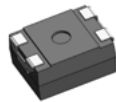


# SMTJ

## 3500 A Transient voltage suppressor



### Product features

- Low slope resistance
- Very low clamping voltage
- Excellent clamping capability
- Sharp breakdown voltage
- Glass passivated junction
- Snapback technology for superior clamping factor
- High temperature reflow soldering: +260 °C /40 s at terminal
- Plastic package meets UL 94 V-0 flammability rating
- UL 1449 recognized.  
File No. : E340782 Guide VZCA2

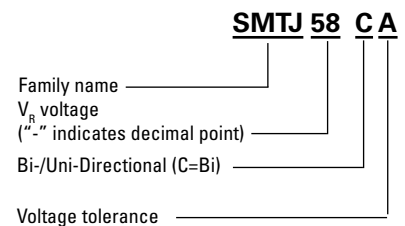
### Applications

- Consumer electronics
- Telecommunications
- Computing and servers
- Ethernet protection
- Industrial automation
- Networking Equipment

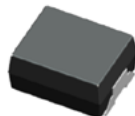
### Environmental compliance and general specifications



### Ordering part number



### PIN configuration



SMT-4

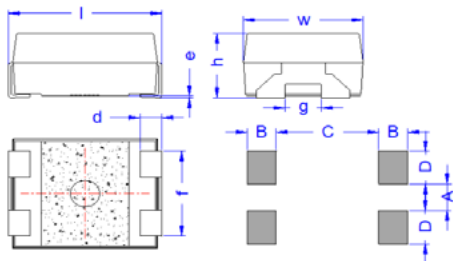


### Absolute maximum ratings

(+25 °C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction temperature range	$T_J$	-55 to +150	°C
Peak pulse current @ 8/20 $\mu$ s	$I_{PP}$	3500	A
Storage temperature range	$T_{STG}$	-55 to +150	°C
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	65	°C/W

### Mechanical parameters, pad layout- mm



Dimension	Millimeters		Inches	
	Minimum	Maximum	Minimum	Maximum
l	10.10	10.70	0.398	0.421
w	7.70	8.30	0.303	0.327
h	4.20	5.00	0.165	0.197
d	1.20	1.80	0.047	0.071
e	0	0.30	0	0.012
f	6.20	6.60	0.244	0.260
g	2.40	2.60	0.094	0.102
A		2.00		0.079
B	2.00		0.079	
C		7.00		0.276
D	2.50		0.098	

### Part marking

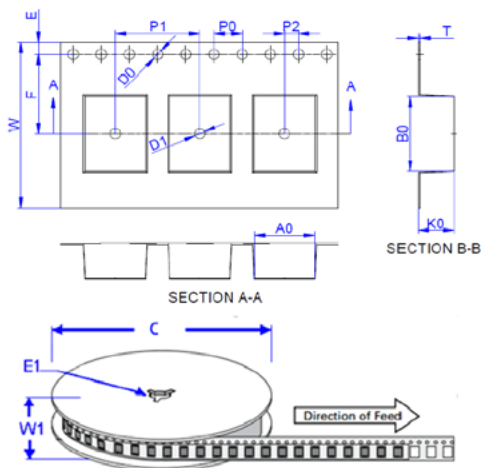


Part marking: xxxx = Date code  
yyyyyy- Refer to marking designator listed in Electrical Characteristics table

### Packaging information (mm)

Drawing not to scale.

Supplied in tape and reel packaging, 1,000 parts per 13" diameter reel (EIA-481 compliant)



