

DESCRIPTION:

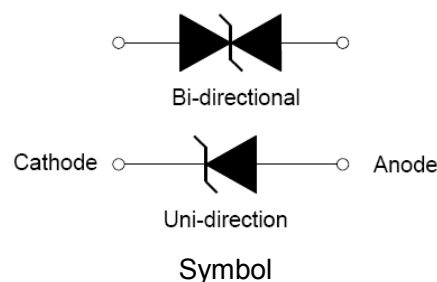
TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

FEATURES:

- ✧ Glass passivated or planar junction
- ✧ Excellent clamping capability
- ✧ Repetition rate (duty cycle): 0.01%
- ✧ Typical I_R less than $1\mu A$ above 10V.
- ✧ Low profile package and low inductance
- ✧ 600W Peak Pulse power capability at $10 \times 1000\mu s$ waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature soldering: $260^\circ C/10s$ at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ For surface mounted applications in order to optimize board space
- ✧ AEC-Q101 qualified.



SMB



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ C$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +125	$^\circ C$
Operating junction temperature range	T_j	-55 to +125	$^\circ C$
Steady state power dissipation at $T_L=75^\circ C$	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation on 10/1000 μs waveform	P_{PP}	600	W
Maximum Instantaneous Forward Voltage at 50A for Unidirectional	V_F	5.0	V

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number		V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ^①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
S-SMBJ3.3A	S-SMBJ3.3CA	3.3	200	4.1	4.6	10	7.3	50
S-SMBJ5.0A	S-SMBJ5.0CA	5.0	100	6.40	7.00	10	9.2	65.2
S-SMBJ6.0A	S-SMBJ6.0CA	6.0	100	6.67	7.37	10	10.3	58.3
S-SMBJ6.5A	S-SMBJ6.5CA	6.5	50	7.22	7.98	10	11.2	53.6
S-SMBJ7.0A	S-SMBJ7.0CA	7.0	50	7.78	8.60	10	12.0	50.0
S-SMBJ7.5A	S-SMBJ7.5CA	7.5	50	8.33	9.21	1	12.9	46.5
S-SMBJ8.0A	S-SMBJ8.0CA	8.0	20	8.89	9.83	1	13.6	44.1
S-SMBJ8.5A	S-SMBJ8.5CA	8.5	10	9.44	10.40	1	14.4	41.7
S-SMBJ9.0A	S-SMBJ9.0CA	9.0	5	10.00	11.10	1	15.4	39.0
S-SMBJ10A	S-SMBJ10CA	10	2	11.10	12.30	1	17.0	35.3
S-SMBJ11A	S-SMBJ11CA	11	1	12.20	13.50	1	18.2	33.0
S-SMBJ12A	S-SMBJ12CA	12	1	13.30	14.70	1	19.9	30.2
S-SMBJ13A	S-SMBJ13CA	13	1	14.40	15.90	1	21.5	27.9
S-SMBJ14A	S-SMBJ14CA	14	1	15.60	17.20	1	23.2	25.9
S-SMBJ15A	S-SMBJ15CA	15	1	16.70	18.50	1	24.4	24.6
S-SMBJ16A	S-SMBJ16CA	16	1	17.80	19.70	1	26.0	23.1
S-SMBJ17A	S-SMBJ17CA	17	1	18.90	20.90	1	27.6	21.8
S-SMBJ18A	S-SMBJ18CA	18	1	20.00	22.10	1	29.2	20.6
S-SMBJ20A	S-SMBJ20CA	20	1	22.20	24.50	1	32.4	18.6
S-SMBJ22A	S-SMBJ22CA	22	1	24.40	26.90	1	35.5	16.9
S-SMBJ24A	S-SMBJ24CA	24	1	26.70	29.50	1	38.9	15.4
S-SMBJ26A	S-SMBJ26CA	26	1	28.90	31.90	1	42.1	14.3
S-SMBJ28A	S-SMBJ28CA	28	1	31.10	34.40	1	45.4	13.2
S-SMBJ30A	S-SMBJ30CA	30	1	33.30	36.80	1	48.4	12.4
S-SMBJ33A	S-SMBJ33CA	33	1	36.70	40.60	1	53.3	11.3
S-SMBJ36A	S-SMBJ36CA	36	1	40.00	44.20	1	58.1	10.4
S-SMBJ40A	S-SMBJ40CA	40	1	44.40	49.10	1	64.5	9.3
S-SMBJ43A	S-SMBJ43CA	43	1	47.80	52.80	1	69.4	8.7
S-SMBJ45A	S-SMBJ45CA	45	1	50.00	55.30	1	72.7	8.3
S-SMBJ48A	S-SMBJ48CA	48	1	53.30	58.90	1	77.4	7.8
S-SMBJ51A	S-SMBJ51CA	51	1	56.70	62.70	1	82.4	7.3

