

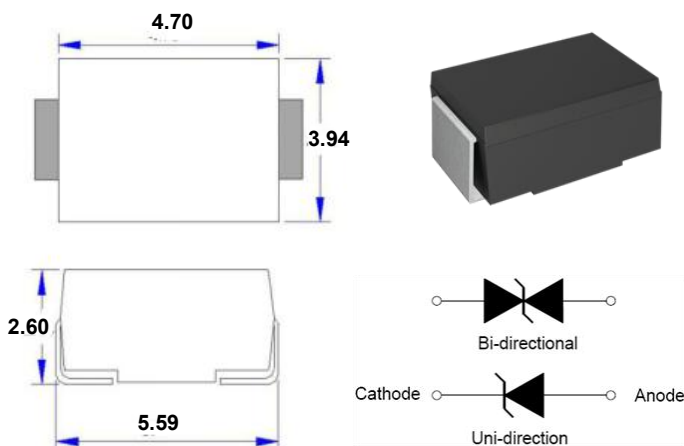
## Description

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

## Features

- Glass passivated or planar junction
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Low profile package and low inductance
- 1000W Peak Pulse power capability at 10×1000μs waveform.
- Fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  min.
- High temperature soldering: 260°C/10s at terminals.
- Plastic package has Underwriters Laboratory Flammability 94V-0.
- For surface mounted applications in order to optimize board space.

## Dimensions & Symbol (Unit: mm Max)



## Mechanical Characteristics

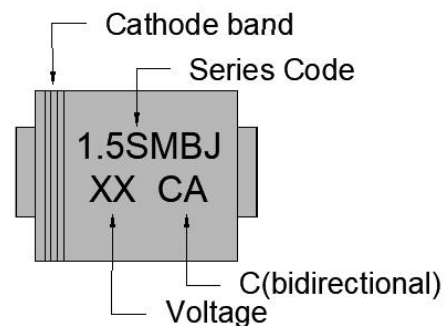
Package: SMB/DO-214AA

- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Polarity: Color band denotes cathode except bi-directional models
- Standard Packaging: 12mm tape (EIA STD RS-481)
- Weight: 0.10g
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

- I/O Interface.
- AC/DC Power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

## Marking Information



## Ordering information

Out line	Reel (pcs)	Per carton (pcs)	Reel diameters (mm)
Taping	3K	48K	330

**Electrical Characteristics (T<sub>A</sub>=25°C)**

Part Number		Marking		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> <sup>①</sup>
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
1.5SMBJ6.8A	1.5SMBJ6.8CA	1.5SMBJ6.8A	1.5SMBJ6.8CA	5.80	1000	6.45	7.14	10	10.5	142.86
1.5SMBJ7.5A	1.5SMBJ7.5CA	1.5SMBJ7.5A	1.5SMBJ7.5CA	6.40	500	7.13	7.88	10	11.3	132.74
1.5SMBJ8.2A	1.5SMBJ8.2CA	1.5SMBJ8.2A	1.5SMBJ8.2CA	7.02	200	7.79	8.61	10	12.1	123.97
1.5SMBJ9.1A	1.5SMBJ9.1CA	1.5SMBJ9.1A	1.5SMBJ9.1CA	7.78	50	8.65	9.50	1	13.4	111.94
1.5SMBJ10A	1.5SMBJ10CA	1.5SMBJ10A	1.5SMBJ10CA	8.55	10	9.50	10.5	1	14.5	103.45
1.5SMBJ11A	1.5SMBJ11CA	1.5SMBJ11A	1.5SMBJ11CA	9.40	1	10.5	11.60	1	15.6	96.15
1.5SMBJ12A	1.5SMBJ12CA	1.5SMBJ12A	1.5SMBJ12CA	10.20	1	11.40	12.60	1	16.7	89.82
1.5SMBJ13A	1.5SMBJ13CA	1.5SMBJ13A	1.5SMBJ13CA	11.10	1	12.40	13.70	1	18.2	82.42
1.5SMBJ15A	1.5SMBJ15CA	1.5SMBJ15A	1.5SMBJ15CA	12.80	1	14.30	15.80	1	21.2	70.75
1.5SMBJ16A	1.5SMBJ16CA	1.5SMBJ16A	1.5SMBJ16CA	13.60	1	15.20	16.80	1	22.5	66.67
1.5SMBJ18A	1.5SMBJ18CA	1.5SMBJ18A	1.5SMBJ18CA	15.30	1	17.10	18.90	1	25.2	59.52
1.5SMBJ20A	1.5SMBJ20CA	1.5SMBJ20A	1.5SMBJ20CA	17.10	1	19.00	21.00	1	27.7	54.15
1.5SMBJ22A	1.5SMBJ22CA	1.5SMBJ22A	1.5SMBJ22CA	18.80	1	20.90	23.10	1	30.6	49.02
1.5SMBJ24A	1.5SMBJ24CA	1.5SMBJ24A	1.5SMBJ24CA	20.50	1	22.80	25.20	1	33.2	45.18
1.5SMBJ27A	1.5SMBJ27CA	1.5SMBJ27A	1.5SMBJ27CA	23.10	1	25.70	28.40	1	37.5	40.00
1.5SMBJ30A	1.5SMBJ30CA	1.5SMBJ30A	1.5SMBJ30CA	25.60	1	28.50	31.50	1	41.4	36.23
1.5SMBJ33A	1.5SMBJ33CA	1.5SMBJ33A	1.5SMBJ33CA	28.20	1	31.40	34.70	1	45.7	32.82
1.5SMBJ36A	1.5SMBJ36CA	1.5SMBJ36A	1.5SMBJ36CA	30.80	1	34.20	37.80	1	49.9	30.06
1.5SMBJ39A	1.5SMBJ39CA	1.5SMBJ39A	1.5SMBJ39CA	33.30	1	37.10	41.00	1	53.9	27.83
1.5SMBJ43A	1.5SMBJ43CA	1.5SMBJ43A	1.5SMBJ43CA	36.80	1	40.90	45.20	1	59.3	25.30
1.5SMBJ47A	1.5SMBJ47CA	1.5SMBJ47A	1.5SMBJ47CA	40.20	1	44.70	49.40	1	64.8	23.15
1.5SMBJ51A	1.5SMBJ51CA	1.5SMBJ51A	1.5SMBJ51CA	43.60	1	48.50	53.60	1	70.1	21.40
1.5SMBJ56A	1.5SMBJ56CA	1.5SMBJ56A	1.5SMBJ56CA	47.80	1	53.20	58.00	1	77.0	19.48
1.5SMBJ62A	1.5SMBJ62CA	1.5SMBJ62A	1.5SMBJ62CA	53.00	1	58.90	65.10	1	85.0	17.65

