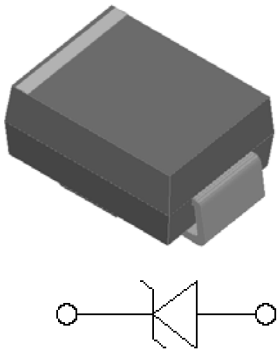
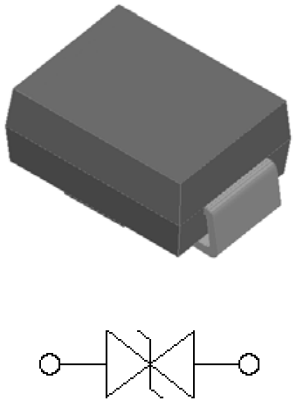
Surface Mount Transient Voltage Suppressors

Uni-directional



Bi-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1000 W peak pulse power capability with a 10/1000 μs 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 (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform (1) (2) (Fig.1)	P_{PPM}	W	1000
Peak pulse current, with a 10/1000us waveform(1)	I_{PPM}	A	See Next Table
Power dissipation, on infinite heat sink at TL=75℃	P_D	W	5.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only (2)	I_{FSM}	A	100
Operating junction and storage temperature range	T_J,T_{STG}	℃	-55 to +150
Electrostatic Discharge（IEC61000-4-2 air discharge）	ESD	KV	±30
Electrostatic Discharge（IEC61000-4-2 contact discharge）			

■Electrical Characteristics（Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 50A for unidirectional only	V_F	V	3.5

■Thermal Characteristics （T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	$R_{\theta JL}$	℃/W	junction to lead	20
	$R_{\theta JA}$	℃/W	junction to ambient	100

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃per Fig.2.

(2) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R[5]@ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP}[4] (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	I_T[3](mA)				
SMB10J5.0A	SMB10J5.0CA	6.4	7.07	10	1000	5	108.70	9.2
SMB10J6.0A	SMB10J6.0CA	6.67	7.37	10	1000	6	97.09	10.3
SMB10J6.5A	SMB10J6.5CA	7.22	7.98	10	500	6.5	89.29	11.2
SMB10J7.0A	SMB10J7.0CA	7.78	8.6	10	200	7	83.33	12
SMB10J7.5A	SMB10J7.5CA	8.33	9.21	1	100	7.5	77.52	12.9
SMB10J8.0A	SMB10J8.0CA	8.89	9.83	1	50	8	73.53	13.6
SMB10J8.5A	SMB10J8.5CA	9.44	10.4	1	20	8.5	69.44	14.4
SMB10J9.0A	SMB10J9.0CA	10	11.1	1	10	9	64.94	15.4
SMB10J10A	SMB10J10CA	11.1	12.3	1	5	10	58.82	17
SMB10J11A	SMB10J11CA	12.2	13.5	1	5	11	54.95	18.2
SMB10J12A	SMB10J12CA	13.3	14.7	1	5	12	50.25	19.9
SMB10J13A	SMB10J13CA	14.4	15.9	1	1	13	46.51	21.5
SMB10J14A	SMB10J14CA	15.6	17.2	1	1	14	43.10	23.2
SMB10J15A	SMB10J15CA	16.7	18.5	1	1	15	40.98	24.4
SMB10J16A	SMB10J16CA	17.8	19.7	1	1	16	38.46	26
SMB10J17A	SMB10J17CA	18.9	20.9	1	1	17	36.23	27.6
SMB10J18A	SMB10J18CA	20	22.1	1	1	18	34.25	29.2
SMB10J19A	SMB10J19CA	21.1	23.3	1	1	19	32.47	30.8
SMB10J20A	SMB10J20CA	22.2	24.5	1	1	20	30.86	32.4
SMB10J22A	SMB10J22CA	24.4	26.9	1	1	22	28.17	35.5
SMB10J24A	SMB10J24CA	26.7	29.5	1	1	24	25.71	38.9
SMB10J26A	SMB10J26CA	28.9	31.9	1	1	26	23.75	42.1
SMB10J28A	SMB10J28CA	31.1	34.4	1	1	28	22.03	45.4
SMB10J30A	SMB10J30CA	33.3	36.8	1	1	30	20.66	48.4
SMB10J33A	SMB10J33CA	36.7	40.6	1	1	33	18.76	53.3
SMB10J36A	SMB10J36CA	40	44.2	1	1	36	17.21	58.1
SMB10J40A	SMB10J40CA	44.4	49.1	1	1	40	15.50	64.5
SMB10J43A	SMB10J43CA	47.8	52.8	1	1	43	14.41	69.4

