

Surface Mount Transient Voltage Suppressors

10SMBJ Series 5.0 To 200V 1000W

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.

Working Voltage: 5.0 to 200 V

Peak Pulse Power: 1000 W

Features

- ◆ Glass passivated chip
- ◆ 1000 W peak pulse power capability with a 10/1000 us waveform
- ◆ Repetitive rate (duty cycle): 0.01 %
- ◆ Typical IR less than 1 μ A above 10V.
- ◆ Excellent clamping capability
- ◆ Very fast response time
- ◆ High temperature soldering: 260°C/10s at terminals.
- ◆ RoHS compliant

Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.



Mechanical Data

- ◆ Case: Molded plastic
- ◆ Epoxy: UL 94V-0 rate flame retardant
- ◆ Lead: Solderable per MIL-STD-750, method 2026 guaranteed
- ◆ Polarity: Color band denotes TVS cathode end
- ◆ Mounting position: Any

Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Peak power dissipation with a 10/1000us waveform	P_{PPM}	1000	W
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$	P_D	5.0	W
Peak pulse current with a 10/1000us waveform	I_{PP}	See Next Table	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +150	$^\circ\text{C}$
Maximum Instantaneous Forward Voltage at 50A for Unidirectional	V_F	5.0	V

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number		Marking		Reverse Stand-Off Voltage $V_{RWM}(V)$	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_{RWM} (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
10SMBJ5.0A	10SMBJ5.0CA	A5	C5	5.0	6.40	7.00	10	9.2	108.7	200
10SMBJ6.0A	10SMBJ6.0CA	A6	C6	6.0	6.67	7.37	10	10.3	97.1	200
10SMBJ6.5A	10SMBJ6.5CA	A6V	C6V	6.5	7.22	7.98	10	11.2	89.3	100
10SMBJ7.0A	10SMBJ7.0CA	A7	C7	7.0	7.78	8.60	10	12.0	83.4	80
10SMBJ7.5A	10SMBJ7.5CA	A7V	C7V	7.5	8.33	9.21	1	12.9	77.6	50
10SMBJ8.0A	10SMBJ8.0CA	A8	C8	8.0	8.89	9.83	1	13.6	73.6	20
10SMBJ8.5A	10SMBJ8.5CA	AV8	CV8	8.5	9.44	10.40	1	14.4	69.5	10
10SMBJ9.0A	10SMBJ9.0CA	A9	C9	9.0	10.00	11.10	1	15.4	65.0	5
10SMBJ10A	10SMBJ10CA	A10	C10	10.0	11.10	12.30	1	17.0	58.9	2
10SMBJ11A	10SMBJ11CA	A11	C11	11.0	12.20	13.50	1	18.2	55.0	1
10SMBJ12A	10SMBJ12CA	A12	C12	12.0	13.30	14.70	1	19.9	50.3	1
10SMBJ13A	10SMBJ13CA	A13	C13	13.0	14.40	15.90	1	21.5	46.6	1
10SMBJ14A	10SMBJ14CA	A14	C14	14.0	15.60	17.20	1	23.2	43.1	1
10SMBJ15A	10SMBJ15CA	A15	C15	15.0	16.70	18.50	1	24.4	41.0	1
