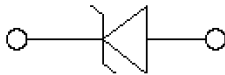
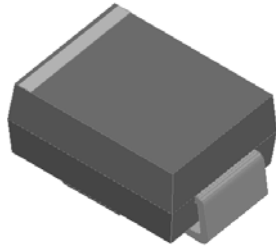
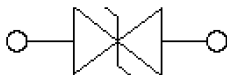
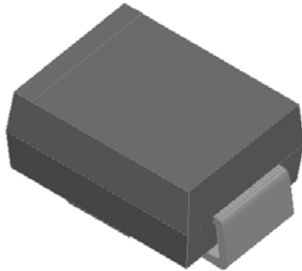


## Surface Mount Transient Voltage Suppressors

### Uni-directional



### Bi-directional



### Features

- UL recognition, file # E517074
- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 2000 W peak pulse power capability with a 10/1000  $\mu$ s waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS

### Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

### Mechanical Data

- **Package:** DO-214AA (SMB)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
- **Polarity:** For uni-directional types the band denotes cathode end, no marking on bi-directional types

### ■Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform <sup>(1)</sup> <sup>(2)</sup> (Fig.1)	$P_{PPM}$	W	2000
Peak pulse current, with a 10/1000us waveform <sup>(1)</sup>	$I_{PPM}$	A	See Next Table
Power dissipation, on infinite heat sink at $T_L=75^\circ\text{C}$	$P_D$	W	5.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	A	100
Operating junction and storage temperature range	$T_J, T_{STG}$	$^\circ\text{C}$	-55 to +150



# SMB20J SERIES

## ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 25A for unidirectional only	V <sub>F</sub>	V	5.0

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above T<sub>A</sub> = 25°C per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal.

## ■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB20J SERIES	F1	Approximate 0.0975	3000	/	48000	13" reel
SMB20J SERIES	F2	Approximate 0.0975	750	3000	24000	7" reel
SMB20J SERIES	F3	Approximate 0.0975	500	2000	16000	7" reel

## ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>(4)</sup> (A)	Maximum Clamping Voltage V <sub>c</sub> @ I <sub>PP</sub> (V)
		Min(V)	Max (V)	I <sub>T</sub> <sup>(3)</sup> (mA)				
SMB20J20A	SMB20J20CA	22.20	24.50	1	5	20.0	61.73	32.4
SMB20J22A	SMB20J22CA	24.40	26.90	1	5	22.0	56.33	35.5
SMB20J24A	SMB20J24CA	26.70	29.50	1	5	24.0	51.41	38.9
SMB20J26A	SMB20J26CA	28.90	31.90	1	5	26.0	47.51	42.1
SMB20J28A	SMB20J28CA	31.10	34.40	1	5	28.0	44.05	45.4
SMB20J30A	SMB20J30CA	33.30	36.80	1	5	30.0	41.32	48.4
SMB20J33A	SMB20J33CA	36.70	40.60	1	5	33.0	37.52	53.3
SMB20J36A	SMB20J36CA	40.00	44.20	1	5	36.0	34.43	58.1
SMB20J40A	SMB20J40CA	44.40	49.10	1	5	40.0	31.01	64.5
SMB20J43A	SMB20J43CA	47.80	52.80	1	5	43.0	28.81	69.4
SMB20J45A	SMB20J45CA	50.00	55.30	1	5	45.0	27.51	72.7
SMB20J48A	SMB20J48CA	53.30	58.90	1	5	48.0	25.84	77.4
SMB20J51A	SMB20J51CA	56.70	62.70	1	5	51.0	24.27	82.4
SMB20J54A	SMB20J54CA	60.00	66.30	1	5	54.0	22.96	87.1
SMB20J58A	SMB20J58CA	64.40	71.20	1	5	58.0	21.37	93.6

Notes:

- (3) Pulse test: t<sub>p</sub>≤50ms.
- (4) Surge current waveform per Fig. 3 and derated per Fig.2.