① Surge waveform: 10/1000μs

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>

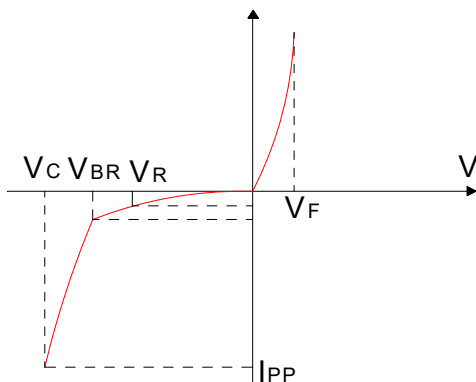
I<sub>R</sub>: Reverse Leakage Current

**Absolute Maximum Ratings** ( $T_A=25^\circ\text{C}$ , RH=45%-75%, unless otherwise noted)

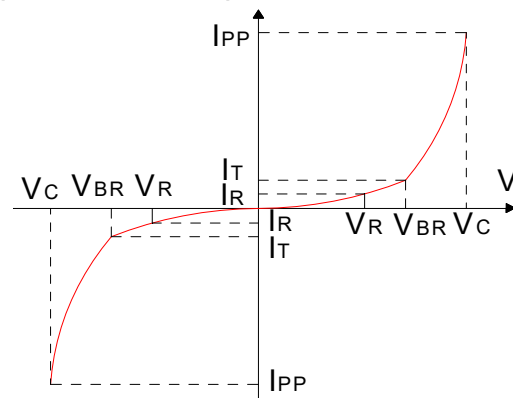
Parameter	Symbol	Value	Unit
Storage temperature range	$T_{stg}$	-55 to +150	$^\circ\text{C}$
Operating junction temperature range	$T_j$	-55 to +150	$^\circ\text{C}$
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000 $\mu\text{s}$ waveform	$P_{PP}$	1500	W
Maximum Instantaneous Forward Voltage at 50A for Unidirectional	$V_F$	5.0	V

**Ratings And V-I Characteristics curves** ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

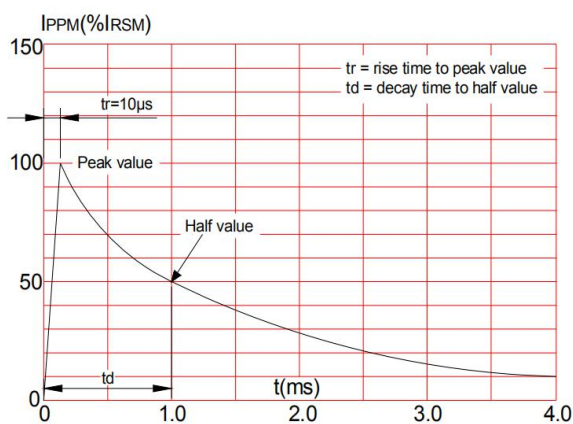
**FIG.1:V- I curve characteristics (Uni-directional)**



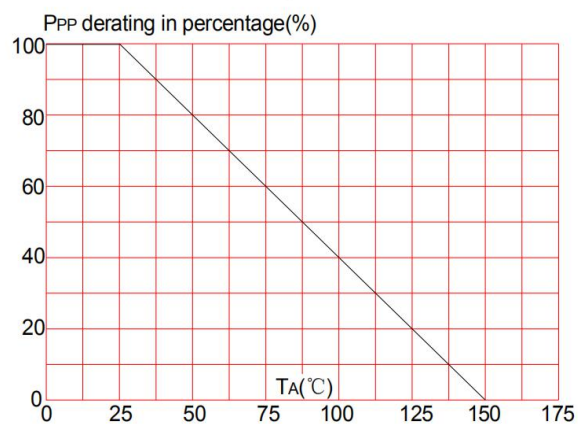
**FIG.2:V- I curve characteristics (Bi-directional)**