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R[5]@ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP}[4] (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	I_T[3](mA)				
SMB10J45A	SMB10J45CA	50	55.3	1	1	45	13.76	72.7
SMB10J48A	SMB10J48CA	53.3	58.9	1	1	48	12.92	77.4
SMB10J51A	SMB10J51CA	56.7	62.7	1	1	51	12.14	82.4
SMB10J54A	SMB10J54CA	60	66.3	1	1	54	11.48	87.1
SMB10J58A	SMB10J58CA	64.4	71.2	1	1	58	10.68	93.6
SMB10J45A	SMB10J45CA	50	55.3	1	1	45	13.76	72.7
SMB10J48A	SMB10J48CA	53.3	58.9	1	1	48	12.92	77.4
SMB10J51A	SMB10J51CA	56.7	62.7	1	1	51	12.14	82.4
SMB10J54A	SMB10J54CA	60	66.3	1	1	54	11.48	87.1
SMB10J58A	SMB10J58CA	64.4	71.2	1	1	58	10.68	93.6
SMB10J60A	SMB10J60CA	66.7	73.7	1	1	60	10.33	96.8
SMB10J64A	SMB10J64CA	71.1	78.6	1	1	64	9.71	103
SMB10J70A	SMB10J70CA	77.8	86	1	1	70	8.85	113
SMB10J75A	SMB10J75CA	83.3	92.1	1	1	75	8.26	121
SMB10J78A	SMB10J78CA	86.7	95.8	1	1	78	7.94	126
SMB10J80A	SMB10J80CA	88.8	97.6	1	1	80	7.72	129.6
SMB10J85A	SMB10J85CA	94.4	104	1	1	85	7.30	137

Notes:

(3) Pulse test: t_p≤50ms.

(4) Surge current waveform per Fig. 3 and derated per Fig.2.

(5) For bi-directional types having V_{RWM} of 10 V and less, the I_R limit is doubled.

■ **Characteristics** (Typical)

