

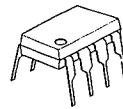
HIGH SPEED DIFFERENTIAL COMPARATOR

■ GENERAL DESCRIPTION

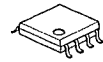
The NJM360 is a very high speed differential input, complementarily TTL output voltage comparator. The device has been optimized for greater speed, input impedance and fan-out and lower input offset voltage.

Applications involve high speed analog to digital convertors and zero-crossing detectors in disc file systems.

■ PACKAGE OUTLINE



NJM360D

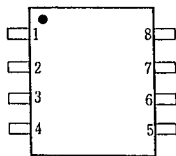


NJM360M

■ FEATURES

- Operating Voltage (±4.5V ~ ±6.5V)
- High Speed Guarrantee (20ns max.)
- Both output delay time has been precisely adjusted
- Complimentally TTL Output
- High Input Impedance
- Stablized Speed for Over Driving Change
- Bipolar Technology
- Fan-out is 4
- Low Input Offset voltage
- Package Outline DIP8, DMP8, (SSOP8)

■ PIN CONFIGURATION



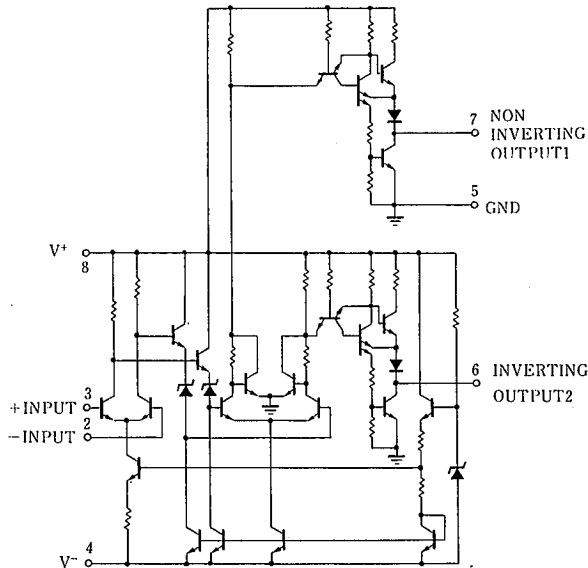
NJM330D
NJM360M

PIN FUNCTION

- 1 . NC
- 2 . -INPUT
- 3 . +INPUT
- 4 . V-
- 5 . GND
- 6 . OUT 2
- 7 . OUT 1
- 8 . V+

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■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺ /V ⁻	±8	V
Differential Input Voltage	V _{ID}	±5	V
Input Voltage	V _I	±8(note 1)	V
Power Dissipation	P _D	(DIP8) 500	mW
		(DMP8) 300	mW
Maximum Output Current	I _O	±20	mA
Operating Temperature Range	T _{opr}	-40 ~ +85	°C
Storage Temperature Range	T _{stg}	-40 ~ +125	°C

(note 1) For supply voltage less than ±8V, the absolute input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage	V ⁺		4.5	5	6.5	V
Operating Supply Voltage	V ⁻		-4.5	-5	-6.5	V
Input Offset Voltage	V _{IO}	R _S ≤ 200Ω	—	2	5	mV
Input Offset Current	I _{IO}		—	0.5	3	μA
Input Bias Current	I _B		—	5	20	μA
Output Resistance	R _O	V _{OUT} = V _{OM}	—	100	—	Ω
Response Time 1	t _{R 1}	V ⁺ /V ⁻ = ±5V(note 1)	—	13	25	ns
Response Time 2	t _{R 2}	V ⁺ /V ⁻ = ±5V(note 2)	—	12	20	ns
Response Time 3	t _{R 3}	V ⁺ /V ⁻ = ±5V(note 3)	—	14	—	ns
Response Time Difference Between Outputs						
(t _{pd} of + V _{IN1}) - (t _{pd} of - V _{IN2})		(note 1)	—	2	—	ns
(t _{pd} of + V _{IN2}) - (t _{pd} of - V _{IN1})		(note 1)	—	2	—	ns
(t _{pd} of + V _{IN1}) - (t _{pd} of + V _{IN2})		(note 1)	—	2	—	ns
(t _{pd} of - V _{IN1}) - (t _{pd} of - V _{IN2})		(note 1)	—	2	—	ns
Input Resistance	R _{IN}	f = 1MHz	—	17	—	kΩ
Input Capacitance	C _{IN}	f = 1MHz	—	3	—	pF
Average Temperature Coefficient of Input Offset Voltage	ΔV _{IO} /ΔT	R _S = 50Ω	—	8	—	μV/°C
Average Temperature Coefficient of Input Offset Current	ΔI _{IO} /ΔT		—	7	—	nA/°C
Common Mode Input Voltage Range	V _{ICM}	V ⁺ /V ⁻ = ±6.5V	±4	±4.5	—	V
Differential Input Voltage Range	V _{ID}		±5	—	—	V
Output High Voltage (High)	V _{OHI}	I _{OUT} = -320μA, V ⁺ /V ⁻ = ±4.5V	2.4	3	—	V
Output Low Voltage (Low)	V _{OL}	I _{SINK} = 6.4mA, V ⁺ /V ⁻ = ±4.5V	—	0.25	0.4	V
Positive Supply Current	I ⁺	V ⁺ /V ⁻ = ±6.5V	—	18	32	mA
Negative Supply Current	I ⁻	V ⁺ /V ⁻ = ±6.5V	—	-9	-16	mA

