



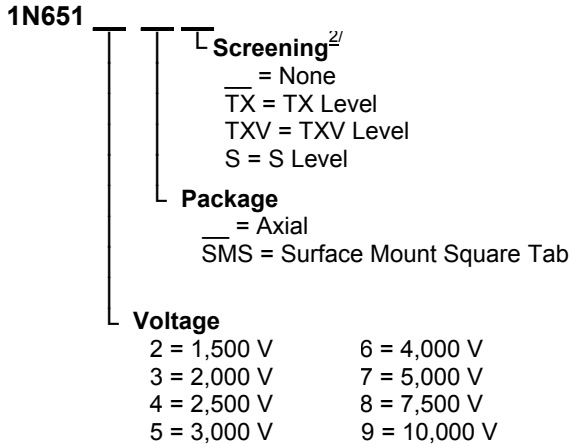
**Solid State Devices, Inc.**

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# 1N6512 – 1N6519 Series

## Designer's Data Sheet

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



**0.5 – 1.5 AMP  
1,500 V – 10,000 V  
ULTRA FAST RECOVERY  
HIGH VOLTAGE RECTIFIER**

### FEATURES:

- Fast recovery: 70 nsec maximum
- PIV to 10 KV
- Hermetically sealed axial and surface mount package
- Void-free ceramic frit glass construction
- High temperature Category I eutectic metallurgical bond
- Excellent thermal shock performance
- For use in high voltage systems
- 175°C maximum operating temperature
- TX, TXV, and Space level screening available <sup>2/</sup>

### MAXIMUM RATINGS <sup>3/</sup>

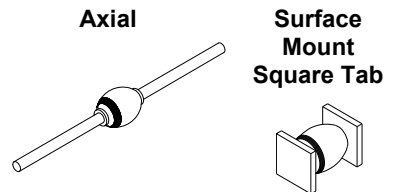
Part Number	V <sub>RWM</sub>	I <sub>FSM</sub>	I <sub>o</sub>		t <sub>RR</sub>	R <sub>θJL1</sub>	R <sub>θJL2</sub>	R <sub>θJEC</sub>
Conditions		t <sub>p</sub> = 8.3 ms	4/	5/	25°C	L = .25" (6.35 mm) (Air)	L = .25" (6.35 mm) (Oil Bath) <sup>6/</sup>	7/
Units	V <sub>DC</sub>	A (pk)	A <sub>DC</sub>	A <sub>DC</sub>	ns	°C/W	°C/W	°C/W
1N6512, SMS	1,500	100	1.5	1.0	70	16	12	4
1N6513, SMS	2,000	100	1.5	1.0	70	16	12	4
1N6514, SMS	2,500	60	1.0	0.65	70	16	12	4
1N6515, SMS	3,000	60	1.0	0.65	70	16	12	4
1N6516, SMS	4,000	40	0.75	0.5	70	16	12	5
1N6517, SMS	5,000	40	0.75	0.5	70	16	12	5
1N6518, SMS	7,500	25	0.5	0.35	70	16	12	5
1N6519, SMS	10,000	25	0.5	0.35	70	16	12	5

### MAXIMUM RATINGS <sup>3/</sup>

	Symbol	Value	Unit
Storage Temperature	T <sub>STG</sub>	-65 to +200	°C
Operating Temperature	T <sub>J</sub>	-65 to +175	°C

**Notes:**

- 1/ For ordering information, price, and availability – Contact factory.
- 2/ Screening based on MIL-PRF-19500/575. Screening flows available on request.
- 3/ Unless otherwise specified, T<sub>A</sub> = 25°C.
- 4/ Derate linearly for air (+55°C ≤ T<sub>A</sub> ≤ +100°C. I<sub>o</sub> at T<sub>A</sub> = +55°C to I<sub>o</sub> at T<sub>A</sub> = +100°C), for oil bath (+80°C ≤ T<sub>L</sub> ≤ +100°C. I<sub>o</sub> at T<sub>L</sub> = +80°C to I<sub>o</sub> at T<sub>A</sub> = +100°C), and for end cap (+100°C ≤ T<sub>A</sub> ≤ +125°C. I<sub>o</sub> at T<sub>EC</sub> = +100°C to I<sub>o</sub> at T<sub>EC</sub> = +125°C).
- 5/ Derate linearly for air (+100°C ≤ T<sub>A</sub> ≤ +175°C. I<sub>o</sub> at T<sub>A</sub> = +100°C to I<sub>o</sub> = 0A at T<sub>A</sub> = +175°C), for oil bath (+100°C ≤ T<sub>L</sub> ≤ +175°C. I<sub>o</sub> at T<sub>L</sub> = +100°C to I<sub>o</sub> = 0A at T<sub>A</sub> = +175°C), and for end cap (+125°C ≤ T<sub>A</sub> ≤ +175°C. I<sub>o</sub> at T<sub>EC</sub> = +125°C to I<sub>o</sub> = 0A at T<sub>A</sub> = +175°C).
- 6/ Oil or fluorocarbon fluid with leads heat sunk at specified L.
- 7/ R<sub>θJEC</sub> is junction to end-cap thermal impedance with "SMS" suffix identification, i.e., 1N6512SMS.





