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NTE910 & NTE910D
Integrated Circuits
High–Speed Differential Comparator

Description:

The NTE910 (8–Lead Metal Can) and NTE910D (14–Lead DIP) are differential voltage comparators intended for applications requiring high accuracy and faast response times. The device is useful as a variable threshold Schmitt trigger, a pulse–height discriminator, a voltage comparator in high–speed A/D converters, a memory sense amplifier or a high noise immunity line receiver. The output of the comparator is compatible with all intergrated logic forms.

Features:

- 5mV Maximum Offset Voltage
- 5μA Maximum Offset Current
- 1000 Minimum Voltage Gain
- 20μV/°C Maximum Offset Voltage Drift

Absolute Maximum Ratings:

Positive Supply Voltage . . . . . ±14V
Negative Supply Voltage . . . . . –7V
Peak Output Current 10mA
Differential Input Voltage . . . . . ±5V
Input Voltage . . . . . ±7V
Power Dissipation ($T_A \leq +70°C$)
    NTE910 . . . . . 500mW
        Derate Linearly Above +70°C . . . . . 6.3mW/°C
    NTE910D 670mW
        Derate Linearly Above +70°C . . . . . 8.3mW/°C
Storage Temperature Range
    NTE910 . . . . . –65° to +150°C
    NTE910D . . . . . –55° to +125°C
Operating Temperature Range . . . . . 0° to +70°C
Lead Temperature (During Soldering)
    NTE910 (60sec) . . . . . +300°C
    NTE910D (10sec) . . . . . +260°C

Electrical Characteristics: (T_A = +25°C, V+ = 12V, V− = −6V unless otherwise specified)

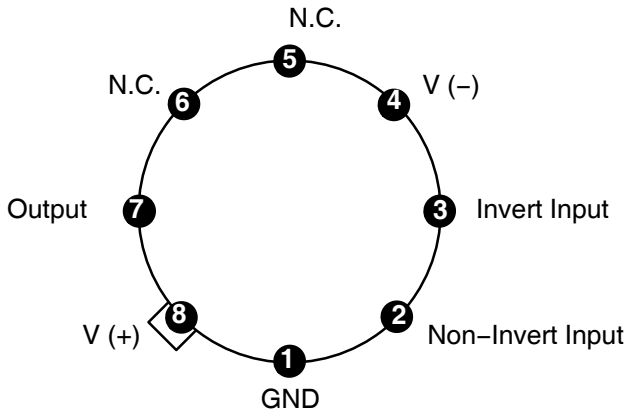
Parameter	Test Conditions (Note 1)		Min	Typ	Max	Unit
Input Offset Voltage	$R_A \le 200\Omega$		–	1.6	5.0	mV
		T_A = 0° to +70°C	–	–	6.5	mV
Input Offset Current			–	1.8	5.0	μA
		T_A = 0° to +70°C	–	–	7.5	μA
Input Bias Current			–	16	25	μA
	T_A = 0°C		–	25	40	μA
Voltage Gain			1000	1500	–	
	T_A = 0° to +70°C		800	–	–	
Output Resistance			–	200	–	Ω
Output Sink Current	$\Delta V_{IN} \ge 5mV$, V_{OUT} = 0		1.6	2.5	–	mA
		T_A = 0° to +70°C	0.5	–	–	mA
Response Time	Note 2		–	40	–	ns
Average Temperature Coefficient of Input Offset Voltage	$R_S = 50\Omega$, T_A = 0° to +70°C		–	5.0	20	μV/°C
Average Temperature Coefficient of Input Offset Current	T_A = +25° to +70°C		–	15	50	nA/°C
	T_A = +25° to 0°C		–	24	100	nA/°C
Input Voltage Range	V = −7V, T_A = 0° to +70°C		±5	–	–	V
Common Mode Rejection Ratio	$R_A \le 200\Omega$, T_A = 0° to +70°C		70	98	–	dB
Output HIGH Voltage	$\Delta V_{IN} \ge 5mV$, $0 \le I_{OUT} \le 5mA$, T_A = 0° to +70°C		2.5	3.2	4.0	V
Output LOW Voltage	$\Delta V_{IN} \ge 5mV$, T_A = 0° to +70°C		−1.0	−0.5	0	V
Output Sink Current	$\Delta V_{IN} \ge 5mV$, V_{OUT} = 0, T_A = 0° to +70°C		0.5	–	–	mA
Positive Supply Current	$V_{OUT} \le 0$, T_A = 0° to +70°C		–	5.2	9.0	mA
Negative Supply Current	V_{OUT} = GND, Inverting Input = 5mV, T_A = 0° to +70°C		–	4.6	7.0	mA
Power Consumption	V_{OUT} = GND, Inverting Input = 10mV, T_A = 0° to +70°C		–	90	150	mW

