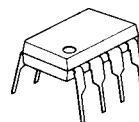


VOLTAGE COMPARATOR

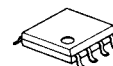
■ GENERAL DESCRIPTION

The NJM311 is a voltage comparator that has low input currents. It is also designed to operate covering a wider range of supply voltages from Standard $\pm 15V$ op amp supplies down to the single 5V supply used for IC logic. Its output is compatible with RTL, DTL and TTL as well as MOS circuits. Furthermore, it can drive lamps or relays, switching voltages up to 40V at currents as high as 50mA. Offset balancing is provided, and the outputs can be OR wired.

■ PACKAGE OUTLINE



NJM311D

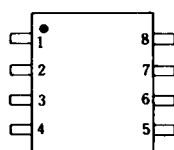


NJM311M

■ FEATURES

- Operating Voltage (+5V~+36V)
- Single Supply Operation
- Single Circuit
- With V_{IO} Trim Terminal
- Response Time (200ns typ.)
- Package Outline DIP8, DMP8
- Bipolar Technology

■ PIN CONFIGURATION

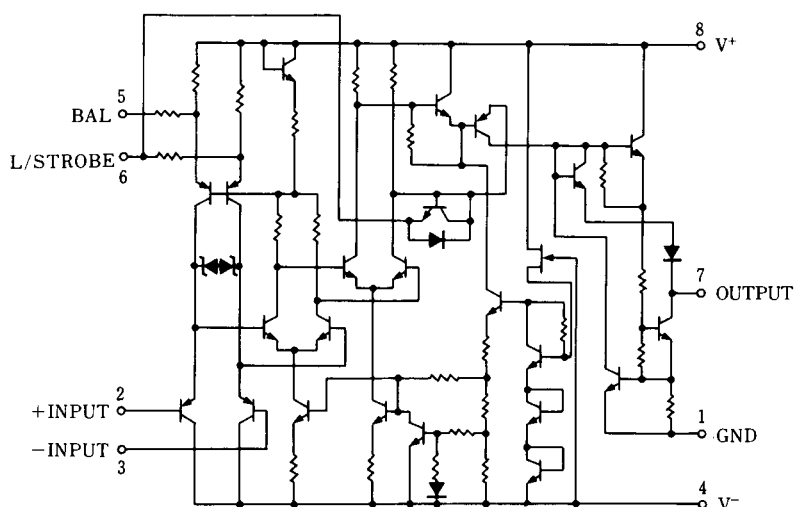


NJM311D
NJM311M

PIN FUNCTION

1. GND
2. +INPUT
3. -INPUT
4. V^-
5. BAL
6. BAL/STROBE
7. OUTPUT
8. V^+

■ EQUIVALENT CIRCUIT



NJM311

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	36 (± 18)	V
Output to Negative Supply Voltage	V_{7-4}	40	V
Ground to Negative Supply Voltage	V_{1-4}	30	V
Differential Input Voltage	V_{ID}	± 30	V
Input Voltage	V_{IN}	± 15 (note1)	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

(note1) For supply voltage less than ±15V, the absolute input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

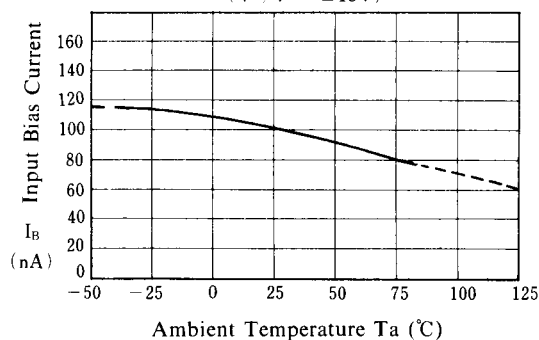
(V^+/V^- =±15V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leq 50k\Omega$	-	2.0	7.5	mV
Input Offset Current	I_{IO}		-	6.0	50	nA
Input Bias Current	I_B		-	100	250	nA
Voltage Gain	A_V		-	106	-	dB
Response Time	t_R		-	200	-	ns
Saturation Voltage	V_{SAT}	$V_{IN} \leq 10mV, I_O = 50mA$	-	0.75	1.5	V
Strobe ON Current	I_{STR}		-	3.0	-	mA
Output Leakage Current	I_{LEAK}	$V_{IN} \geq 10mV, I_O = 35V$	-	0.2	50	nA
Input Common Mode Voltage Range	V_{ICM}		-	± 14	-	V
Positive Quiescent Current	I^+		-	5.1	7.5	mA
Negative Quiescent Current	I^-		-	4.1	5.0	mA

■ TYPICAL CHARACTERISTICS

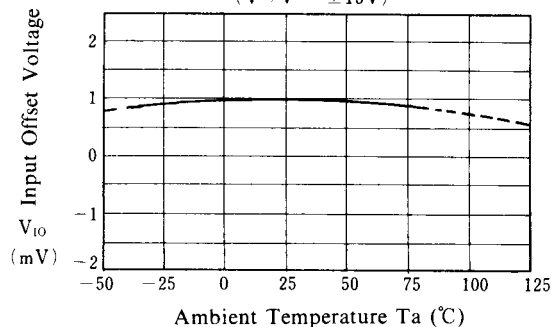
Input Bias Current vs. Temperature

($V^+/V^- = \pm 15V$)