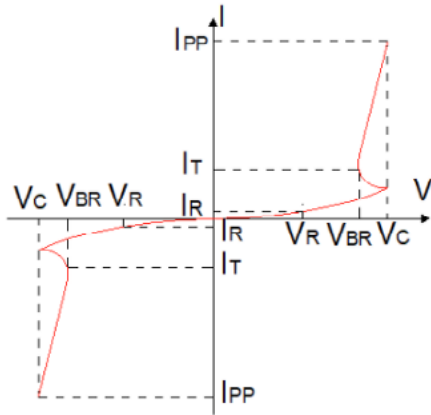
Dimensions	Millimeters	Inches
A0	8.50 ± 0.3	0.335 ± 0.012
B0	10.80 ± 0.3	0.425 ± 0.012
C	330.0	13.0
D0	1.50 ± 0.1	0.059 ± 0.004
D1	1.50 ± 0.1	0.059 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	11.50 ± 0.2	0.453 ± 0.008
K0	5.10 ± 0.1	0.201 ± 0.004
P0	4.00 ± 0.2	0.157 ± 0.008
P1	12.00 ± 0.2	0.472 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
T	0.30 ± 0.05	0.012 ± 0.002
W	24.0 ± 0.3	0.945 ± 0.012
W1	28.5 ± 2.0	1.122 ± 0.079

### Electrical characteristics (+25 °C)

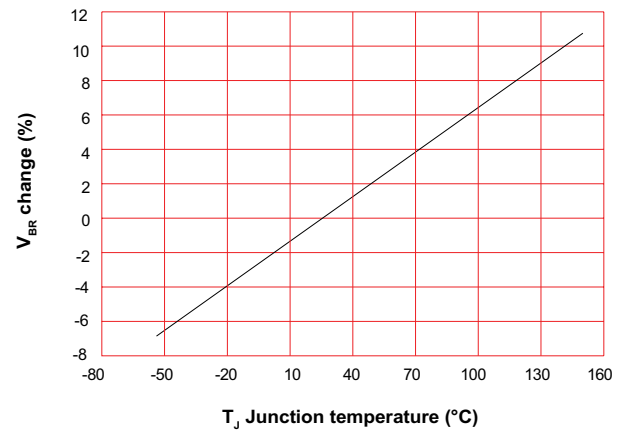
Part number Bi-polar	Marking Bi	$V_R$ (V)	$V_{BR} @ I_T$		$I_T$ (mA)	$I_R @ V_R$ ( $\mu$ A)	$V_C @ 8/20\mu s$	$V_C @ 8/20\mu s$	$C_o$ typ (pf)
			min(V)	max(V)			3000 A (V)	3500 A (V)	
SMTJ58CAT	TJ58CA	58	64	70	10	5	110	120	3000
SMTJ66CAT	TJ66CA	66	72	80	10	5	120	130	2500
SMTJ76CAT	TJ76CA	76	85	95	10	5	140	150	2200
SMTJ86CAT	TJ86CA	86	95	105	10	5	157	170	1900

**Ratings and V-I characteristic curves** (+25 °C unless otherwise noted)

**V-I curve characteristics  
(Bi-directional with negative resistance)**



**Typical V<sub>BR</sub> vs. junction temperature**



Surge waveform: 8/20 μs

V<sub>R</sub>: Stand-off voltage – Maximum voltage that can be applied

V<sub>BR</sub>: Breakdown voltage

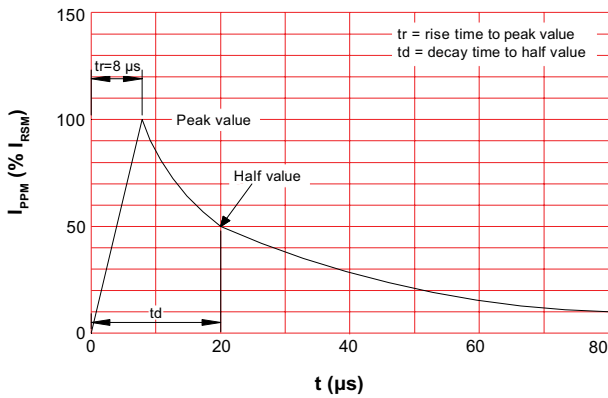
V<sub>C</sub>: Clamping voltage – Peak voltage measured across the suppressor at a specified I<sub>PP</sub>

