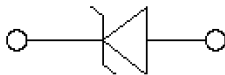
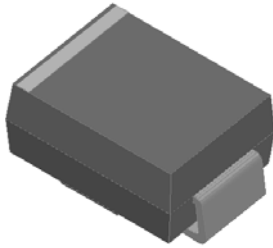
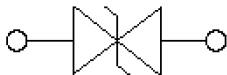
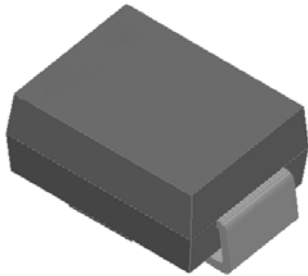


## Surface Mount Transient Voltage Suppressors

### Uni-directional



### Bi-directional



### Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 600 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	600
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

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

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 50A for unidirectional only <sup>(3)</sup>	$V_F$	V	3.5/5.0



# SMBJ SERIES

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

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R <sub>θJL</sub>	°C/W	junction to lead	20
	R <sub>θJA</sub>	°C/W	junction to ambient	100

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.
- (3) V<sub>F</sub><3.5V for devices of V<sub>BR</sub><200V and V<sub>F</sub><5.0V for devices of V<sub>BR</sub>>201V.

## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMBJ5.0A-SMBJ400CA	F1	Approximate 0.0975	3000	/	48000	13" reel
SMBJ5.0A-SMBJ400CA	F2	Approximate 0.0975	750	3000	24000	7" reel
SMBJ5.0A-SMBJ400CA	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> <sup>(6)</sup> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>(5)</sup> (A)	Maximum Clamping Voltage V <sub>c</sub> @ I <sub>PP</sub> (V)
		Min(V)	Max (V)	I <sub>T</sub> <sup>(4)</sup> (mA)				
SMBJ5.0A	SMBJ5.0CA <sup>(4)</sup>	6.4	7.07	10	800	5	65.22	9.2
SMBJ6.0A	SMBJ6.0CA	6.67	7.37	10	800	6	58.25	10.3
SMBJ6.5A	SMBJ6.5CA	7.22	7.98	10	500	6.5	53.57	11.2
SMBJ7.0A	SMBJ7.0CA	7.78	8.6	10	200	7	50	12
SMBJ7.5A	SMBJ7.5CA	8.33	9.21	1	100	7.5	46.51	12.9
SMBJ8.0A	SMBJ8.0CA	8.89	9.83	1	50	8	44.12	13.6
SMBJ8.5A	SMBJ8.5CA	9.44	10.4	1	10	8.5	41.67	14.4
SMBJ9.0A	SMBJ9.0CA	10	11.1	1	5	9	38.96	15.4
SMBJ10A	SMBJ10CA	11.1	12.3	1	5	10	35.29	17
SMBJ11A	SMBJ11CA	12.2	13.5	1	5	11	32.97	18.2
SMBJ12A	SMBJ12CA	13.3	14.7	1	5	12	30.15	19.9
SMBJ13A	SMBJ13CA	14.4	15.9	1	1	13	27.91	21.5
SMBJ14A	SMBJ14CA	15.6	17.2	1	1	14	25.86	23.2
SMBJ15A	SMBJ15CA	16.7	18.5	1	1	15	24.59	24.4
SMBJ16A	SMBJ16CA	17.8	19.7	1	1	16	23.08	26
SMBJ17A	SMBJ17CA	18.9	20.9	1	1	17	21.74	27.6
SMBJ18A	SMBJ18CA	20	22.1	1	1	18	20.55	29.2
SMBJ19A	SMBJ19CA	21.1	23.3	1	1	19	19.49	30.8
SMBJ20A	SMBJ20CA	22.2	24.5	1	1	20	18.52	32.4
SMBJ22A	SMBJ22CA	24.4	26.9	1	1	22	16.9	35.5
SMBJ24A	SMBJ24CA	26.7	29.5	1	1	24	15.42	38.9
SMBJ26A	SMBJ26CA	28.9	31.9	1	1	26	14.25	42.1
SMBJ28A	SMBJ28CA	31.1	34.4	1	1	28	13.22	45.4
SMBJ30A	SMBJ30CA	33.3	36.8	1	1	30	12.4	48.4
SMBJ33A	SMBJ33CA	36.7	40.6	1	1	33	11.26	53.3



