

## SMB Plastic-Encapsulate Diodes

### Transient Voltage Suppressor Diodes

#### Features

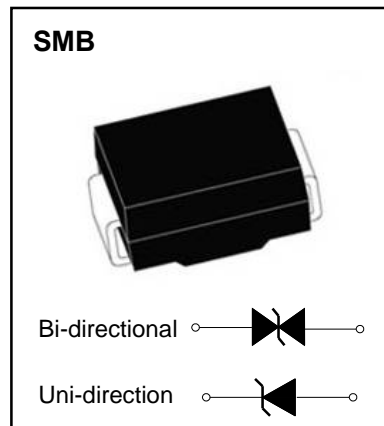
- $P_{PP}$  1000W
- $V_{RWM}$  5.8V- 450V
- Glass passivated chip

#### Applications

- Clamping Voltage

#### Marking

- 1.0SMB  
XXCA/XXA  
XX : From 5.8 To 450



#### Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Conditions	Max
Peak power dissipation	$P_{PPM}$	W	with a 10/1000us waveform	1000
Peak pulse current	$I_{PPM}$	A	with a 10/1000us waveform	See Next Table
Power dissipation	$P_D$	W	On infinite heat sink at $T_L=75^\circ\text{C}$	5.0
Peak forward surge current	$I_{FSM}$	A	8.3 ms single half sine-wave unidirectional only	100
Operating junction and storage temperature range	$T_J, T_{STG}$	$^\circ\text{C}$		-55 to +150

#### Electrical Characteristics ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Max
Maximum instantaneous forward Voltage	$V_F$	V	at 50A for unidirectional only	3.5/6.5
Thermal resistance	$R_{\theta JL}$	$^\circ\text{C}/\text{W}$	junction to lead	20
	$R_{\theta JA}$	$^\circ\text{C}/\text{W}$	junction to ambient	100

#### Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal
- (3)  $V_F < 3.5\text{V}$  for devices of  $V_{BR} < 200\text{V}$  and  $V_F < 6.5\text{V}$  for devices of  $V_{BR} > 201\text{V}$