10SMBJ16A	10SMBJ16CA	A16	C16	16.0	17.80	19.70	1	26.0	38.5	1
10SMBJ17A	10SMBJ17CA	A17	C17	17.0	18.90	20.90	1	27.6	36.3	1
10SMBJ18A	10SMBJ18CA	A18	C18	18.0	20.00	22.10	1	29.2	34.3	1
10SMBJ20A	10SMBJ20CA	A20	C20	20.0	22.20	24.50	1	32.4	30.9	1
10SMBJ22A	10SMBJ22CA	A22	C22	22.0	24.40	26.90	1	35.5	28.2	1
10SMBJ24A	10SMBJ24CA	A24	C24	24.0	26.70	29.50	1	38.9	25.7	1
10SMBJ26A	10SMBJ26CA	A26	C26	26.0	28.90	31.90	1	42.1	23.8	1
10SMBJ28A	10SMBJ28CA	A28	C28	28.0	31.10	34.40	1	45.4	22.1	1
10SMBJ30A	10SMBJ30CA	A30	C30	30.0	33.30	36.80	1	48.4	20.7	1
10SMBJ33A	10SMBJ33CA	A33	C33	33.0	36.70	40.60	1	53.3	18.8	1
10SMBJ36A	10SMBJ36CA	A36	C36	36.0	40.00	44.20	1	58.1	17.3	1
10SMBJ40A	10SMBJ40CA	A40	C40	40.0	44.40	49.10	1	64.5	15.5	1
10SMBJ43A	10SMBJ43CA	A43	C43	43.0	47.80	52.80	1	69.4	14.4	1
10SMBJ45A	10SMBJ45CA	A45	C45	45.0	50.00	55.30	1	72.7	13.8	1
10SMBJ48A	10SMBJ48CA	A48	C48	48.0	53.30	58.90	1	77.4	13.0	1
10SMBJ51A	10SMBJ51CA	A51	C51	51.0	56.70	62.70	1	82.4	12.2	1
10SMBJ54A	10SMBJ54CA	A54	C54	54.0	60.00	66.30	1	87.1	11.5	1
10SMBJ58A	10SMBJ58CA	A58	C58	58.0	64.40	71.20	1	93.6	10.7	1
10SMBJ60A	10SMBJ60CA	A60	C60	60.0	66.70	73.70	1	96.8	10.4	1
10SMBJ64A	10SMBJ64CA	A64	C64	64.0	71.10	78.60	1	103.0	9.7	1
10SMBJ70A	10SMBJ70CA	A70	C70	70.0	77.80	86.00	1	113.0	8.9	1
10SMBJ75A	10SMBJ75CA	A75	C75	75.0	83.30	92.10	1	121.0	8.3	1
10SMBJ78A	10SMBJ78CA	A78	C78	78.0	86.70	95.80	1	126.0	8.0	1
10SMBJ85A	10SMBJ85CA	A85	C85	85.0	94.40	104.00	1	137.0	7.3	1
10SMBJ90A	10SMBJ90CA	A90	C90	90.0	100.00	111.00	1	146.0	6.9	1
10SMBJ100A	10SMBJ100CA	A100	C100	100.0	111.00	123.00	1	162.0	6.2	1
10SMBJ110A	10SMBJ110CA	A110	C110	110.0	122.00	135.00	1	177.0	5.7	1
10SMBJ120A	10SMBJ120CA	A120	C120	120.0	133.00	147.00	1	193.0	5.2	1
10SMBJ130A	10SMBJ130CA	A130	C130	130.0	144.00	159.00	1	209.0	4.8	1
10SMBJ150A	10SMBJ150CA	A150	C150	150.0	167.00	185.00	1	243.0	4.2	1
10SMBJ160A	10SMBJ160CA	A160	C160	160.0	178.00	197.00	1	259.0	3.9	1
10SMBJ170A	10SMBJ170CA	A170	C170	170.0	189.00	209.00	1	275.0	3.7	1
10SMBJ180A	10SMBJ180CA	A180	C180	180.0	201.00	220.00	1	292.0	3.5	1
10SMBJ190A	10SMBJ190CA	A190	C190	190.0	211.00	234.00	1	307.0	3.3	1
10SMBJ200A	10SMBJ200CA	A200	C200	200.0	224.00	247.00	1	324.0	3.1	1

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Ratings and Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Pulse Waveform