# SMB20J SERIES

## ■ Characteristics (Typical)

FIG1: Peak Pulse Power Rating Curve

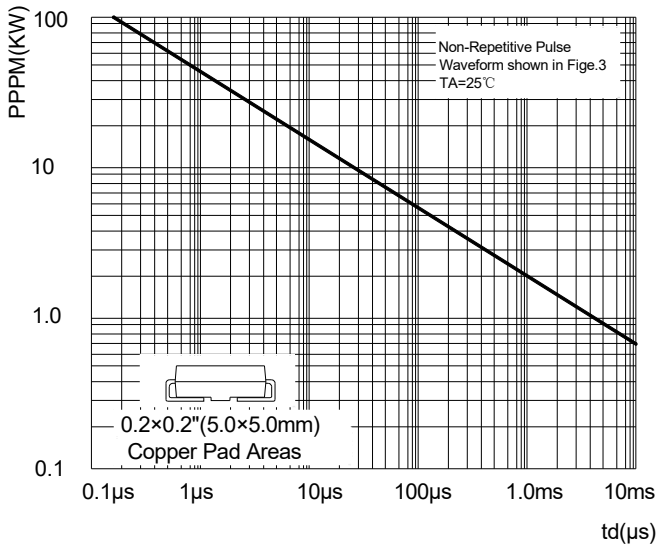


FIG2: Pulse Power or Current vs. Initial Junction Temperature

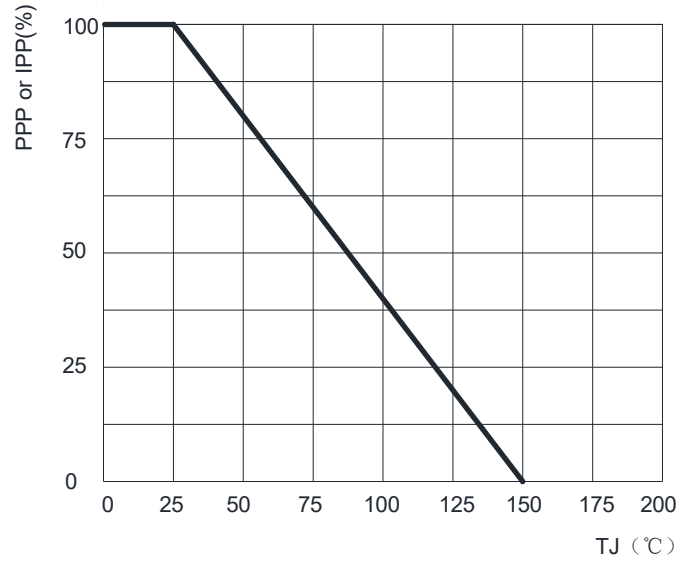


FIG3: Pulse Waveform

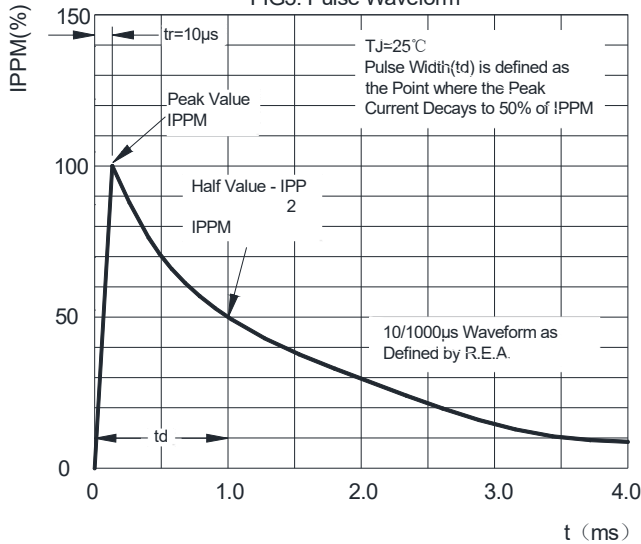


FIG4: Maximum Non-Repetitive Surge Current

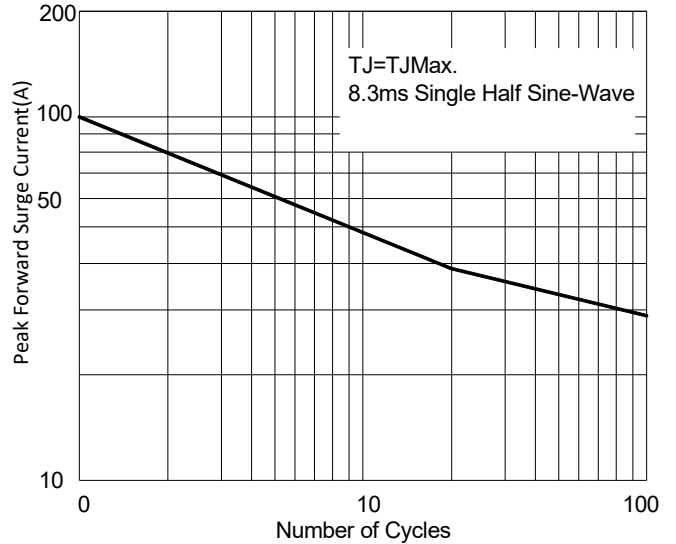
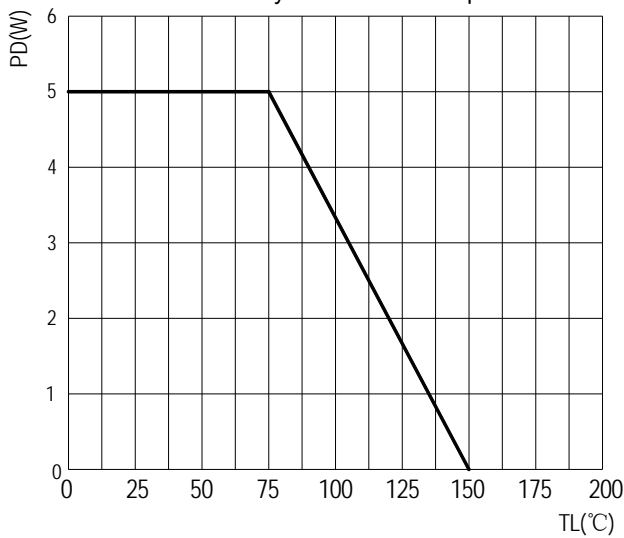