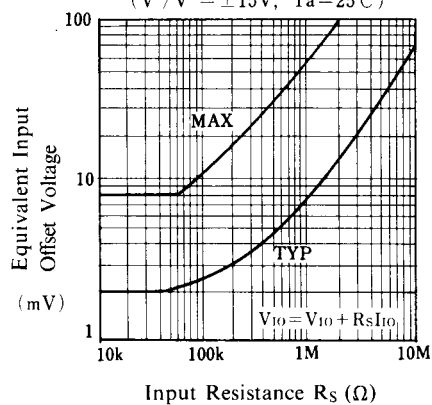
Input Offset Voltage vs. Temperature

($V^+/V^- = \pm 15V$)



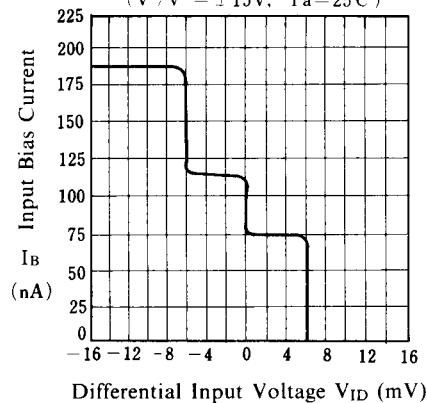
Offset Voltage vs. Input Resistance

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



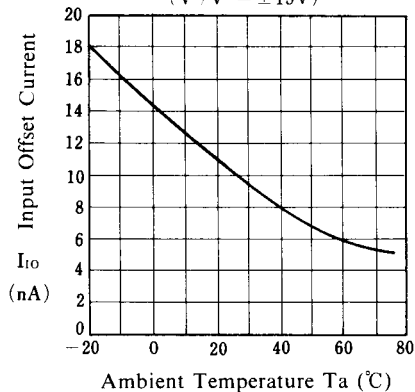
Input Bias Current vs. Differential Input Voltage

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



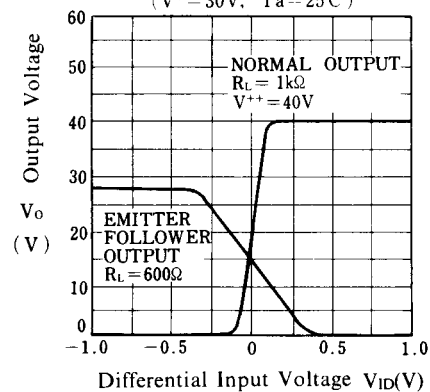
Input Offset Current vs. Temperature

($V^+/V^- = \pm 15V$)



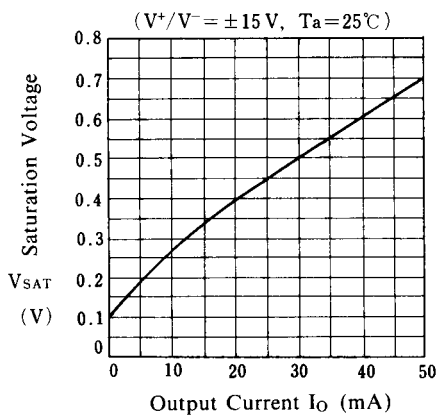
Output Voltage vs. Differential Input Voltage

($V^+ = 30V$, $T_a = 25^\circ C$)

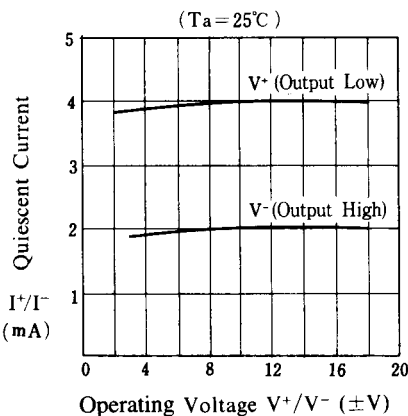


■ TYPICAL CHARACTERISTICS

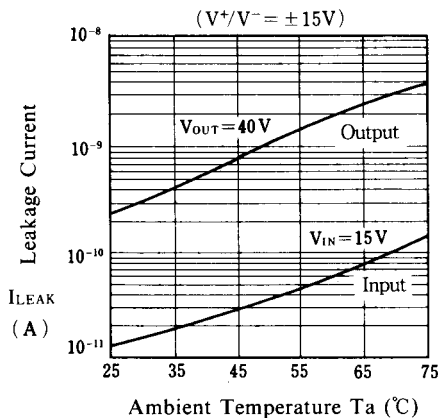
Saturation Voltage vs. Output Current



Quiescent Current vs. Operating Voltage

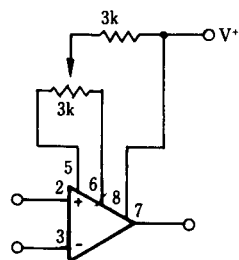


leakage Current vs. Temperature

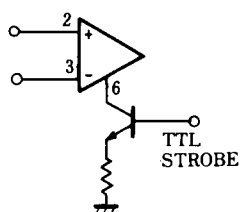


■ TYPICAL APPLICATIONS

Offset Null Circuit



Strobing



[CAUTION]

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