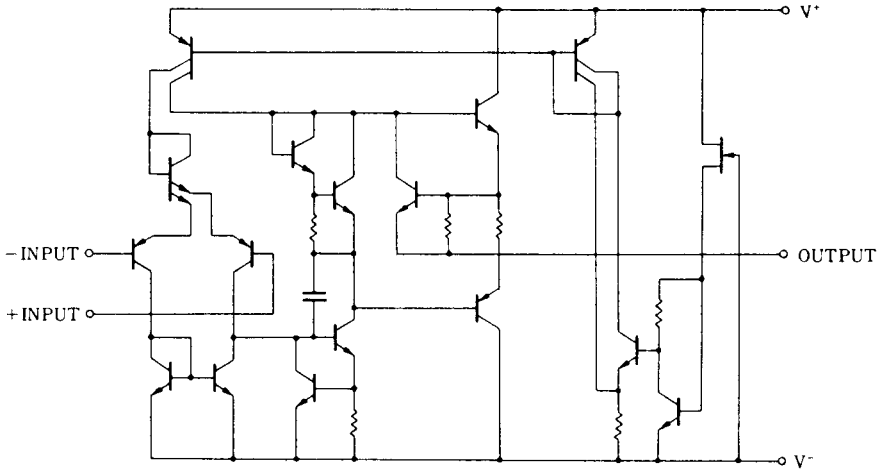
■ PIN CONFIGURATION



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^+

■ 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 ±15V, the absolute maximum input voltage is equal to the supply voltage.

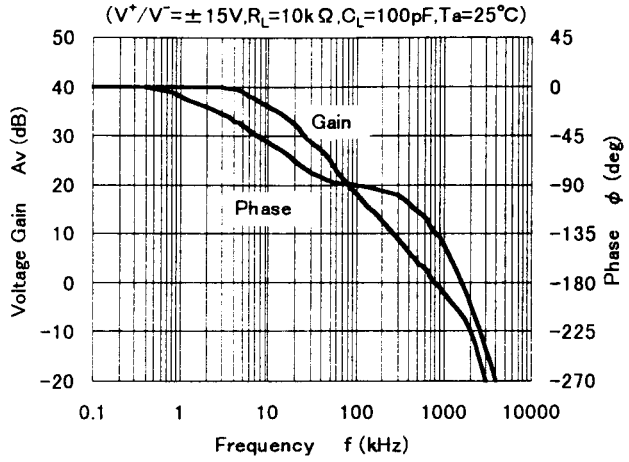
■ ELECTRICAL CHARACTERISTICS

(V^+/V^-=±15V,Ta=25˚C)

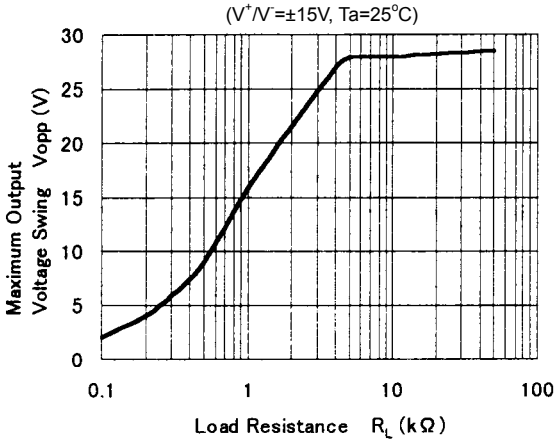
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V^+		± 8	± 15	± 28	V
Input Offset Voltage	V_{IO}	R_S≦10kΩ	-	1.0	5.0	mV
Input Bias Current	I_B		-	15	250	nA
Input Offset Current	I_{IO}		-	1	80	nA
Large Signal Voltage Gain	A_V	R_L≧10kΩ,V_O=±10V	60	88	-	dB
Input Common Mode Voltage Range	V_{ICM}		± 12	± 13	-	V
Common Mode Rejection Ratio	CMR	R_S≦10kΩ,V_{IC}=±12V	60	90	-	dB
Supply Voltage Rejection Ratio	SVR	R_S≦10kΩ,V^+/V^-=±14V~±28V	74	110	-	dB
Maximum Peak-to-peak Output Voltage Swing 1	V_{OM1}	R_L≧10kΩ	± 10	± 14	-	V
Maximum Peak-to-peak Output Voltage Swing 2	V_{OM2}	R_L≧50kΩ	± 13	± 14	-	V
Operating Current	I_{CC}	R_L=∞ (All Circuit)	-	175	300	μA
Short-circuit Output Current	I_{OS}		-	± 6	-	mA
Slew Rate	SR	R_L=10kΩ,C_L=100pF,V_{IN}=10V	-	0.5	-	V/μs
Response Time (Rise Time)	t_R	R_L=10kΩ,C_L=100pF,V_{IN}=20mV	-	0.3	-	μs
Equivalent Input Noise Voltage	e_n	A_V=20dB,f=1kHz	-	50	-	nV/√Hz