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current	Max. Clamping Voltage @ I <sub>PP</sub>	Max. Peak Pulse Current	Max. Reverse Leakage @ V <sub>RWM</sub>
UNI-POLAR	BI-POLAR	UNI	BI	V <sub>RWM</sub> (V)	Min.(V)	Max.(V)	I <sub>T</sub> (mA)	V <sub>C MAX.</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
1.0SMB6.8A	1.0SMB6.8CA	K6V8A	K6V8C	5.8	6.45	7.14	10	10.5	97.50	1000
1.0SMB7.5A	1.0SMB7.5CA	K7V5A	K7V5C	6.4	7.13	7.88	10	11.3	90.75	500
1.0SMB8.2A	1.0SMB8.2CA	K8V2A	K8V2C	7.0	7.79	8.61	10	12.1	84.75	200
1.0SMB9.1A	1.0SMB9.1CA	K9V1A	K9V1C	7.8	8.65	9.55	1	13.4	76.50	50
1.0SMB10A	1.0SMB10CA	K10A	K10C	8.6	9.50	10.50	1	14.5	70.75	10
1.0SMB11A	1.0SMB11CA	K11A	K11C	9.4	10.50	11.60	1	15.6	65.75	5
1.0SMB12A	1.0SMB12CA	K12A	K12C	10.2	11.40	12.60	1	16.7	61.50	5
1.0SMB13A	1.0SMB13CA	K13A	K13C	11.1	12.40	13.70	1	18.2	56.25	1
1.0SMB15A	1.0SMB15CA	K15A	K15C	12.8	14.30	15.80	1	21.2	48.25	1
1.0SMB16A	1.0SMB16CA	K16A	K16C	13.6	15.20	16.80	1	22.5	45.50	1
1.0SMB18A	1.0SMB18CA	K18A	K18C	15.3	17.10	18.90	1	25.5	40.25	1
1.0SMB20A	1.0SMB20CA	K20A	K20C	17.1	19.00	21.00	1	27.7	37.00	1
1.0SMB22A	1.0SMB22CA	K22A	K22C	18.8	20.90	23.10	1	30.6	33.50	1
1.0SMB24A	1.0SMB24CA	K24A	K24C	20.5	22.80	25.20	1	33.2	30.75	1
1.0SMB27A	1.0SMB27CA	K27A	K27C	23.1	25.70	28.40	1	37.5	27.25	1
1.0SMB30A	1.0SMB30CA	K30A	K30C	25.6	28.50	31.50	1	41.4	24.75	1
1.0SMB33A	1.0SMB33CA	K33A	K33C	28.2	31.40	34.70	1	45.7	22.50	1
1.0SMB36A	1.0SMB36CA	K36A	K36C	30.8	34.20	37.80	1	49.9	20.50	1
1.0SMB39A	1.0SMB39CA	K39A	K39C	33.3	37.10	41.00	1	53.9	19.00	1
1.0SMB43A	1.0SMB43CA	K43A	K43C	36.8	40.90	45.20	1	59.3	17.25	1
1.0SMB47A	1.0SMB47CA	K47A	K47C	40.2	44.70	49.40	1	64.8	15.75	1
1.0SMB51A	1.0SMB51CA	K51A	K51C	43.6	48.50	53.60	1	70.1	14.50	1
1.0SMB56A	1.0SMB56CA	K56A	K56C	47.8	53.20	58.80	1	77.0	13.25	1
1.0SMB62A	1.0SMB62CA	K62A	K62C	53.0	58.90	65.10	1	85.0	12.00	1
1.0SMB68A	1.0SMB68CA	K68A	K68C	58.1	64.60	71.40	1	92.0	11.25	1
1.0SMB75A	1.0SMB75CA	K75A	K75C	64.1	71.30	78.80	1	103.0	10.00	1
1.0SMB82A	1.0SMB82CA	K82A	K82C	70.1	77.90	86.10	1	113.0	9.00	1
1.0SMB91A	1.0SMB91CA	K91A	K91C	77.8	86.50	95.50	1	125.0	8.25	1
1.0SMB100A	1.0SMB100CA	K100A	K100C	85.5	95.0	105.0	1	137.0	7.50	1
1.0SMB110A	1.0SMB110CA	K110A	K110C	94.0	105.0	116.0	1	152.0	6.75	1
1.0SMB120A	1.0SMB120CA	K120A	K120C	102.0	114.0	126.0	1	165.0	6.25	1
1.0SMB130A	1.0SMB130CA	K130A	K130C	111.0	124.0	137.0	1	179.0	5.75	1
1.0SMB150A	1.0SMB150CA	K150A	K150C	128.0	143.0	158.0	1	207.0	5.00	1
1.0SMB160A	1.0SMB160CA	K160A	K160C	136.0	152.0	168.0	1	219.0	4.75	1
1.0SMB170A	1.0SMB170CA	K170A	K170C	145.0	162.0	179.0	1	234.0	4.50	1
1.0SMB180A	1.0SMB180CA	K180A	K180C	154.0	171.0	189.0	1	246.0	4.25	1
1.0SMB200A	1.0SMB200CA	K200A	K200C	171.0	190.0	210.0	1	274.0	3.75	1
1.0SMB220A	1.0SMB220CA	K220A	K220C	185.0	209.0	231.0	1	328.0	3.25	1
1.0SMB250A	1.0SMB250CA	K250A	K250C	214.0	237.0	263.0	1	344.0	3.00	1
1.0SMB300A	1.0SMB300CA	K300A	K300C	256.0	285.0	315.0	1	414.0	2.50	1
1.0SMB350A	1.0SMB350CA	K350A	K350C	300.0	332.0	368.0	1	482.0	2.25	1
1.0SMB400A	1.0SMB400CA	K400A	K400C	342.0	380.0	420.0	1	548.0	2.00	1
1.0SMB440A	1.0SMB440CA	K440A	K440C	376.0	418.0	462.0	1	602.0	1.75	1
1.0SMB480A	1.0SMB480CA	K480A	K480C	408.0	456.0	504.0	1	658.0	1.50	1
1.0SMB510A	1.0SMB510CA	K510A	K510C	434.0	485.0	535.0	1	698.0	1.50	1
1.0SMB530A	1.0SMB530CA	K530A	K530C	450.0	503.0	556.0	1	725.0	1.50	1