Note 1. The input offset voltage and input offset current are specified for a logic threshold voltage as follows: 1.5V at 0°C, 1.4V at +25°C, and 1.2V at +70°C.

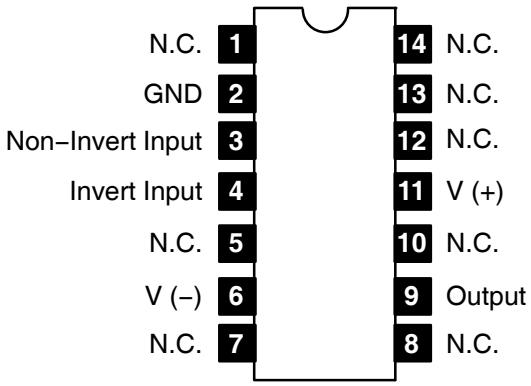
Note 2. The response time specified is for a 100mV input step with 5mV overdrive.

Pin Connection Diagram

NTE910
(Top View)



NTE910D



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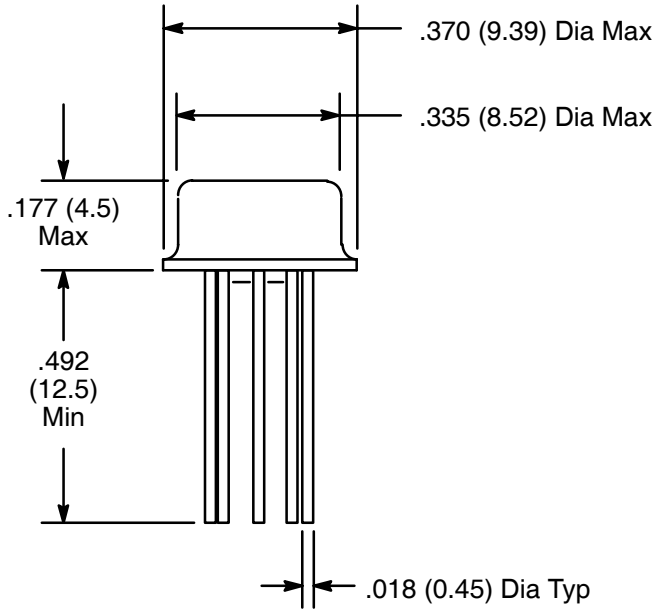

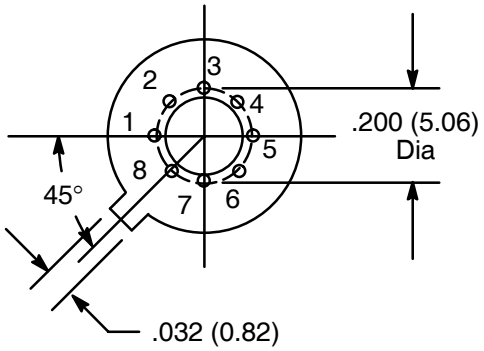

NTE910D