■ TYPICAL CHARACTERISTICS

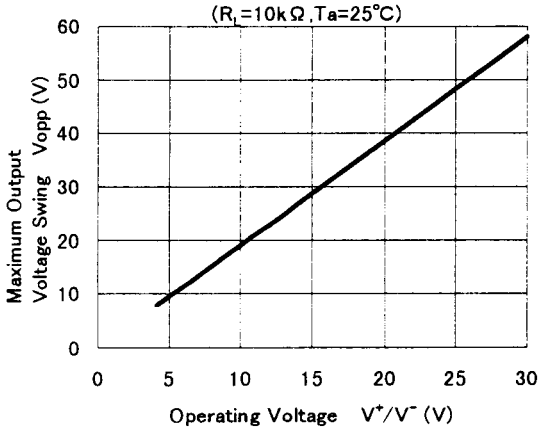
Voltage Gain, Phase vs. Frequency
($V^+/V^-=\pm15V, R_L=10k\Omega, C_L=100pF, Ta=25°C$)



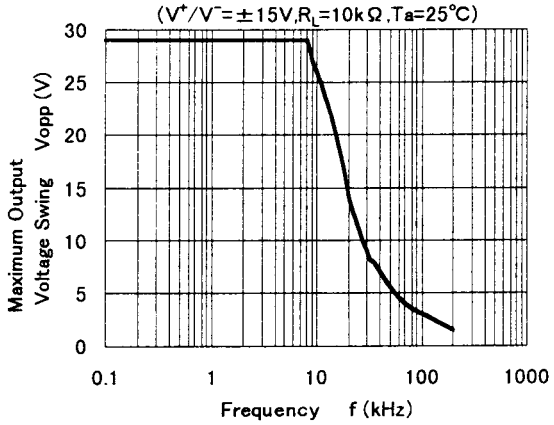
Maximum Output Voltage Swing
vs. Load Resistance
($V^+/V^-=\pm15V$, Ta=25°C)



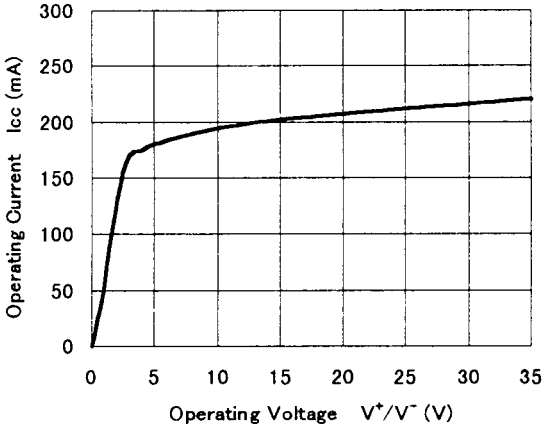
Maximum Output Voltage Swing
vs. Operating Voltage
($R_L=10k\Omega$, Ta=25°C)