# Typical Characteristics

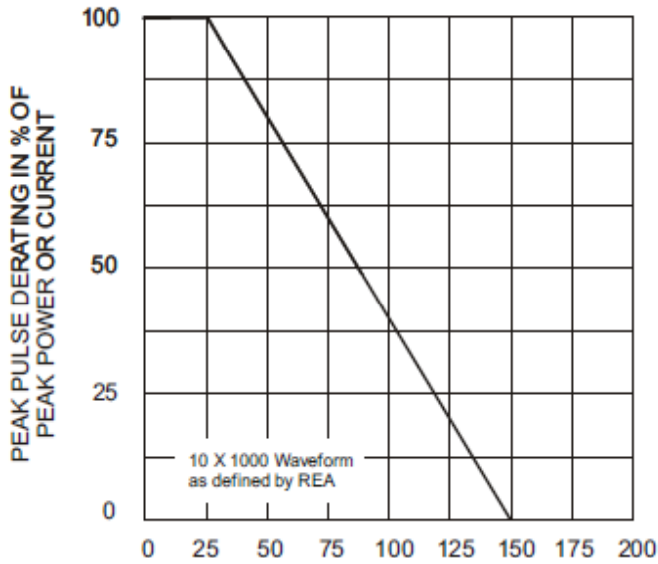


Fig. 1 - Pulse Derating Curve

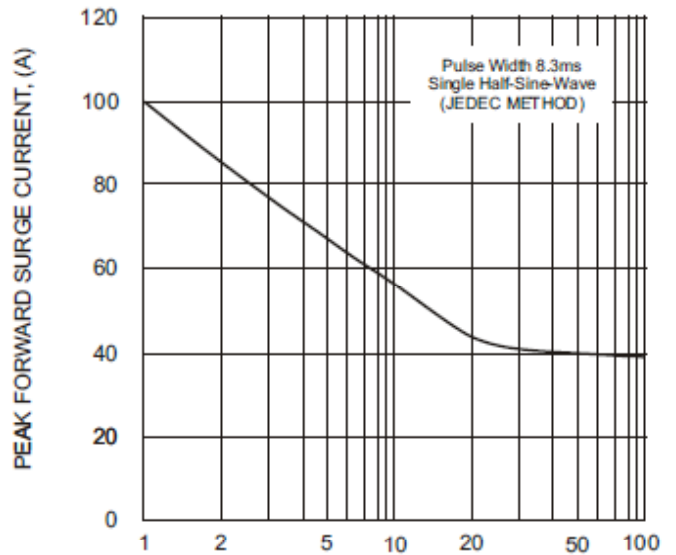


Fig. 2 - Maximum Non-Repetitive Surge Current

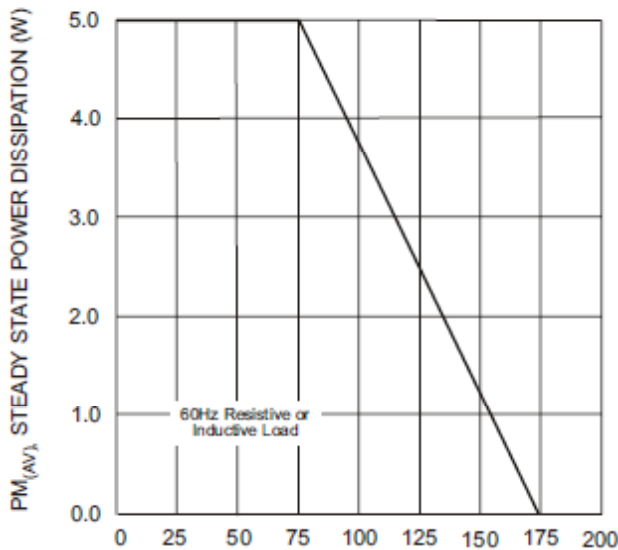


Fig. 3 - Steady State Power Derating Curve

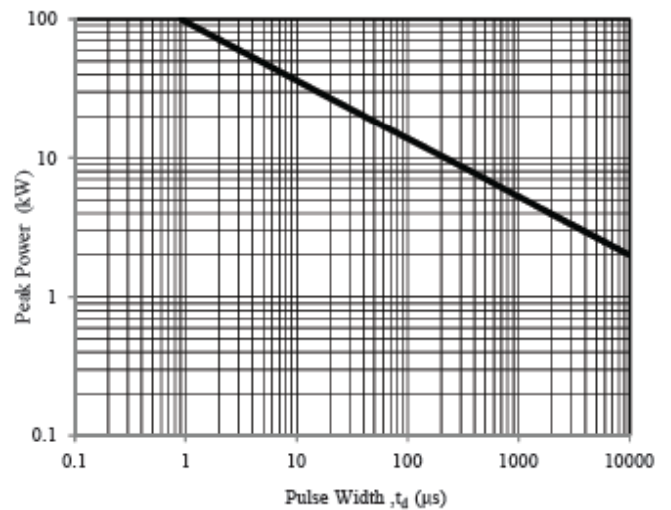


