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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 fast 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 integrated logic forms.

Features:

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

Absolute Maximum Ratings:

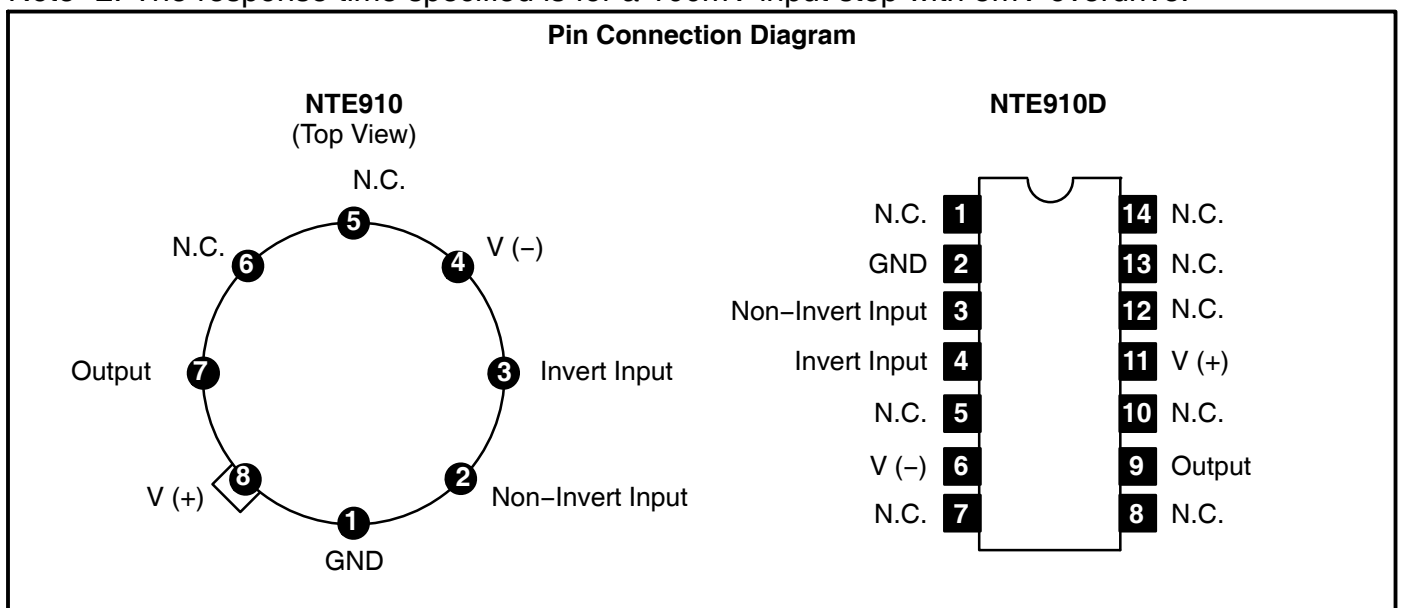
Positive Supply Voltage	±14V
Negative Supply Voltage	-7V
Peak Output Current	10mA
Differential Input Voltage	±5V
Input Voltage	±7V
Power Dissipation (T _A ≤ +70°C)	
NTE910	500mW
Derate Linearly Above +70°C	6.3mW/°C
NTE910D	670mW
Derate Linearly Above +70°C	8.3mW/°C
Storage Temperature Range	
NTE910	-65° 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: ($T_A = +25^\circ\text{C}$, $V_+ = 12\text{V}$, $V_- = -6\text{V}$ unless otherwise specified)