# SMBJ SERIES

## ■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> <sup>(6)</sup> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>(5)</sup> (A)	Maximum Clamping Voltage V <sub>c</sub> @ I <sub>PP</sub> (V)
		Min(V)	Max (V)	I <sub>T</sub> <sup>(4)</sup> (mA)				
SMBJ36A	SMBJ36CA	40	44.2	1	1	36	10.33	58.1
SMBJ40A	SMBJ40CA	44.4	49.1	1	1	40	9.3	64.5
SMBJ43A	SMBJ43CA	47.8	52.8	1	1	43	8.65	69.4
SMBJ45A	SMBJ45CA	50	55.3	1	1	45	8.25	72.7
SMBJ48A	SMBJ48CA	53.3	58.9	1	1	48	7.75	77.4
SMBJ51A	SMBJ51CA	56.7	62.7	1	1	51	7.28	82.4
SMBJ54A	SMBJ54CA	60	66.3	1	1	54	6.89	87.1
SMBJ58A	SMBJ58CA	64.4	71.2	1	1	58	6.41	93.6
SMBJ60A	SMBJ60CA	66.7	73.7	1	1	60	6.2	96.8
SMBJ64A	SMBJ64CA	71.1	78.6	1	1	64	5.83	103
SMBJ70A	SMBJ70CA	77.8	86	1	1	70	5.31	113
SMBJ75A	SMBJ75CA	83.3	92.1	1	1	75	4.96	121
SMBJ78A	SMBJ78CA	86.7	95.8	1	1	78	4.76	126
SMBJ80A	SMBJ80CA	88.8	97.6	1	1	80	4.63	129.6
SMBJ85A	SMBJ85CA	94.4	104	1	1	85	4.38	137
SMBJ90A	SMBJ90CA	100	111	1	1	90	4.11	146
SMBJ100A	SMBJ100CA	111	123	1	1	100	3.7	162
SMBJ110A	SMBJ110CA	122	135	1	1	110	3.39	177
SMBJ120A	SMBJ120CA	133	147	1	1	120	3.11	193
SMBJ130A	SMBJ130CA	144	159	1	1	130	2.87	209
SMBJ140A	SMBJ140CA	155	171	1	1	140	2.65	226.8
SMBJ150A	SMBJ150CA	167	185	1	1	150	2.47	243
SMBJ160A	SMBJ160CA	178	197	1	1	160	2.32	259
SMBJ170A	SMBJ170CA	189	209	1	1	170	2.18	275
SMBJ180A	SMBJ180CA	200	220	1	1	180	2.06	291.6
SMBJ190A	SMBJ190CA	211	232	1	1	190	1.95	307.8
SMBJ200A	SMBJ200CA	224	247	1	1	200	1.85	324
SMBJ220A	SMBJ220CA	246	272	1	1	220	1.69	356
SMBJ250A	SMBJ250CA	279	309	1	1	250	1.48	405
SMBJ300A	SMBJ300CA	335	371	1	1	300	1.23	486
SMBJ350A	SMBJ350CA	391	432	1	1	350	1.06	567
SMBJ400A	SMBJ400CA	447	494	1	1	400	0.93	648
SMBJ440A	SMBJ440CA	492	543	1	1	440	0.84	713