I<sub>R</sub>: Reverse leakage current

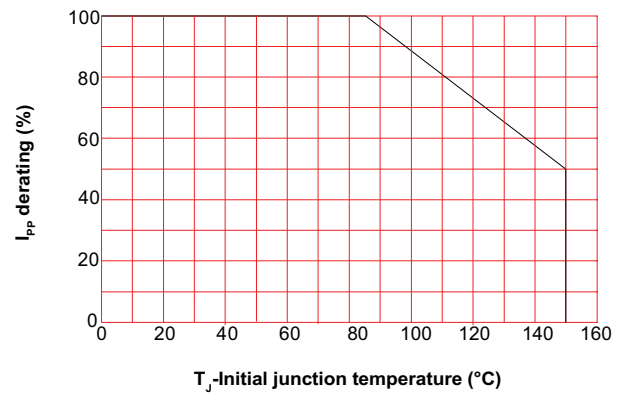
I<sub>T</sub>: Test current

V<sub>F</sub>: Forward voltage drop for Uni-directional TVS diode

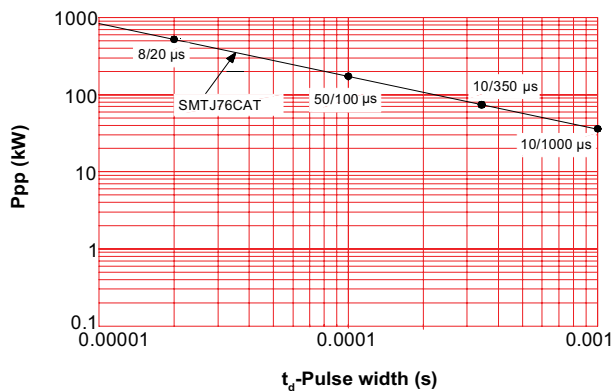
**Pulse waveform**



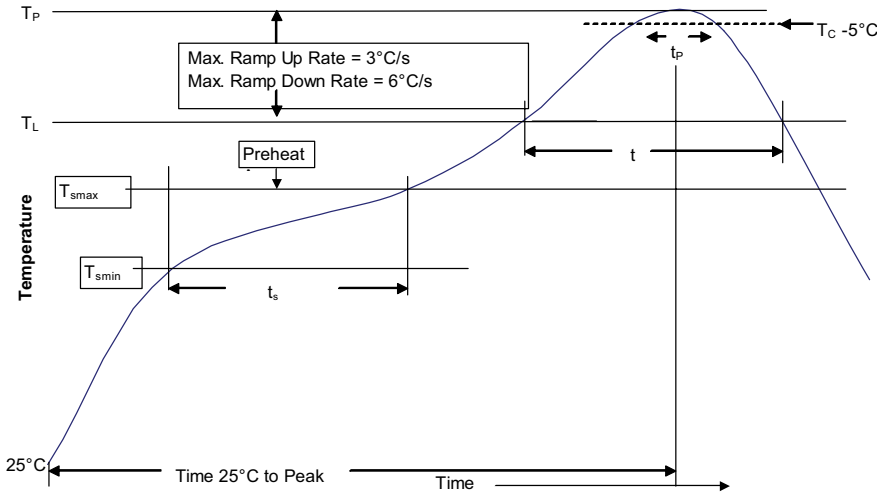
**Pulse derating curve**



**Peak pulse power rating curve**



**Solder reflow profile**



**Table 1 - Standard SnPb solder ( $T_C$ )**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

**Table 2 - Lead (Pb) free solder ( $T_C$ )**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

**Reference J-STD-020**

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	<ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul>	<ul style="list-style-type: none"> <li>100 °C</li> <li>150 °C</li> <li>60-120 seconds</li> </ul>
Ramp up rate $T_L$ to $T_p$	3 °C/ second max.	3 °C/ second max.
Liquidous temperature ( $T_L$ ) Time ( $t_L$ ) maintained above $T_L$	<ul style="list-style-type: none"> <li>183 °C</li> <li>60-150 seconds</li> </ul>	<ul style="list-style-type: none"> <li>217 °C</li> <li>60-150 seconds</li> </ul>
Peak package body temperature ( $T_p$ )*	Table 1	Table 2
Time ( $t_p$ )* within 5 °C of the specified classification temperature ( $T_C$ )	20 seconds*	40 seconds*
Ramp-down rate ( $T_p$ to $T_L$ )	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

\* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

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