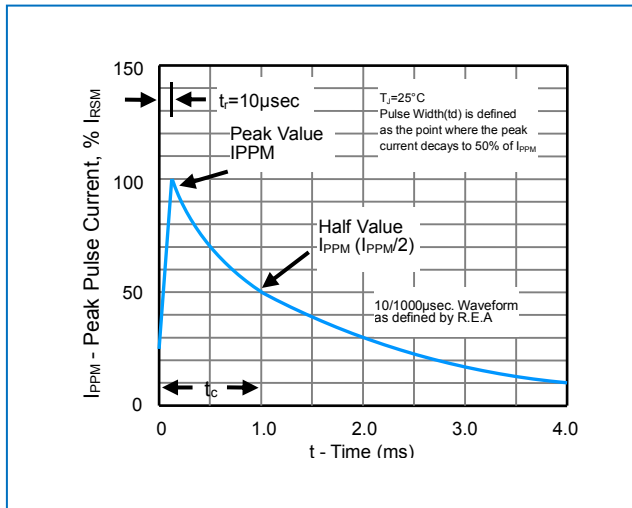
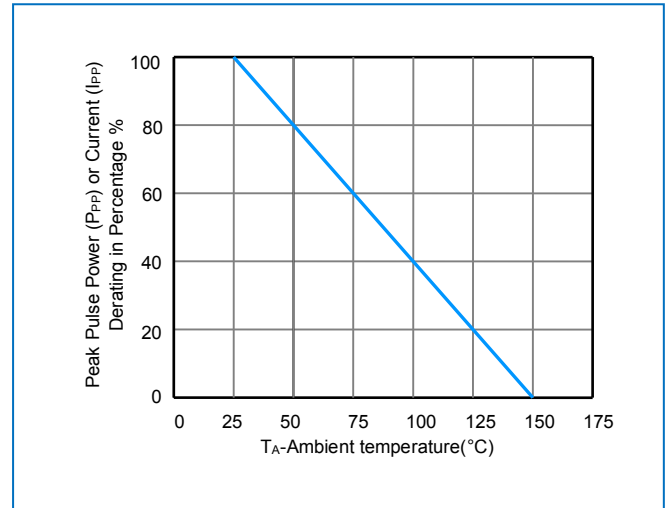
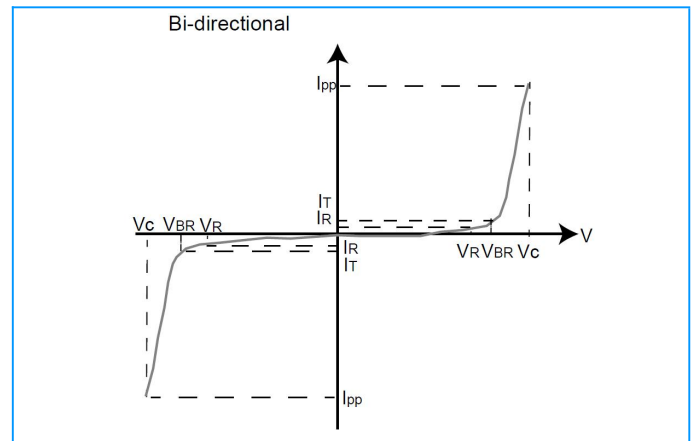
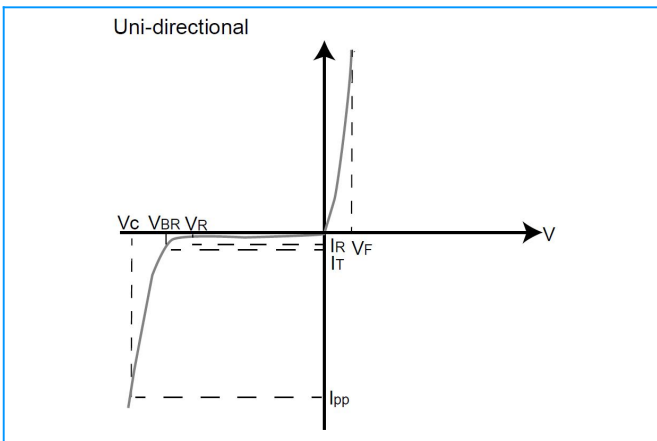