ELECTRICAL CHARACTERISTICS (T_A=25°C, continued)

Part Number		V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ^①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
S-SMBJ54A	S-SMBJ54CA	54	1	60.00	66.30	1	87.1	6.9
S-SMBJ58A	S-SMBJ58CA	58	1	64.40	71.20	1	93.6	6.4
S-SMBJ60A	S-SMBJ60CA	60	1	66.70	73.70	1	96.8	6.2
S-SMBJ64A	S-SMBJ64CA	64	1	71.10	78.60	1	103.0	5.8
S-SMBJ70A	S-SMBJ70CA	70	1	77.80	86.00	1	113.0	5.3
S-SMBJ75A	S-SMBJ75CA	75	1	83.30	92.10	1	121.0	5.0
S-SMBJ78A	S-SMBJ78CA	78	1	86.70	95.80	1	126.0	4.8
S-SMBJ85A	S-SMBJ85CA	85	1	94.40	104.0	1	137.0	4.4
S-SMBJ90A	S-SMBJ90CA	90	1	100.0	111.0	1	146.0	4.1
S-SMBJ100A	S-SMBJ100CA	100	1	111.0	123.0	1	162.0	3.7
S-SMBJ110A	S-SMBJ110CA	110	1	122.0	135.0	1	177.0	3.4
S-SMBJ120A	S-SMBJ120CA	120	1	133.0	147.0	1	193.0	3.1
S-SMBJ130A	S-SMBJ130CA	130	1	144.0	159.0	1	209.0	2.9
S-SMBJ150A	S-SMBJ150CA	150	1	167.0	185.0	1	243.0	2.5
S-SMBJ160A	S-SMBJ160CA	160	1	178.0	197.0	1	259.0	2.3
S-SMBJ170A	S-SMBJ170CA	170	1	189.0	209.0	1	275.0	2.2
S-SMBJ180A	S-SMBJ180CA	180	1	201.0	222.0	1	292.0	2.1
S-SMBJ190A	S-SMBJ190CA	190	1	211.0	234.0	1	307.0	2.0
S-SMBJ200A	S-SMBJ200CA	200	1	224.0	247.0	1	324.0	1.9
S-SMBJ210A	S-SMBJ210CA	210	1	233.0	258.0	1	337.0	1.8
S-SMBJ220A	S-SMBJ220CA	220	1	246.0	272.0	1	356.0	1.7
S-SMBJ250A	S-SMBJ250CA	250	1	279.0	309.0	1	405.0	1.5
S-SMBJ300A	S-SMBJ300CA	300	1	335.0	371.0	1	486.0	1.3
S-SMBJ350A	S-SMBJ350CA	350	1	391.0	432.0	1	567.0	1.1
S-SMBJ400A	S-SMBJ400CA	400	1	447.0	494.0	1	648.0	0.9
S-SMBJ440A	S-SMBJ440CA	440	1	492.0	543.0	1	713.0	0.8

① Surge waveform: 10/1000μs

V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown Voltage

V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

I_R: Reverse Leakage Current

ORDERING INFORMATION

S-SMBJ	xx	C	A
600W SMB Series	V_R Voltage	C: Bi-directional	5% V_{BR} Voltage tolerance

RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, unless otherwise noted)

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

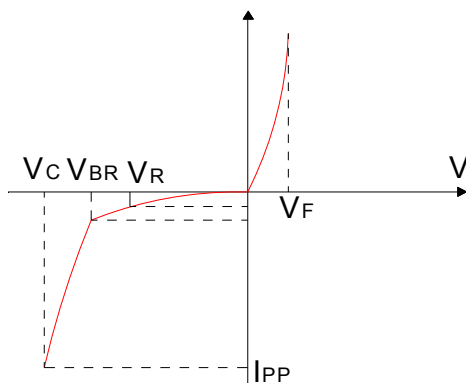


FIG.2:V- I curve characteristics (Bi-directional)

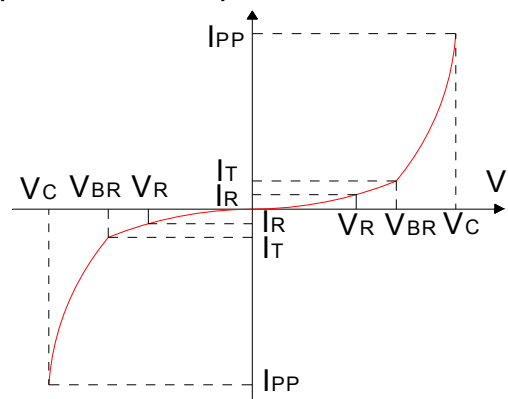


FIG.3: Pulse waveform

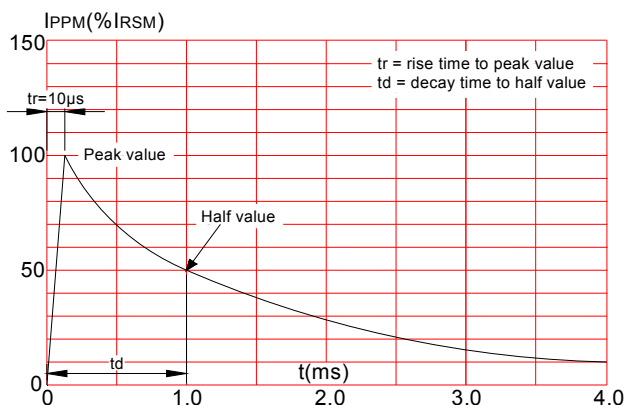
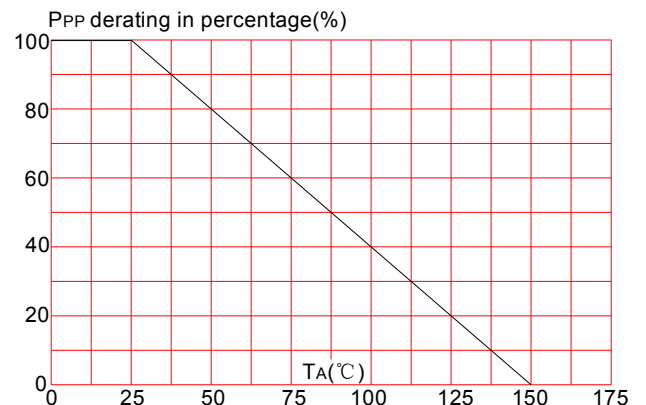
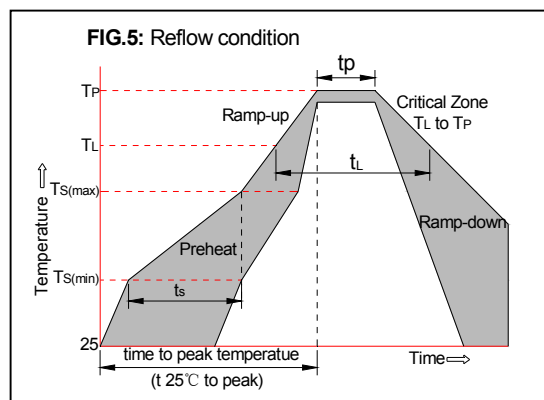


