



ELECTRONICS, INC.

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## NTE5010T1 thru NTE5021T1 Zener Diode, 500mW ±1% Tolerance

### Features:

- Zener Voltage 5.1V to 12V
- Constructed with an Oxide Passivated All Diffused Die
- DO35 Type Axial Lead Package

### Absolute Maximum Ratings:

Forward Voltage ( $I_F = 100\text{mA}$ ,  $T_L = +30^\circ\text{C}$ , Lead Length = 3/8"),  $V_F$  ..... 1.5V  
 DC Power Dissipation ( $T_L \leq +50^\circ\text{C}$ , Lead length = 3/8"),  $P_D$  ..... 500mW  
 Derate Above  $50^\circ\text{C}$  ..... 3.33mW/ $^\circ\text{C}$   
 Operating Temperature Range,  $T_{opr}$  .....  $-65^\circ\text{C}$  to  $+200^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-65^\circ\text{C}$  to  $+200^\circ\text{C}$

### Electrical Characteristics: ( $T_L = +30^\circ\text{C}$ , Lead Length = 3/8" unless otherwise specified)

NTE Type Number	Nom Zener Voltage (Note 1) $V_Z @ I_{ZT}$ Volts	Zener Test Current ( $I_{ZT}$ ) mA	Max DC Zener Current (Note 2) ( $I_{ZM}$ ) mA	Max Zener Impedance (Note 3)		Typical Temperature Coefficient $\alpha_{VZ}$ %/ $^\circ\text{C}$	Max Leakage Current $I_R @ V_R$	
				$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ 0.25\text{mA} (I_{ZK})$		$\mu\text{A}$	Volts
				Ohms	Ohms			
5010T1	5.1	5	98	50	2050	+0.025	2.0	2.0
5011T1	5.6	5	89	25	1800	+0.035	2.0	3.0
5013T1	6.2	5	81	10	1300	+0.040	1.0	4.0
5019T1	10.0	5	50	15	600	+0.065	0.1	8.0
5021T1	12.0	5	42	22	600	+0.073	0.1	9.1

Note 1. Voltage measurement to be performed 20 seconds after application of the DC test current.

Note 2. The maximum zener current ( $I_{ZM}$ ) shown is for the nominal voltages. The following formula can be used to determine the worst case current for any tolerance device:

$$I_{ZM} = \frac{P}{V_{ZM}}$$

Where  $V_{ZM}$  is the high end of the tolerance specified and P is the rated power of the device.

Note 3. Zener impedance is derived from the 1kHz AC voltage which results when an AC current having an RMS value equal to 10% of DC zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ .