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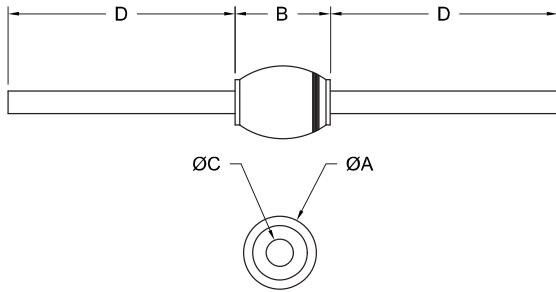
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## ELECTRICAL CHARACTERISTICS

Part Number	$V_{RWM}$	$I_o$	$I_{R1}$	$V_{F1}$	C
Conditions		$T_A = +55^\circ C$	$T_A = 25^\circ C$	@ $I_o$	$V_R = 50V$ $F_O = 1\text{ kHz}$
Units	$V_{DC}$	$A_{DC}$	$\mu A_{DC}$	$V_{(pk)}$	pF
<b>1N6512, SMS</b>	<b>1,500</b>	<b>1.5</b>	<b>1.0</b>	<b>3.5</b>	<b>25</b>
<b>1N6513, SMS</b>	<b>2,000</b>	<b>1.5</b>	<b>1.0</b>	<b>3.5</b>	<b>25</b>
<b>1N6514, SMS</b>	<b>2,500</b>	<b>1.0</b>	<b>1.0</b>	<b>6.0</b>	<b>20</b>
<b>1N6515, SMS</b>	<b>3,000</b>	<b>1.0</b>	<b>1.0</b>	<b>6.0</b>	<b>20</b>
<b>1N6516, SMS</b>	<b>4,000</b>	<b>0.75</b>	<b>1.0</b>	<b>8.0</b>	<b>16</b>
<b>1N6517, SMS</b>	<b>5,000</b>	<b>0.75</b>	<b>1.0</b>	<b>8.0</b>	<b>16</b>
<b>1N6518, SMS</b>	<b>7,500</b>	<b>0.5</b>	<b>1.0</b>	<b>13.0</b>	<b>8</b>
<b>1N6519, SMS</b>	<b>10,000</b>	<b>0.5</b>	<b>1.0</b>	<b>13.0</b>	<b>8</b>

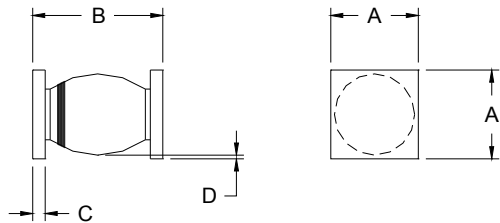
### PACKAGE OUTLINE: Axial



### DIMENSIONS

Part Number	A		B		C		D	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
1N6512	.155	.215	.25	.31	.037	.043	1.0	1.3
1N6513	.155	.215	.25	.31	.037	.043	1.0	1.3
1N6514	.155	.215	.27	.33	.037	.043	1.0	1.3
1N6515	.155	.215	.27	.33	.037	.043	1.0	1.3
1N6516	.155	.215	.29	.35	.037	.043	1.0	1.3
1N6517	.155	.215	.29	.35	.037	.043	1.0	1.3
1N6518	.155	.215	.34	.40	.037	.043	1.0	1.3
1N6519	.155	.215	.34	.40	.037	.043	1.0	1.3

