NJM319

The NJM319 is precision high speed dual comparator fabricated on a single monolithic chip. It is designed to operate over a wide range of supply voltages down to a single 5V logic supply and ground. The uncommitted collector of the output stage makes the NJM319 compatible with RTL, DTL and TTL as well as capable of driving lamps and relays at currents up to 25mA.

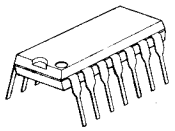
■ Absolute Maximum Ratings (Ta=25°C)

Supply Voltage	V^+/V^-	36V
Input Voltage	V_I (note1)	±15V
Differential Input Voltage	V_{ID} (note2)	±5V
Power Dissipation	P_D (D-Type)	500mW
	(M,E-Type)	300mW
Output to Negative Supply Voltage	ΔV_{O-N}	36V
GND to Negative Supply Voltage	ΔV_{G-N}	25V
GND to Positive Supply Voltage	ΔV_{G-P}	18V
Operating Temperature Range	T_{opr}	−20~+75°C
Storage Temperature Range	T_{stg}	−40~+125°C

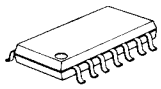
(note1) For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

(note2) Do not apply voltage more than 5V at the point between +INPUT and −INPUT.

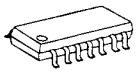
■ Package Outline



NJM319D



NJM319M



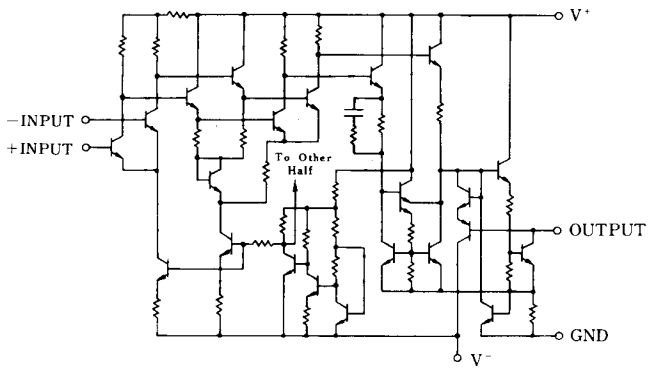
NJM319E

■ Electrical Characteristics (Ta=25°C, V^+/V^-=±15V)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	$R_S \leqq 5K\Omega$	—	2.0	3.0	mV
Input Offset Current	I_{IO}		—	80	200	nA
Input Bias Current	I_B		—	250	1000	nA
Voltage Gain	Av		78	92	—	dB
Response Time	t_R	V_{IN}: 100mV Step Input 5mV Over Drive	—	80	—	ns
Saturation Voltage	V_{SAT}	$V_{IN} \leqq -10mV$, $I_{SINK}=25mA$	—	0.75	1.5	V
Output Leakage Current	I_{LEAK}	$V_{IN} \geqq 10mV$, $V^-=GND=0V$, $V_{OUT}=35V$	—	0.2	10	μA
Positive Supply Current	I^+1	$V^+=5V$, $V^-=0V$	—	4.3	—	mA
Positive Supply Current	I^+2		—	8	12.5	mA
Negative Supply Current	I^-		—	3	5	mA

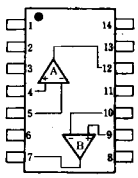
■ Equivalent Circuit

(1/2 Shown)



■ Connection Diagram

D,M,E-Type
(Top View)

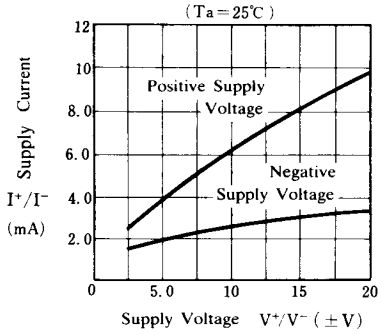


PIN FUNCTION
1. NC
2. NC
3.(2) A GND
4.(3) A+INPUT
5.(4) A−INPUT
6.(5) V^-
7.(6) B OUTPUT
8.(7) B GND
9.(8) B+INPUT
10.(9) B−INPUT
11.(10) V^+
12.(1) A OUTPUT
13. NC
14. NC

