

NTE1510 Integrated Circuit 5-Step LED Driver for Linear Scale

Description:

The NTE1510 is an integrated circuit in an 8-Lead SIP type package designed for use in level meter applications. This device is capable of driving 5 LEDs to create a bar-type display. In accordance with the input level, the uppermost LED brightness varies to form a linear indicator, making the NTE1510 ideal for use in signal meters and VU meters. A low-voltage reference power supply is built-in, so that the only external components required are LEDs, resistors, and capacitors.

Features:

- Bar-Type Display of Input Level using 5 LEDs
- The Uppermost LED Brightness Varies Linearly With Respect to the Input Level Resulting in a High-Resolution Display with No Radiation.
- Built-In Reference Supply
- By Changing the External Reference Values, the LED Brightness can be Adjusted
- Wide Range of Supply Voltages: $V_{CC} = 4V$ to $18V$
- High Input Impedance: $I_{IN} = 100nA$ Typ

Applications:

- Signal Meters
- VU Meters
- Tuning Meters
- General Purpose Display Applications

Absolute Maximum Ratings: ($T_A = +25^\circ C$ unless otherwise specified)

Supply Voltage, V_{CC}	18V
Input Voltage, V_{IN}	6V
Output Breakdown Voltage, BV_O	18V
Output Current (Per Pin), I_O	15mA
Power Dissipation (Note 1), P_{dF}	550mW
Derate Above $25^\circ C$	5.5mW/ $^\circ C$
Operating Temperature Range, T_{opr}	-20° to $+75^\circ C$
Storage Temperature Range, T_{stg}	-40° to $+125^\circ C$

Note 1. With the NTE1510 soldered to a printed circuit board (copper-clad area 4.5cm x 5.5cm, thickness 35 μ , board thickness 2.0mm).

Recommended Operating Conditions:

Supply Voltage Range 4V to 18V
 Rated Supply Voltage 10V

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 10\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Range	V_{CC}		4	10	18	V
Fullscale Input Voltage	V_{INF}		-	1320	-	mV
Step Voltage	V_{step}		-	210	-	mV
Input Current	I_{IN}	$V_{IN} = 0\text{V}$, Note 2	-	0.1	1.0	μA
Circuit Current	I_{CC}	$V_{IN} = 0\text{V}$	-	5	8	mA
Output 1 LED Drive Voltage (Pin6)	$V_{IT(6)}$	$R_L = 1.5\text{k}\Omega$, $I_L = 100\mu\text{A}$, Using red $G_a\text{AlAs}$ LEDs	170	230	300	mV
Output 2 LED Drive Voltage (Pin7)	$V_{IT(7)}$		380	450	530	mV
Output 3 LED Drive Voltage (Pin8)	$V_{IT(8)}$		580	660	730	mV
Output 4 LED Drive Voltage (Pin1)	$V_{IT(1)}$		780	860	940	mV
Output 5 LED Drive Voltage (Pin2)	$V_{IT(2)}$		980	1070	1180	mV

Note 2. Current flowing from Pin4 is taken as positive current.