### PACKAGE OUTLINE: Surface Mount Square Tab



### DIMENSIONS

Part Number	A		B		C		D	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
1N6512SMS	.170	.180	.225	.245	.026	.036	1.0	1.3
1N6513SMS	.170	.180	.225	.245	.026	.036	1.0	1.3
1N6514SMS	.170	.180	.245	.265	.026	.036	1.0	1.3
1N6515SMS	.170	.180	.245	.265	.026	.036	1.0	1.3
1N6516SMS	.170	.180	.265	.285	.026	.036	1.0	1.3
1N6517SMS	.170	.180	.265	.285	.026	.036	1.0	1.3
1N6518SMS	.170	.180	.325	.345	.026	.036	1.0	1.3
1N6519SMS	.170	.180	.325	.345	.026	.036	1.0	1.3

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

**DATA SHEET #: RC0170C**

**DOC**

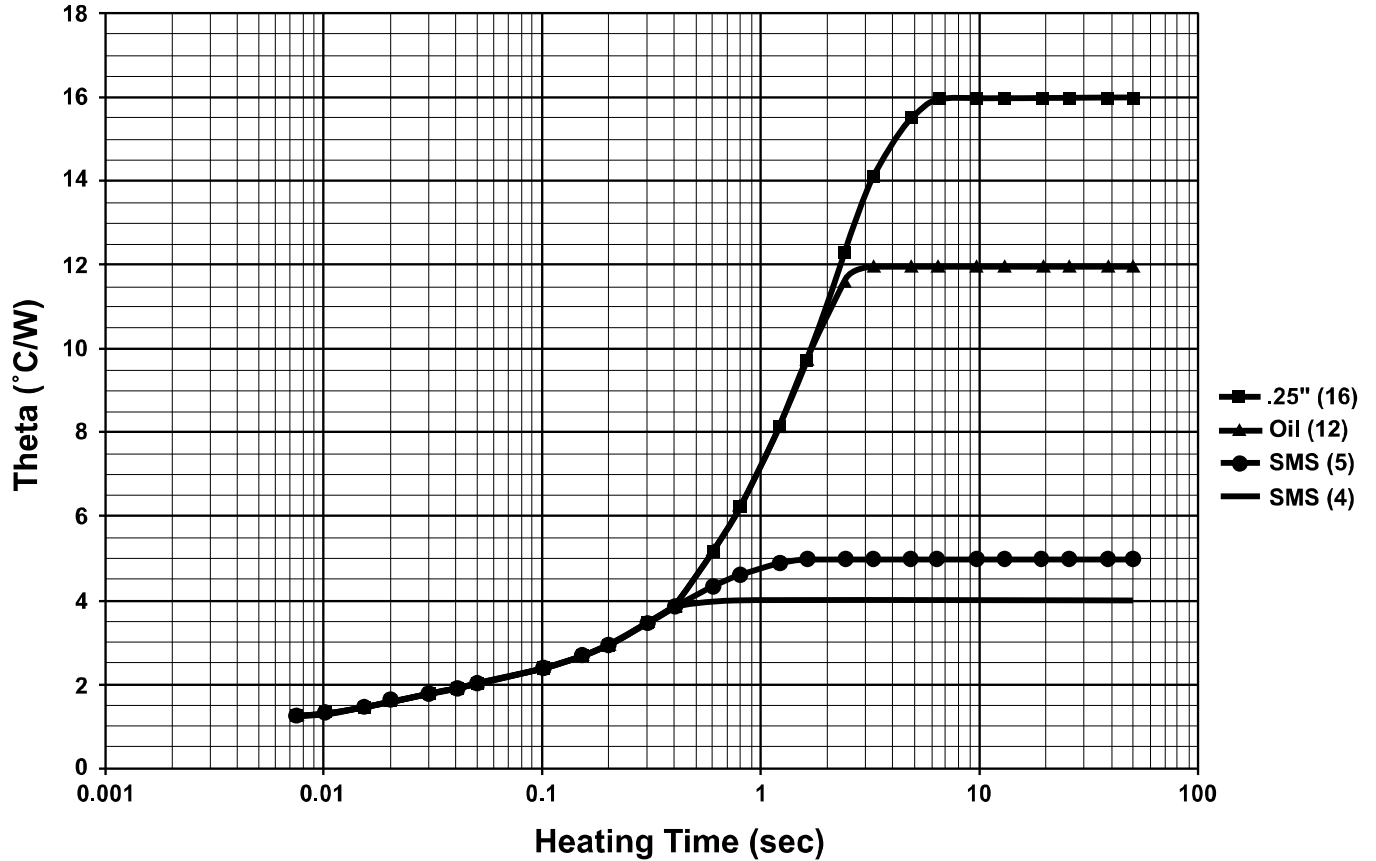


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## Maximum Thermal Impedance



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