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NTE919 Integrated Circuit High Speed Dual Comparator

Description:

The NTE919 is a precision high speed dual comparator designed to operate over a wide range of supply voltages down to a single 5V logic supply and ground and have low input currents and high gains. The open collector of the output stage makes it compatible with TTL as well as capable of driving lamps and relays at currents up to 25mA. Although designed primarily for applications requiring operation from digital logic supplies, are fully specified for power supplies up to $\pm 15V$.

Features:

- Two Independent Comparators
- Operates from a Single 5V Supply
- Typically 80ns Response Time at $\pm 15V$
- Minimum Fan-Out of 2 Each Side
- Maximum Input Current of $1\mu A$ Over Temperature
- Inputs and Outputs can be Isolated from System Ground
- High Common Mode Slew Rate

Absolute Maximum Ratings:

Output to Negative Supply Voltage, $V_O - V_{CC}^-$	36V
Negative Supply Voltage, V_{CC}^-	25V
Positive Supply Voltage, V_{CC}^+	18V
Differential Input Voltage, V_{id}	$\pm 5V$
Input Voltage (Note 1), V_I	$\pm 15V$
Power Dissipation, P_{tot}	500mW
Operating Temperature Range	0° to +70°C
Storage Temperature Range	-65° to +150°C
Lead Temperature (Soldering 10 sec)	+260°C

Note 1. For supply voltages less than ± 15 the absolute maximum input voltage is equal to the supply voltage.

Electrical Characteristics: ($V_{CC} = \pm 15V$, $T_{amb} = +25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage (Note 2)	V_{10}	$T_A = +25^{\circ}C$, $R_S \leq 5k$	-	2.0	8.0	mV
		$T_{min.} \leq T_{amb} \leq T_{max.}$	-	-	10	mV
Input Offset Current (Note 2)	I_{10}	$T_A = +25^{\circ}C$, Note 2	-	80	200	nA
		$T_{min.} \leq T_{amb} \leq T_{max.}$	-	-	300	nA
Input Bias Current (Note 2)	I_{ib}	$T_A = +25^{\circ}C$	-	250	1000	nA
		$T_{min.} \leq T_{amb} \leq T_{max.}$	-	-	1200	nA
Voltage Gain	A_{vd}	$T_A = +25^{\circ}C$	8	40	-	V/mV
Positive Supply Current	I_{CC}^{+}	$V_{CC} = \pm 15V$	-	8	12.5	mA
		$V_{CC}^{+} = 5V$, $V_{CC}^{-} = 0V$	-	4.3	-	mA
Negative Supply Current	I_{CC}^{-}		-	3	5	mA
Input Common Mode Voltage Range	V_{icm}	$V_{CC} = \pm 15V$	± 12	± 13	-	V
		$V_{CC}^{+} = 5V$, $V_{CC}^{-} = 0V$	1	-	3	V
Differential Input Voltage	V_{id}		-	-	± 5	V
Low Level Output Voltage	V_{OL}	$T_{amb} = +25^{\circ}C$, $I_O = 25mA$, $V_1 \leq -5mV$, $V_1 \leq -10mV$	-	0.75	1.5	V
		$V_{CC}^{+} \geq 4.5V$, $V_{CC} = 0V$, $I_{O(sink)} < 3.2mA$, $V_1 \leq -6mV$, $V_1 \leq -10mV$	-	0.3	0.4	V
High Level Output Current	I_{OH}	$T_{amb} = +25^{\circ}C$, $V_O = 35V$, $V_1 \geq 5mV$, $V_1 \geq 10mV$	-	0.2	10	μA
		$T_{min.} \leq T_{amb} \leq T_{max.}$, $V_1 \geq 5mV$	-	0.2	10	μA
Response Time (Note 3)	t_{re}	$T_A = +25^{\circ}C$, $V_S = \pm 15V$, Note 5	-	80	-	ns

Note 2. The offset voltages and offset currents given are the maximum values required to drive the output within a volt of either supply with a 1mA load. Thus, these parameters define an error band and take into account the worst case effects of voltage gain and input impedance.

Note 3. The response time specified is for a 100mV input step with 5mV overdrive.