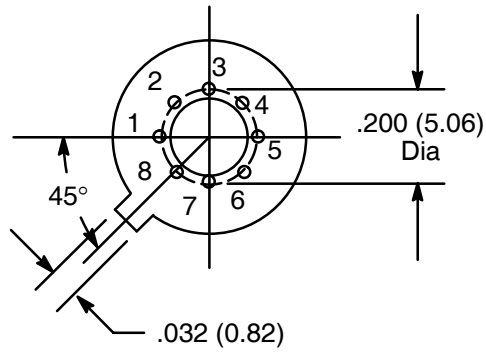
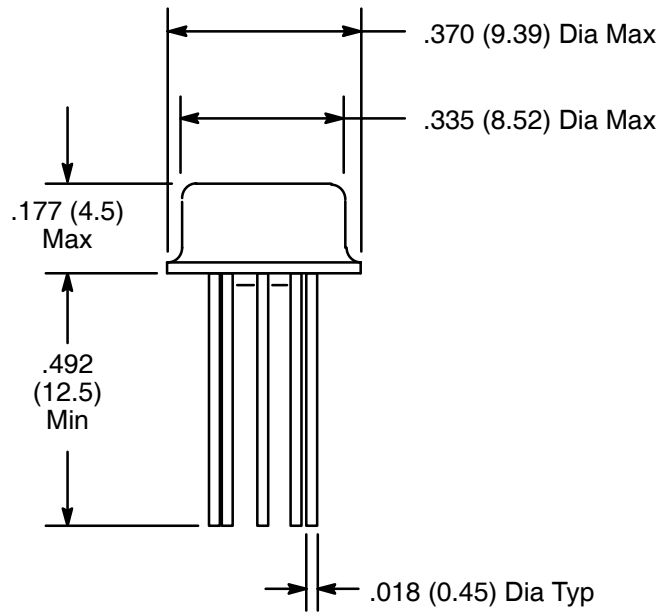
Parameter	Test Conditions (Note 1)	Min	Typ	Max	Unit
Input Offset Voltage	$R_A \leq 200\Omega$	-	1.6	5.0	mV
	$T_A = 0^\circ$ to $+70^\circ\text{C}$	-	-	6.5	mV
Input Offset Current		-	1.8	5.0	μA
	$T_A = 0^\circ$ to $+70^\circ\text{C}$	-	-	7.5	μA
Input Bias Current		-	16	25	μA
	$T_A = 0^\circ\text{C}$	-	25	40	μA
Voltage Gain		1000	1500	-	
	$T_A = 0^\circ$ to $+70^\circ\text{C}$	800	-	-	
Output Resistance		-	200	-	Ω
Output Sink Current	$\Delta V_{IN} \geq 5\text{mV}$, $V_{OUT} = 0$	1.6	2.5	-	mA
	$T_A = 0^\circ$ to $+70^\circ\text{C}$	0.5	-	-	mA
Response Time	Note 2	-	40	-	ns
Average Temperature Coefficient of Input Offset Voltage	$R_S = 50\Omega$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	-	5.0	20	$\mu\text{V}/^\circ\text{C}$
Average Temperature Coefficient of Input Offset Current	$T_A = +25^\circ$ to $+70^\circ\text{C}$	-	15	50	$\text{nA}/^\circ\text{C}$
	$T_A = +25^\circ$ to 0°C	-	24	100	$\text{nA}/^\circ\text{C}$
Input Voltage Range	$V = -7\text{V}$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	± 5	-	-	V
Common Mode Rejection Ratio	$R_A \leq 200\Omega$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	70	98	-	dB
Output HIGH Voltage	$\Delta V_{IN} \geq 5\text{mV}$, $0 \leq I_{OUT} \leq 5\text{mA}$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	2.5	3.2	4.0	V
Output LOW Voltage	$\Delta V_{IN} \geq 5\text{mV}$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	-1.0	-0.5	0	V
Output Sink Current	$\Delta V_{IN} \geq 5\text{mV}$, $V_{OUT} = 0$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	0.5	-	-	mA
Positive Supply Current	$V_{OUT} \leq 0$, $T_A = 0^\circ$ to $+70^\circ\text{C}$	-	5.2	9.0	mA
Negative Supply Current	$V_{OUT} = \text{GND}$, Inverting Input = 5mV , $T_A = 0^\circ$ to $+70^\circ\text{C}$	-	4.6	7.0	mA
Power Consumption	$V_{OUT} = \text{GND}$, Inverting Input = 10mV , $T_A = 0^\circ$ to $+70^\circ\text{C}$	-	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 $+25^\circ\text{C}$, and 1.2V at $+70^\circ\text{C}$.

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



NTE910



NTE910D

