



**THE DATASHEET OF  
NTE5010SM**





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## NTE5005SM thru NTE5031SM Zener Diode, 300mW ±5% Tolerance

**Features:**

- Zener Voltage 3.3V to 24V
- SOT-23 Type Surface Mount Package

**Absolute Maximum Ratings:**

Maximum Repetitive Peak Forward Current, $I_{FRM}$ .....	250mA
Maximum Repetitive Peak Working Current, $I_{ZRM}$ .....	250mA
Forward Voltage ( $I_F = 10mA$ , $T_J = +25^\circ C$ ), $V_F$ .....	900mV
Total Power Dissipation ( $T_A \leq +25^\circ C$ , Note 1), $P_{tot}$ .....	350mW
Maximum Junction Temperature, $T_J$ .....	+175°C
Storage Temperature Range, $T_{stg}$ .....	-65° to +175°C

**Thermal Characteristics:** ( $T_J = P \times (R_{thJT} + R_{thSA}) + T_A$ )

Thermal Resistance

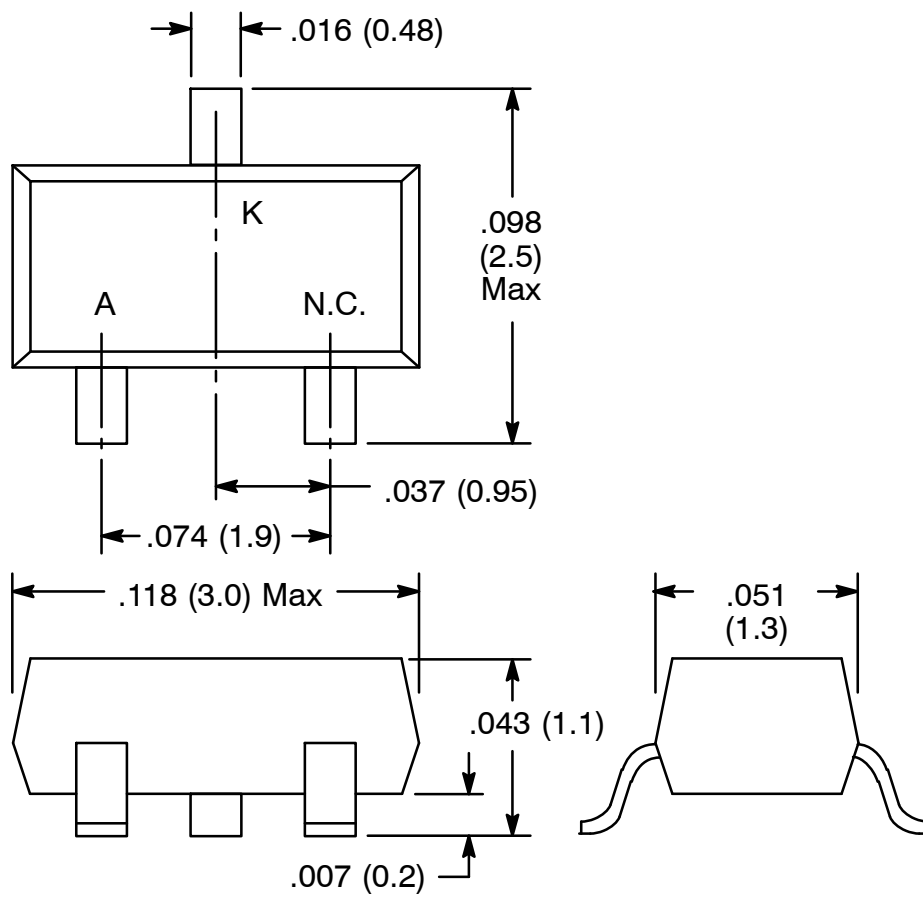
Junction-to-Tab, $R_{thJT}$ .....	50K/W
Tab-to-Soldering Points, $R_{thTS}$ .....	280K/W
Soldering Points-to-Ambient (Note 1), $R_{thSA}$ .....	90K/W

Note 1. Device mounted on a ceramic substrate of 8mm x 10mm x 0.7mm.

**Electrical Characteristics:** ( $T_J = +25^\circ C$ , unless otherwise specified)

NTE Type No.	Nominal Zener Voltage $V_z @ I_{zt}$	Zener Test Current $I_{zt}$	Reverse Current $I_R @ V_R$		Typical Differential Resistance $r_{diff} @ I_{zt}$	Typical Temperature Coefficient $S_z @ I_{zt}$	Typical Diode Capacitance $C_d$ (Note 2)
	V	mA			$\Omega$	mV/K	pF
5005SM	3.3	5	5 $\mu$ A	1V	85	-2.4	325
5006SM	3.6	5	5 $\mu$ A	1V	85	-2.4	300
5007SM	3.9	5	3 $\mu$ A	1V	85	-2.5	300
5008SM	4.3	5	3 $\mu$ A	1V	80	-2.5	275
5009SM	4.7	5	3 $\mu$ A	2V	50	-1.4	275
5010SM	5.1	5	2 $\mu$ A	2V	40	-0.8	235
5011SM	5.6	5	1 $\mu$ A	2V	15	1.2	225
5013SM	6.2	5	3 $\mu$ A	4V	10	0.4	185
5014SM	6.8	5	2 $\mu$ A	4V	15	1.2	155
5015SM	7.5	5	1 $\mu$ A	5V	6	4.0	95
5018SM	9.1	5	500nA	6V	6	5.5	70
5021SM	12.0	5	100nA	0.7 $V_{Znom}$	10	8.4	65
5024SM	15.0	5	50nA	0.7 $V_{Znom}$	10	11.4	55
5027SM	18.0	5	50nA	0.7 $V_{Znom}$	10	14.4	47
5031SM	24.0	5	50nA	0.7 $V_{Znom}$	25	20.4	33


Note 2.  $V_R = 0$ ,  $f = 1MHz$ .



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