Fig. 4 - Peak Pulse Power Rating Curve

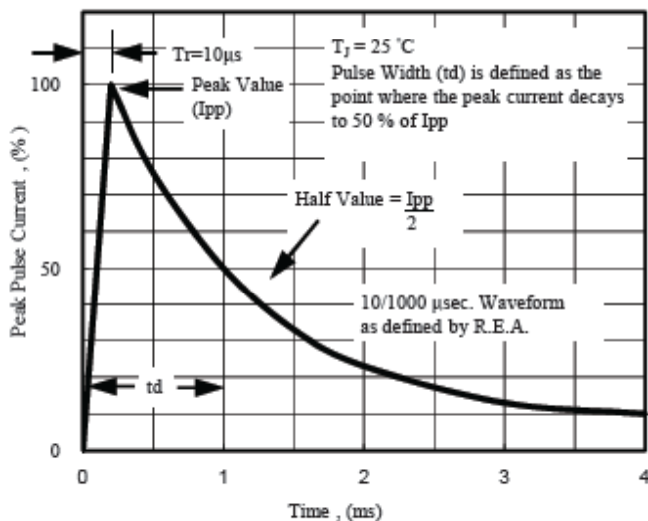


Fig. 5 - Pulse Waveform

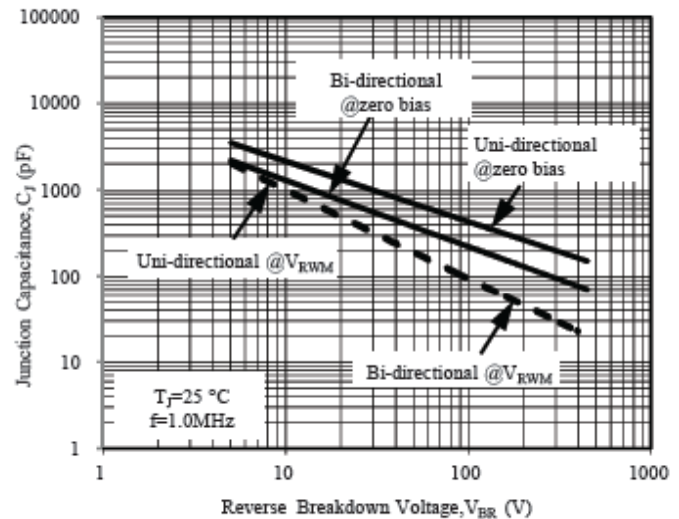
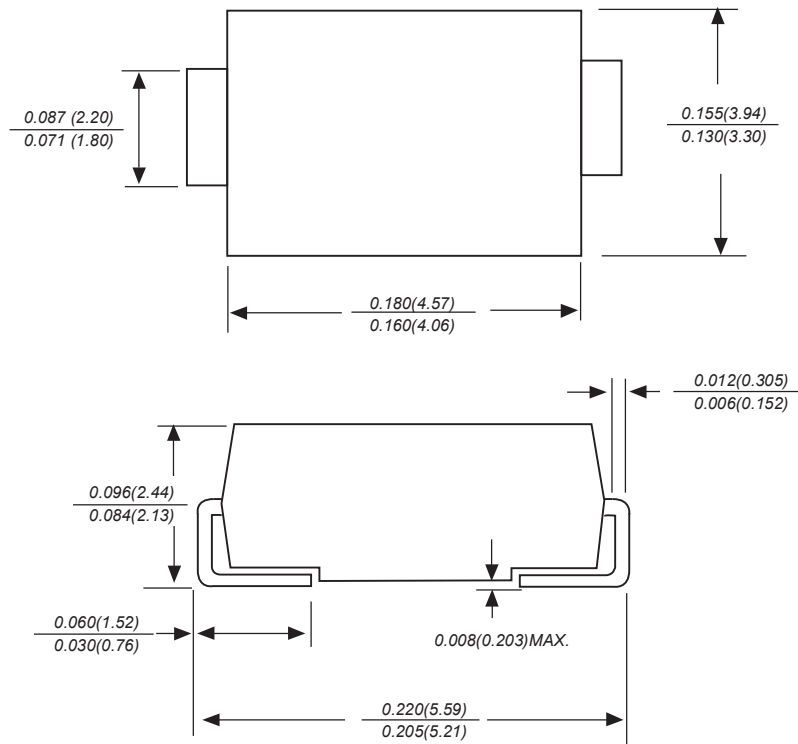


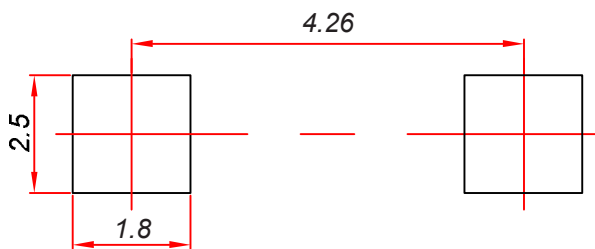
Fig. 6 - Typical Junction Capacitance

## SMB Package Outline Dimensions



Dimensions in inches and (millimeters)