FIG.4: Pulse derating curve

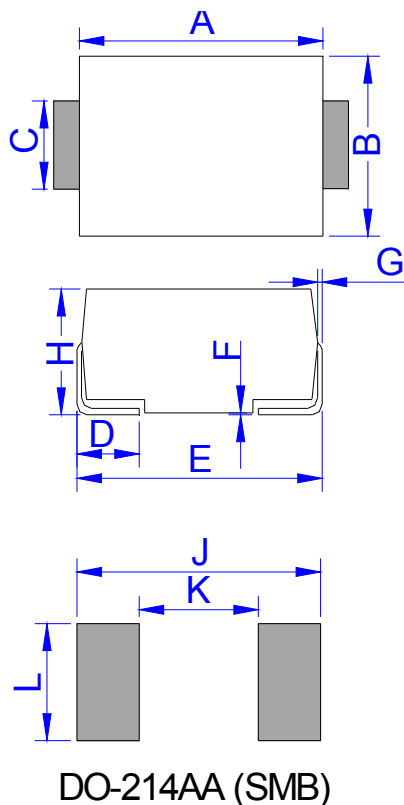


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	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

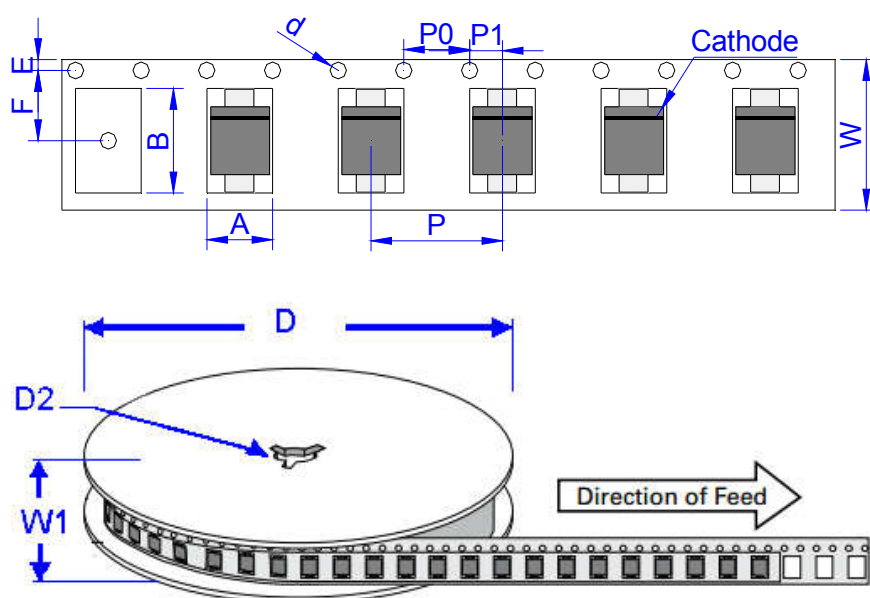


PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.75	0.167	0.187
B	3.30	3.94	0.130	0.155
C	1.85	2.21	0.073	0.087
D	0.76	1.52	0.030	0.060
E	5.08	5.59	0.200	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.11	2.44	0.083	0.096
J	6.80		0.270	
K		2.60		0.100
L	2.40		0.090	

TAPE AND REEL SPECIFICATION-SMB



Ref.	Dimensions	
	Millimeters	Inches
A	3.76 ± 0.2	0.144 ± 0.012
B	5.69 ± 0.2	0.244 ± 0.012
d	1.5 ± 0.25	0.059 ± 0.004
D	330.0	13.0
D2	13 ± 1	0.512 ± 0.039
E	1.75 ± 0.2	0.059 ± 0.008
F	5.5 ± 0.1	0.222 ± 0.008
P	8.0 ± 0.2	0.315 ± 0.008
P0	4.0 ± 0.2	0.157 ± 0.008
P1	2.0 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.3	0.472 ± 0.008
W1	16.8 ± 2.0	0.661 ± 0.079

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)
TAPING	3,000	48,000	330