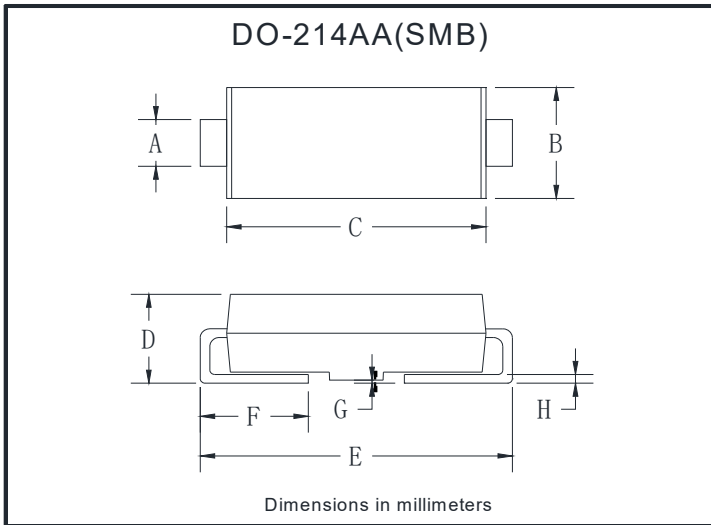
FIG5: Steady State Power Dissipation





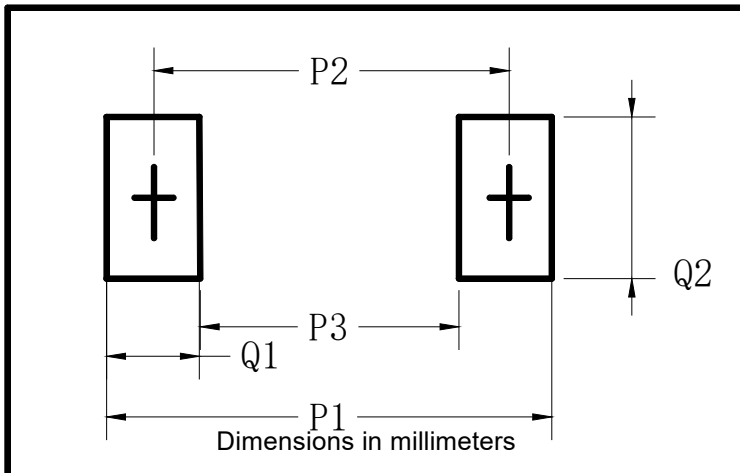
# SMB20J SERIES

## ■ Outline Dimensions



DO-214AA(SMB)		
Dim	Min	Max
A	1.85	2.15
B	3.30	3.94
C	4.05	4.75
D	1.99	2.61
E	5.21	5.59
F	0.90	1.41
G	0.05	0.20
H	0.15	0.31

## ■ Suggested pad layout



DO-214AA(SMB)	
Dim	Millimeters
P1	6.8
P2	4.3
P3	1.8
Q1	2.5
Q2	2.3



## SMB20J SERIES

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