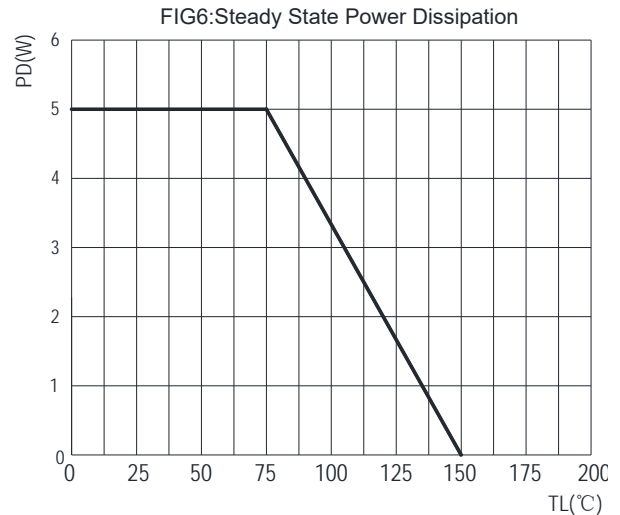
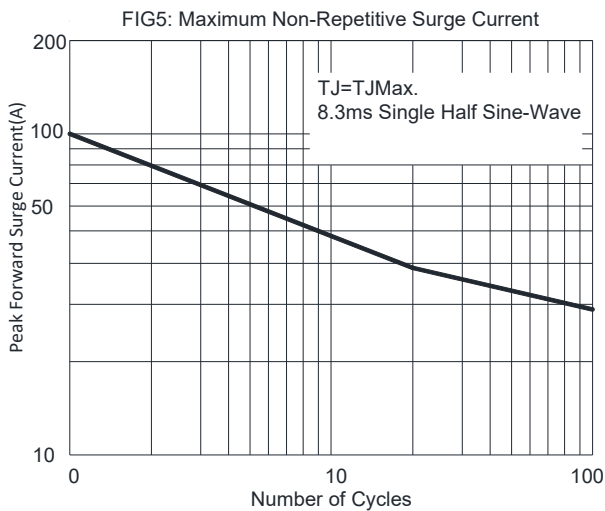
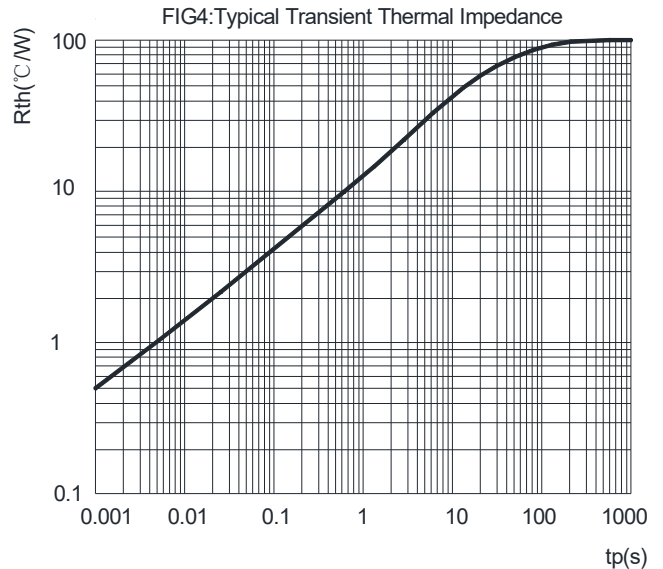
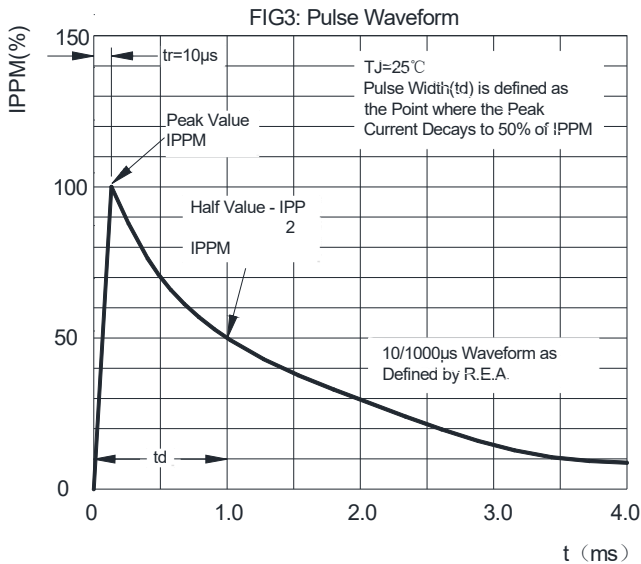
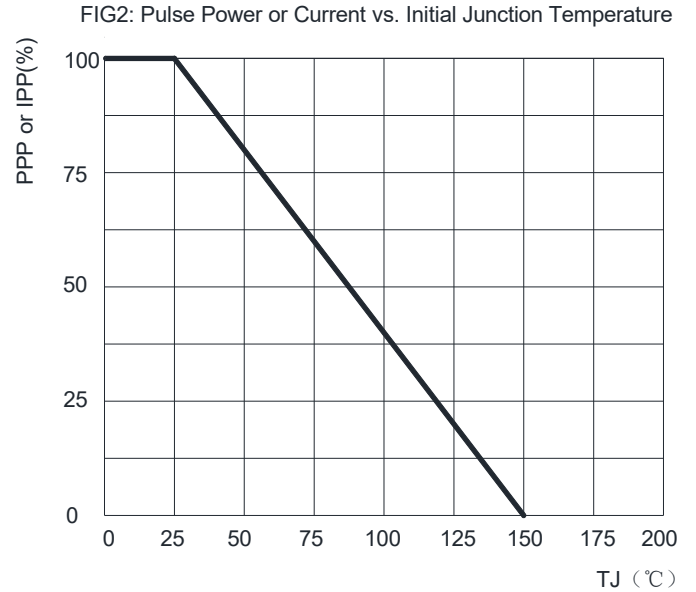
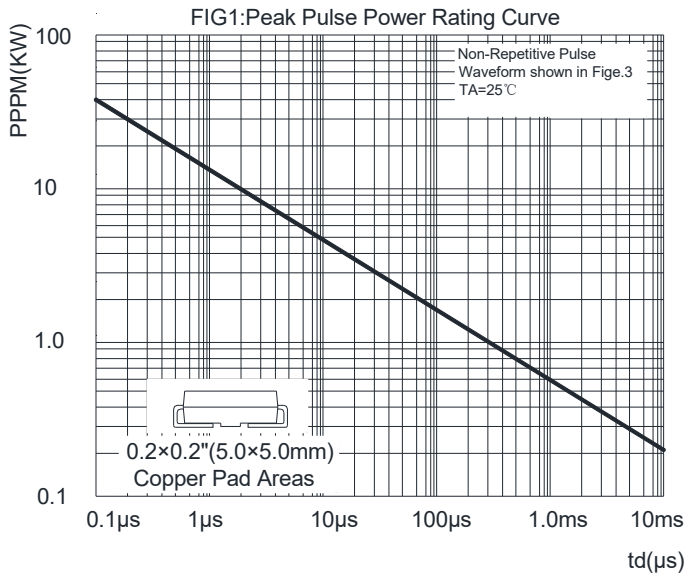
Notes:

- (4) Pulse test: t<sub>p</sub>≤50ms.
- (5) Surge current waveform per Fig. 3 and derated per Fig.2.
- (6) For bi-directional types having V<sub>RWM</sub> of 10 V and less, the I<sub>R</sub> limit is doubled.
- (7) For the bi-directional SMBJ5.0CA, the maximum V<sub>BR</sub> is 7.25 V.



# SMBJ SERIES

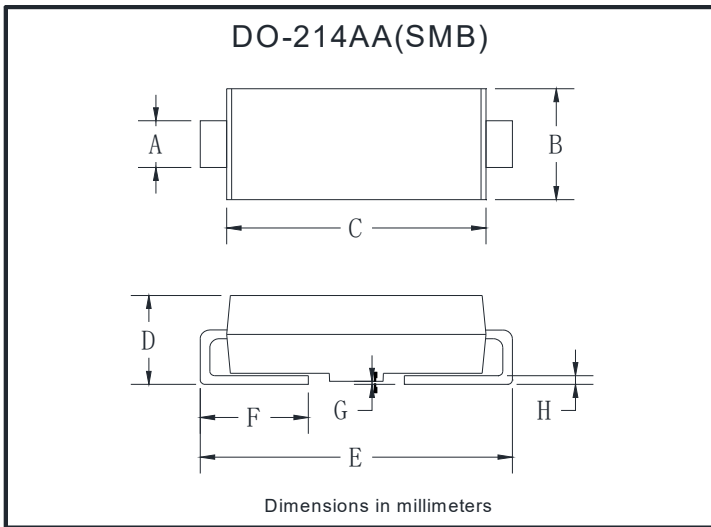
## ■ Characteristics (Typical)





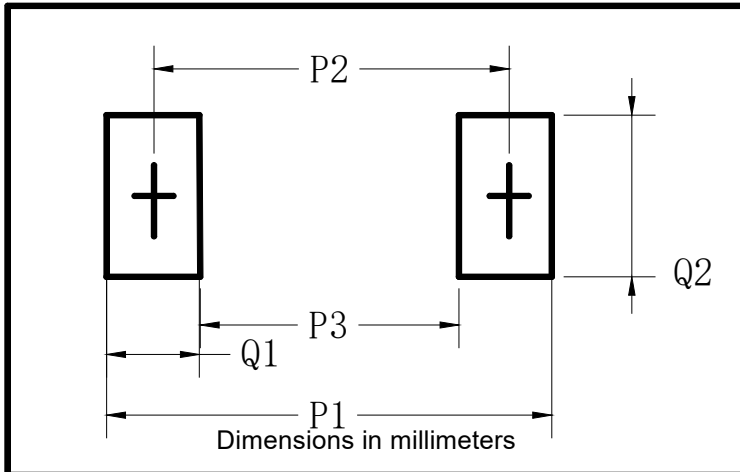
# SMBJ SERIES

## ■ 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



## SMBJ SERIES

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