**FIG.3: Pulse waveform**

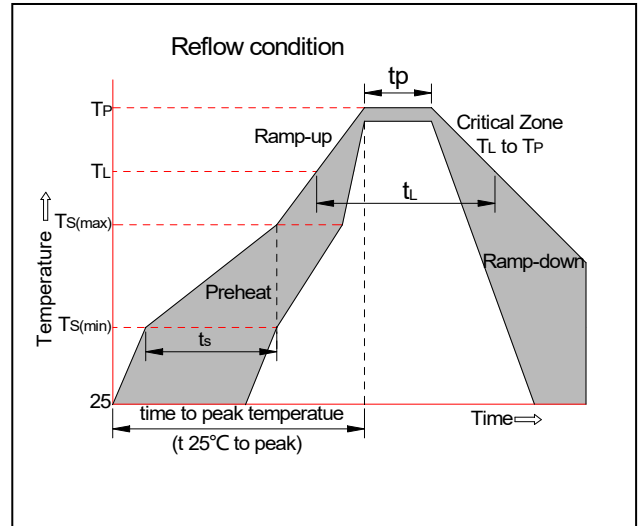


**FIG.4: Pulse derating curve**

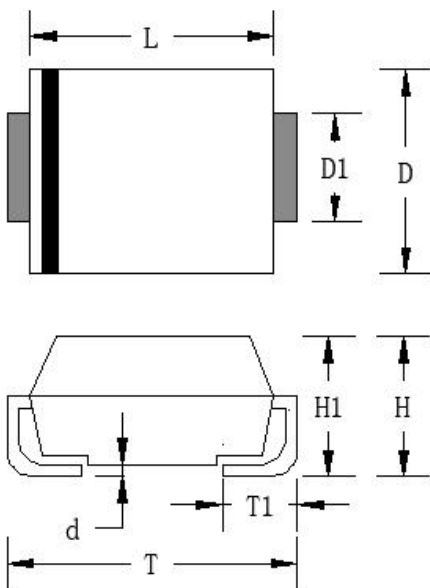


**Soldering Parameters**

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C

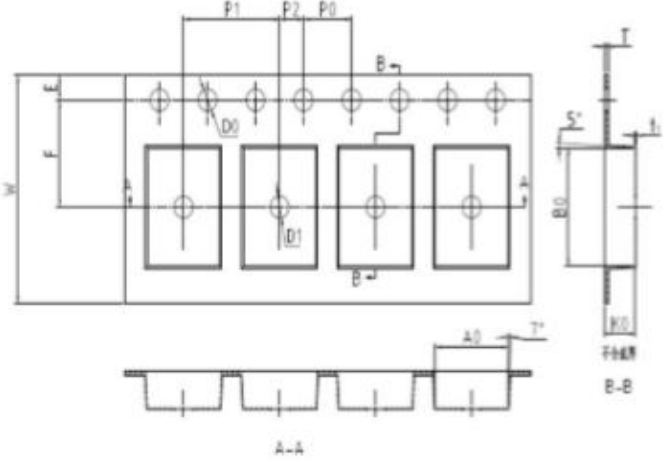
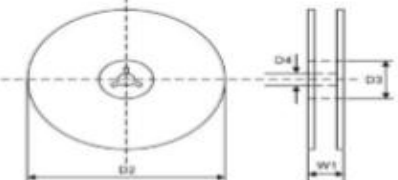


**Package Mechanical data**



Ref.(mm)	Millimeters	
	Min.	Max.
D	3.40	3.94
D1	1.90	2.10
L	4.22	4.70
T	5.21	5.59
T1	0.90	1.42
d	0	0.23
H	1.95	2.60
H1	2.0	2.34

Tape & Reel specification - SMB

Symbol	Spec	
W	12±0.2	 <p>Diagram showing the layout of four SMB components on a carrier tape. Dimensions include P1, P2, P0, B0, A0, T, S', and E. Cross-sections A-A and B-B are also shown.</p>
E	1.75±0.1	
F	5.5±0.05	
D0	1.55±0.05	
D1	1.5±0.1	
P0	4.0±0.1	
P1	8.0±0.1	
P2	2.0±0.05	
T	0.23±0.02	
A0	2.79±0.1	
B0	5.74±0.1	
K0	2.46±0.1	
T1	0.05 以上	
D5	Ø330±2.0	
D6	Ø13.5±0.5	
H	2.5±1.0	
W2	16±2.0	
Quantity:3000PCS		<p>7" Reel</p>  <p>Diagram of a 7-inch reel showing dimensions D2, D3, D4, and W1.</p>
D2	Ø178.0±2.0	
D3	Ø50Min.	
D4	Ø13.0±0.5	
W1	16.0±2.0	
Quantity:500PCS		

Contact information

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