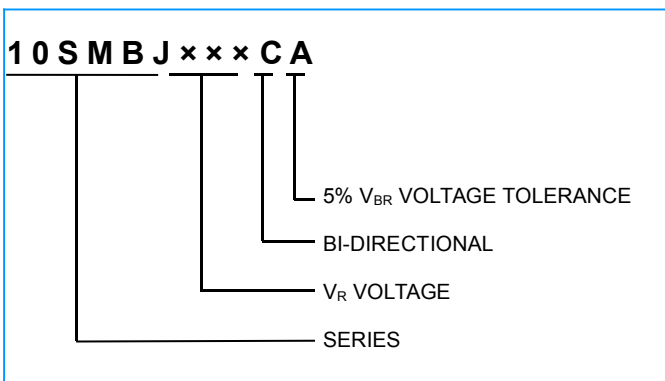
Figure 2 - Pulse Derating Curve



I-V Curve Characteristics



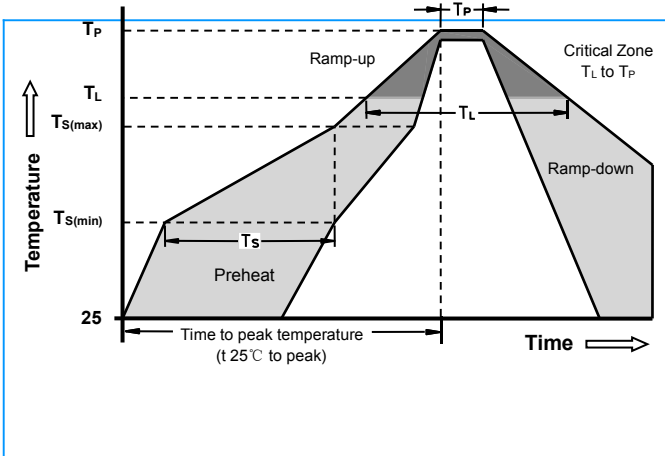
Part Numbering



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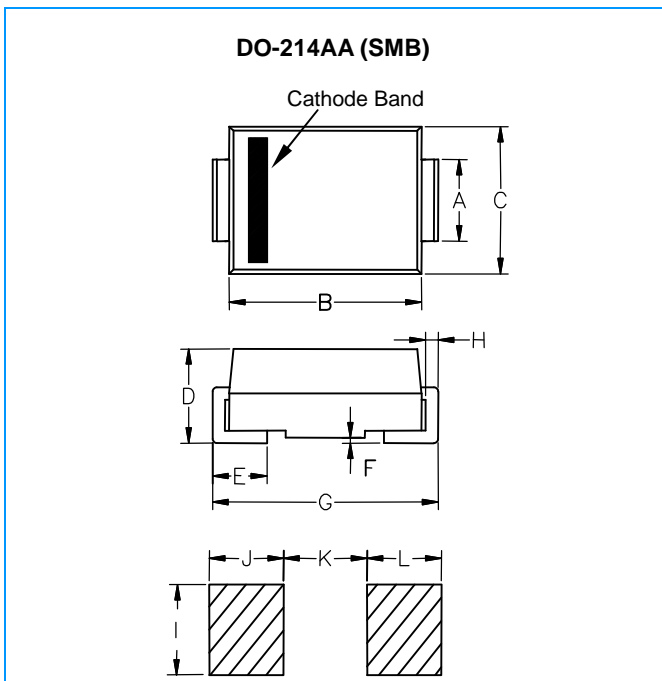
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Soldering Parameters



Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 - 180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 - 150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (t_p)		20 - 40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		280°C

Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.077	0.087	1.960	2.200
B	0.171	0.191	4.350	4.850
C	0.130	0.155	3.300	3.940
D	0.084	0.096	2.130	2.440
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.201	0.216	5.100	5.500
H	0.006	0.012	0.152	0.305
I	0.089	-	2.260	-
J	0.085	-	2.160	-
K	-	0.107	-	2.740
L	0.085	-	2.160	-