## SMB Suggested Pad Layout



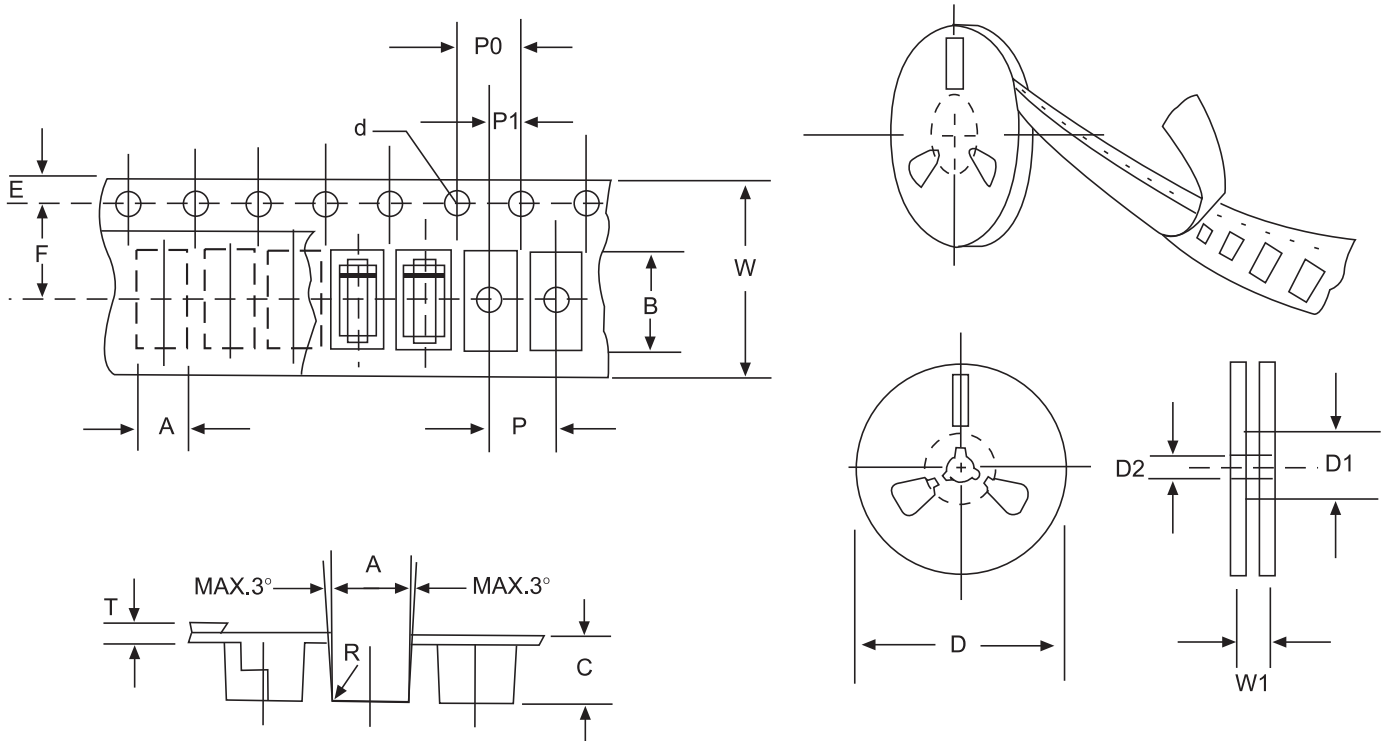
### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05mm$ .
3. The pad layout is for reference purposes only.

### NOTICE

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# Reel Taping Specifications For Surface Mount Devices–SMB



**FIG:CONFIGURATION OF AXIAL TAPING**

ITEM	SYMBOL	SMB mm(inch)
Carrier width	A	4.09±0.1(0.161±0.004)
Carrier length	B	5.82±0.1(0.229±0.004)
Carrier depth	C	3.33±0.1(0.131±0.004)
Sprocket hole	d	1.55±0.05(0.061±0.0002)
Reel outside diameter	D	330/178±2.0(13/7.0±0.79)
Reel inner diameter	D1	8.0±0.2(0.315±0.008)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Stroket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	5.65±0.05(0.222±0.002)
Punch hole pitch	P	8.0±0.1(0.315±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Totall tape thickness	T	0.32±0.1(0.013±0.004)
Tape width	W	12.0±0.2(0.472±0.008)
Reel width	W1	16.8±2.0(0.661±0.079)

NOTE:Devices are packde in accordance with EIA standard RS-481-A and specification given above.