■ Typical Characteristics

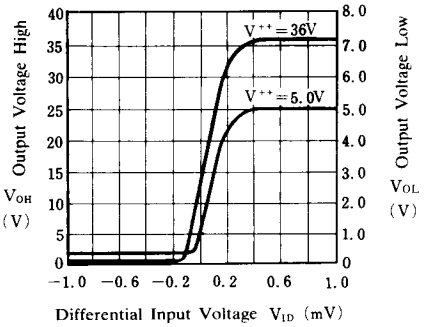
Supply Current vs. Supply Voltage

(Ta=25℃)



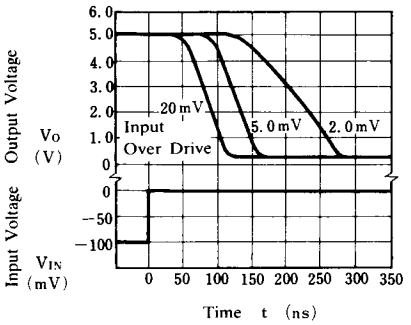
Transfer Function

(V+/V−=±15V, RL=1.4kΩ, Ta=25℃)



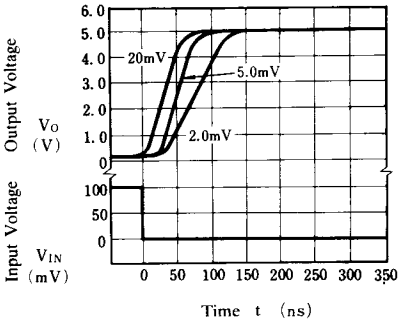
Response Time for Various Input Overdrives

(V+=5V, RL=500Ω, V++=5.0V, Ta=25℃)



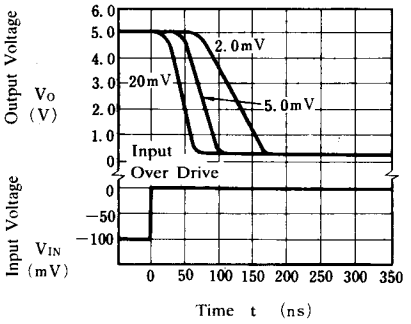
Response Time for Various Input Overdrives

(V+/V−=±15V, RL=500Ω, V++=5.0V, Ta=25℃)



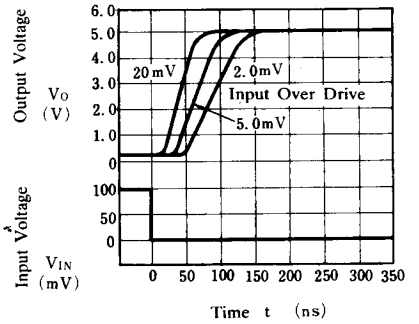
Response Time for Various Input Overdrives

(V+/V−=±15V, RL=500Ω, V++=5.0V, Ta=25℃)

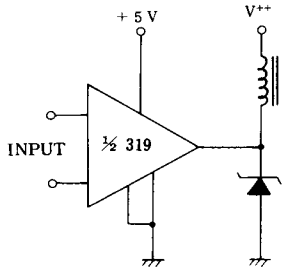


Response Time for Various Input Overdrives

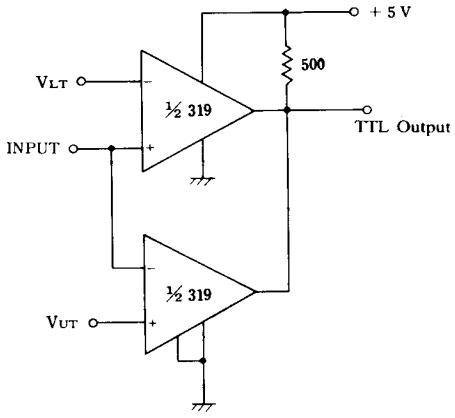
(V+=5V, RL=500Ω, V++=5V, Ta=25℃)



■ **Typical Applications**



Relay Driver



Window Detector