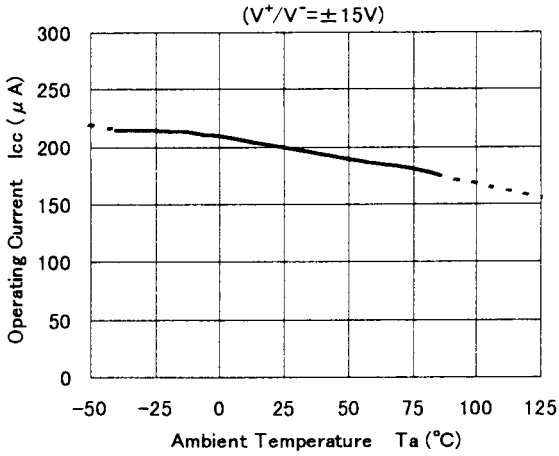
Maximum Output Voltage Swing
vs. Frequency
($V^+/V^-=\pm15V, R_L=10k\Omega$, Ta=25°C)



Operating current vs. Operating Voltage
(No Input Signal RL=∞, Ta=25°C)

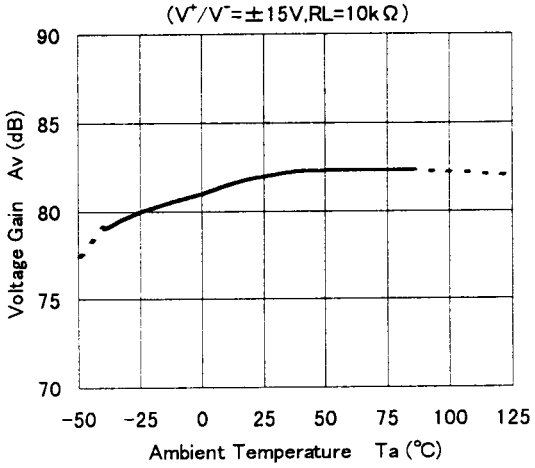


Operating Current vs. Temperature
($V^+/V^-=\pm15V$)

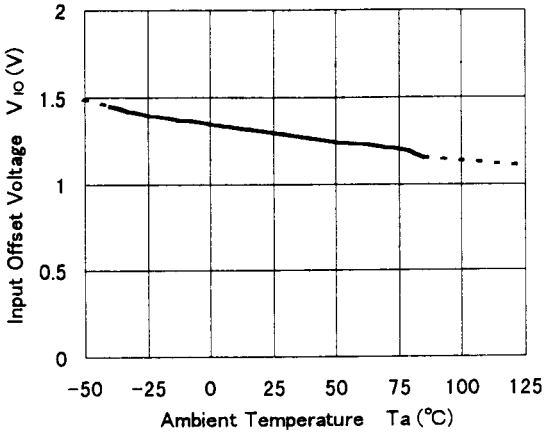


■ TYPICAL CHARACTERISTICS

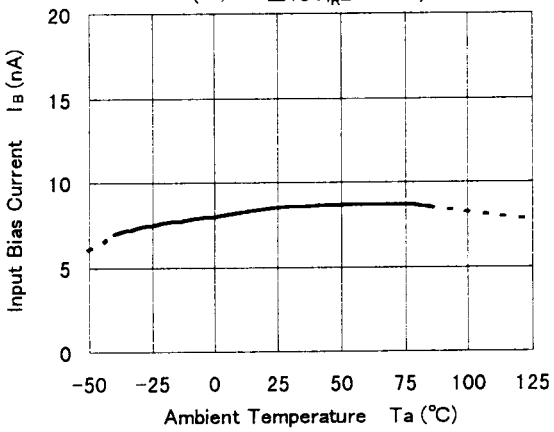
Voltage Gain vs. Temperature
(V^+/V^-=±15V,RL=10kΩ)



Input Offset Voltage vs. Temperature
(V^+/V^-=±15V)



Input Bias Current vs. Temperature
(V^+/V^-=±15V,RL=10kΩ)



Maximum Output Voltage vs. Temperature
(V^+/V^-=±15V,RL=10kΩ)