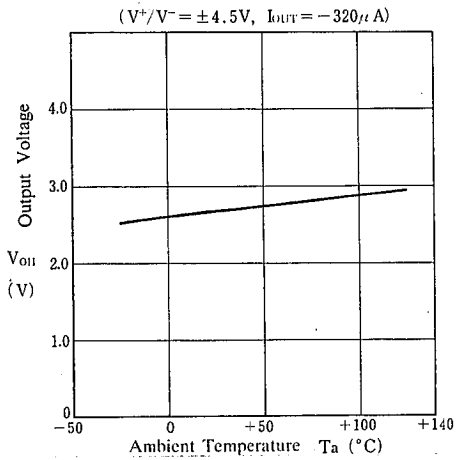
Note 1: Response time measured from the 50% point of a 30mV_{p-p} 10MHz sinusoidal input to the 50% point of the output.

Note 2: Response time measured from the 50% point of a 2V_{p-p} 10MHz sinusoidal input to the 50% point of the output.

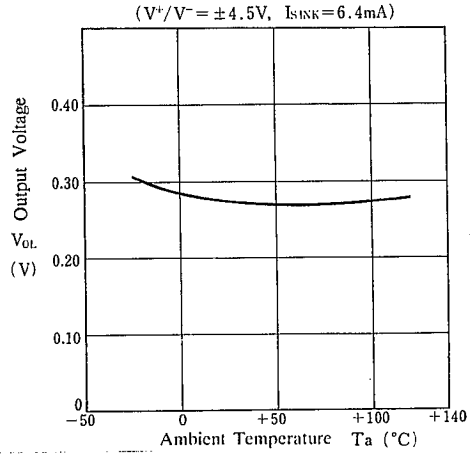
Note 3: Response time measured from the start of a 100mV input step with 5mV overdrive to the time when the output crosses the logic threshold.

■ TYPICAL CHARACTERISTICS

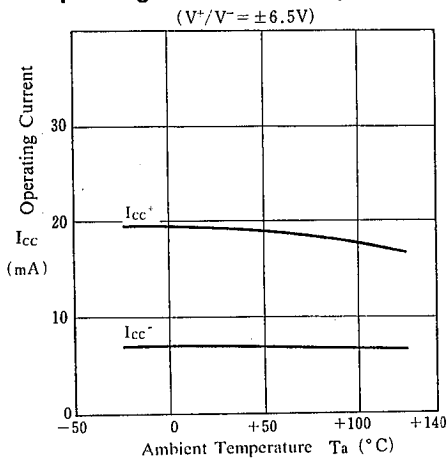
Output Voltage (High) vs. Temperature



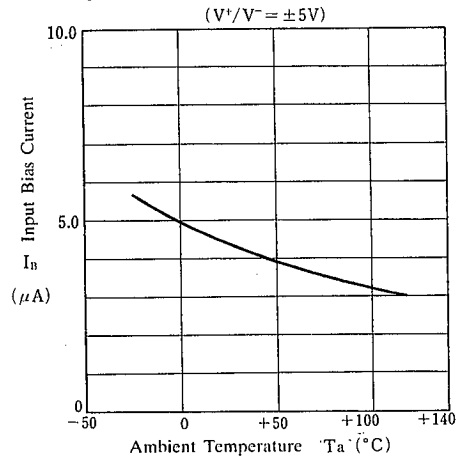
Output Voltage (Low) vs. Temperature



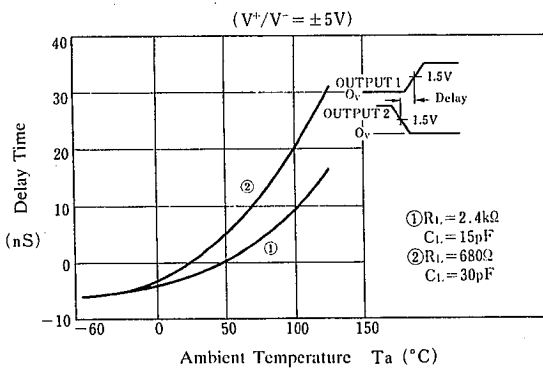
Operating Current vs. Temperature



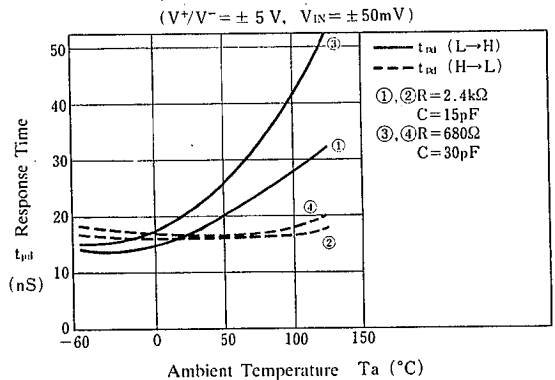
Input Bias Current vs. Temperature



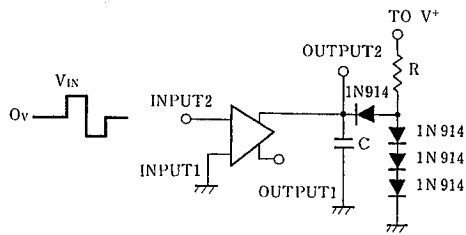
OUTPUT1 and OUTPUT2 Delay Time vs. Temperature



Response Time vs. Temperature



■ AC TEST CIRCUIT



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MEMO

[CAUTION]

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