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NTE911 Integrated Circuit Dual Voltage Comparator

Description:

The NTE911 is a dual, differential voltage comparator in a 10-Lead Metal Can type package featuring high accuracy, fast response times, large input voltage range, low power consumption and compatibility with practically all integrated logic forms. When used as a sense amplifier, the threshold voltage can be adjusted over a wide range, almost independent of the integrated circuit characteristics. Independent strobing of each comparator channel is provided, and pulse stretching on the output is easily accomplished. Other applications of the dual comparator include a window discriminator in pulse height detectors and a double-ended limit detector for automatic Go/No-Go test equipment.

Features:

- Fast Response Time – 40ns Typical
- 5mV Maximum Offset Voltage
- 10 μ A Maximum Offset Current
- Independent Comparator Strobing

Absolute Maximum Ratings:

Positive Supply Voltage	+14V
Negative Supply Voltage	-7.0V
Peak Output Current	50mA
Differential Input Voltage	± 5.0 V
Input Voltage	± 7.0 V
Strobe Voltage	0 to +6.0V
Internal Power Dissipation ($T_A \leq +70^\circ\text{C}$)	500mW
Derate Linearly Above $+70^\circ\text{C}$	6.3mW/ $^\circ\text{C}$
Operating Temperature Range	0° to $+70^\circ\text{C}$
Strobe Temperature Range	-65° to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 10sec)	$+260^\circ\text{C}$

Electrical Characteristics: ($T_A = 25^\circ\text{C}$, $V_+ = 12\text{V}$, $V_- = -6.0\text{V}$ unless otherwise specified)

Parameter	Test Conditions		Min	Typ	Max	Unit
Input Offset Voltage	$V_{OUT} = +1.4\text{V}$, $R_S \leq 200\Omega$	$V_{CM} = 0$	-	1.0	5.0	mV
			-	1.0	7.5	mV
	$R_S \leq 200\Omega$, $T_A = 0^\circ$ to $+70^\circ\text{C}$ Note 1	$V_{CM} = 0$	-	-	6.0	mV
			-	-	10	mV

Note 1 The input offset voltage is specified for a logic threshold as follows:
1.5V at 0°C , 1.4 at $+25^\circ\text{C}$, 1.2V at $+70^\circ\text{C}$

Parameter	Test Conditions		Min	Typ	Max	Unit
Input Offset Current	Note 1	$V_{OUT} = +1.4V$	–	0.5	15	μA
	Note 1	$T_A = 0^{\circ} \text{ to } +70^{\circ}C$	–	–	25	μA
Input Bias Current			–	25	100	μA
		$T_A = 0^{\circ} \text{ to } +70^{\circ}C$	–	–	150	μA
Voltage Gain			700	1500	–	
		$T_A = 0^{\circ} \text{ to } +70^{\circ}C$	500	–	–	
Response Time	Note 2		–	40	–	ns
Strobe Release Time			–	12	–	ns
Input Voltage Range	$V = -7V$		± 5	–	–	V
Differential Input Voltage Range			± 5	–	–	V
Output Resistance			–	200	–	Ω
Output HIGH Voltage	$V_{IN} \geq 10mV$		–	4.5	5.0	V
Loaded Output HIGH Voltage	$V_{IN} \geq 10mV, I_O = 5mA$		2.5	3.5	–	V
Output LOW Voltage	$V_{IN} \geq 10mV$		–1.0	–0.5	0	V
Strobed Output Level	$V_{STROBE} \leq 0.3V$		–1.0	–	0	V
Output Sink Current	$V_{IN} \geq 10mV, V_{OUT} \geq 0$		0.5	0.8	–	mA
Strobe Current	$V_{STROBE} = 100mV$		–	1.2	2.5	mA
Positive Supply Current	$V_{OUT} = GND, \text{ Inverting Input} = +10mV$			8.6	–	mA
Negative Supply Current	$V_{OUT} = GND, \text{ Inverting Input} = +10mV$		–	3.9	–	mA
Power Consumption			–	130	230	mW
Temperature Coefficient of Input Offset Voltage	$T_A = 0^{\circ} \text{ to } +70^{\circ}C$		–	5.0	–	$\mu V/^{\circ}C$

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

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



