



**Solid State Devices, Inc.**

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**DESIGNER'S DATA SHEET**

**FEATURES:**

- Hermetically Sealed in Glass
- High Peak Transient Power 500 W
- Can Be Used as a 5 W Zener
- Available in Axial, Surface Mount, and Ministud Configurations
- TX, TXV, and Space Level Screening Available
- Higher Voltages Available

**Part Number / Ordering Information <sup>1/</sup>**

ST500 **A** **9.6** **SMS** **TX**

Screening <sup>2/</sup>      = Not Screened  
 TX = TX Level  
 TXV = TXV Level  
 S = S Level

Package: <sup>3/</sup>      = Axial  
 SMS = Square Tab  
 V = Isolated Ministud  
 C = Ministud

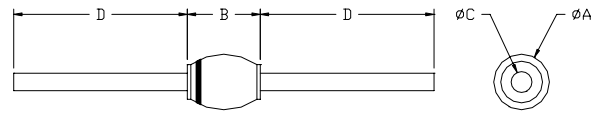
Voltage: 9.6 = 9.6V

Tolerance A = ± 10%  
 B = ± 5%

**ST500A7.5  
thru  
ST500A270**

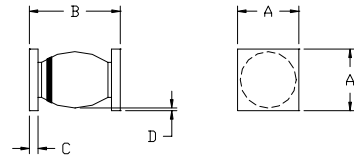
**500 W Transient Voltage  
Suppressor  
7.5 – 510 VOLTS**

Axial



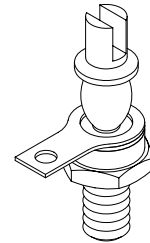
DIM	MIN	MAX
A	—	0.178"
B	—	0.200"
C	0.047"	0.053"
D	1.0"	—

SMS



DIM	MIN	MAX
A	0.172"	0.180"
B	—	0.250"
C	0.023"	0.027"
D	0.002"	—

Isolated Ministud



Ministud



Maximum Ratings	Symbol	Value	Units
Peak pulse power dissipation with a 10/1000 µs waveform	P <sub>PPM</sub>	500	W
Steady State Power Dissipation Axial Lead : T <sub>L</sub> =25°C, L=3/8" SMS & Ministud: T <sub>C</sub> or T <sub>E</sub> = 75 °C	P <sub>D</sub>	5.0	W
Operating and Storage Temp.	T <sub>op</sub> & T <sub>stg</sub>	-65 to +175	°C
Maximum Forward Voltage Drop I <sub>F</sub> = 1.0 Apk, T <sub>A</sub> = 25 °C, pulsed	V <sub>F</sub>	1.2	V
Thermal Resistance, Junction to Lead L=3/8"	R <sub>θJL</sub>	25	°C/W
Thermal Resistance, Junction to End Cap Junction to Case	R <sub>θJE</sub> R <sub>θJC</sub>	8	°C/W

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: T00023B

DOC



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**ST500A7.5  
thru  
ST500A270**

**Electrical Characteristics @ 25 °C**

Nominal Zener Voltage			Zener Test Current	Typical Impedance 10% AC modulation	Maximum Reverse Current @ Standoff Voltage		Typical Temperature Coefficient	Maximum Clamping Voltage 10 / 1000 $\mu$ s waveform	
$V_Z @ I_{ZT}^4$			$I_{ZT}$	$Z_Z @ I_{ZT}$	$I_R @ V_R$	Standoff Voltage	TC @ $I_{ZT}$	$V_{cl} @ I_{CL}$	ICL
Nom	A	B	mA	Ohms	$\mu$ A	V	% / °C	V	Amps
7.5	±10%	±5%	175	0.7	3000	6.2	0.07	11.3	44.2
8.2			150	0.8	2400	6.8	0.08	12.3	40.6
9.1			150	0.9	100	7.5	0.08	13.3	37.6
10			125	1.0	40	8.2	0.09	14.8	34.0
11			125	1.1	30	9.1	0.10	15.7	31.8
12	±10%	±5%	100	1.1	20	10	0.10	17.0	29.4
13			100	1.2	10	11	0.10	18.9	26.4
15			75	1.2	10	12	0.10	20.9	23.9
16			75	1.3	10	13	0.11	22.9	21.8
18			65	1.3	10	15	0.11	25.6	19.5
20	±10%	±5%	65	1.5	10	16	0.11	28.4	17.6
22			50	1.6	10	18	0.11	31.0	16.1
24			50	1.8	10	20	0.11	33.8	14.8
27			50	2.5	10	22	0.11	38.1	13.1
30			40	4.0	10	24	0.11	42.2	11.8
33	±10%	±5%	40	5.0	10	27	0.11	46.2	10.8
36			30	6.0	10	30	0.11	50.1	10.0
39			30	7.0	10	33	0.11	54.1	9.2
43			35	10	10	36	0.12	60.7	8.2
47			25	12	10	39	0.12	65.5	7.6
51	±10%	±5%	25	14	10	43	0.12	70.8	7.0
56			20	18	10	47	0.12	78.6	6.3
62			20	20	10	51	0.13	86.5	5.8
68			20	22	10	56	0.13	94.4	5.3
75			20	25	10	62	0.13	103.5	4.8
82	±10%	±5%	15	30	10	68	0.13	114	4.3
91			15	40	10	75	0.13	126	3.9
100			12	45	10	82	0.13	139	3.6
110			12	65	10	91	0.13	152	3.3
120			10	90	10	100	0.13	167	3.0
130	±10%	±5%	10	100	10	110	0.13	185	2.7
150			8.0	150	10	120	0.13	204	2.4
160			8.0	180	10	130	0.13	224	2.2
180			5.0	210	10	150	0.13	249	2.0
200			5.0	250	10	160	0.13	276	1.8
220	±10%	±5%	5.0	350	10	180	0.13	305	1.6
240			5.0	450	10	200	0.13	336	1.5
270			5.0	600	10	220	0.13	380	1.3

**NOTES:**

- 1 Consult factory for parts ordering information
- 2 Screening Levels per MIL-PRF-19500, X-Ray shall be performed in lieu of Precap Inspection
- 3 Consult factory for package outline
- 4 Pulsed @ 300 $\mu$ s nominal, other pulse widths will provide different results due to self heating

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