FIG1:Peak Pulse Power Rating Curve

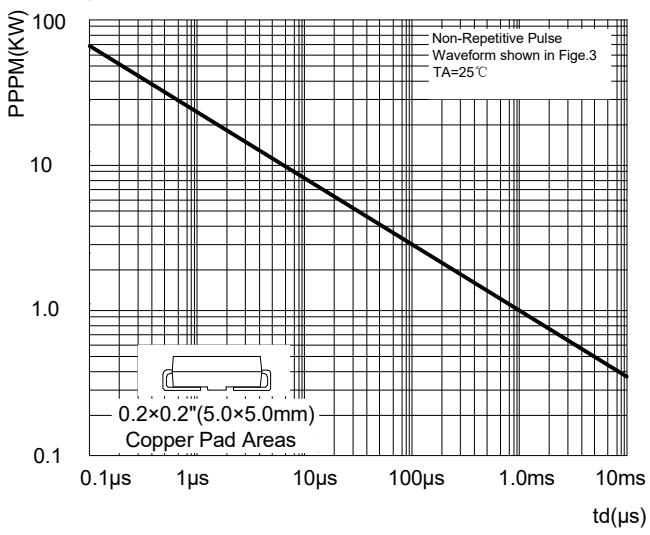
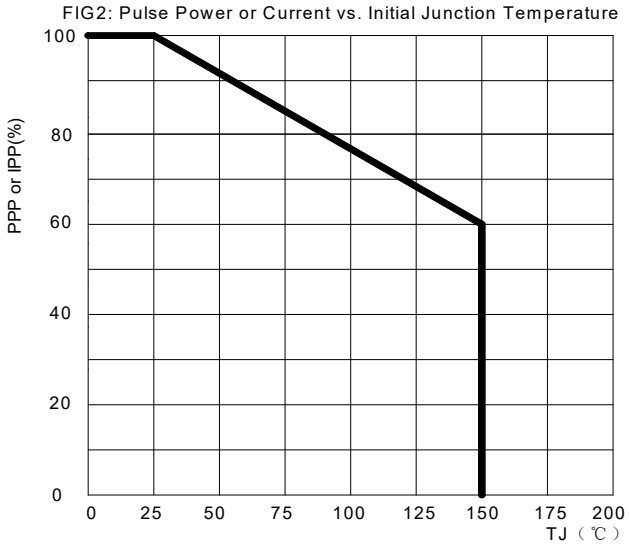


FIG2: Pulse Power or Current vs. Initial Junction Temperature



■ Characteristics (Typical)

FIG3: Pulse Waveform

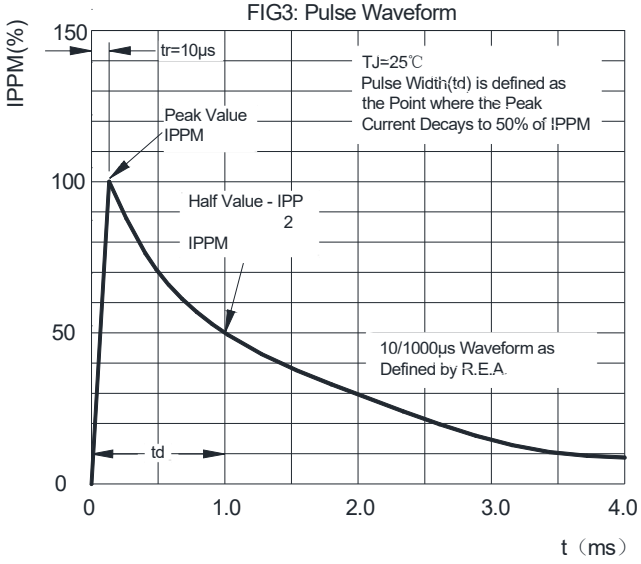


FIG4:Typical Transient Thermal Impedance

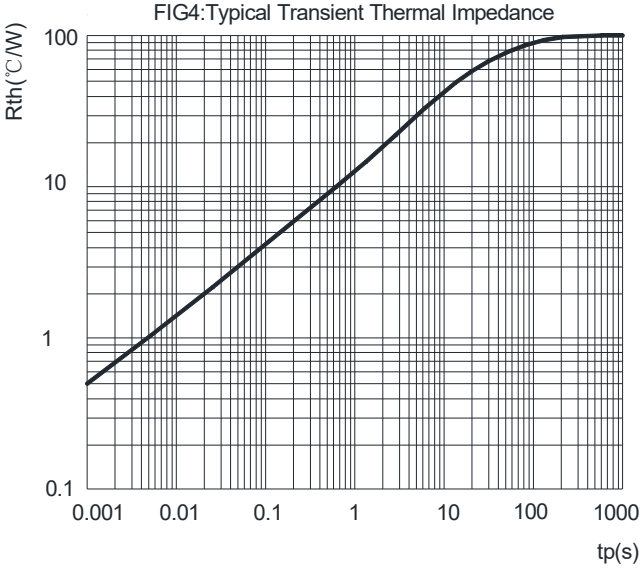


FIG5: Maximum Non-Repetitive Surge Current

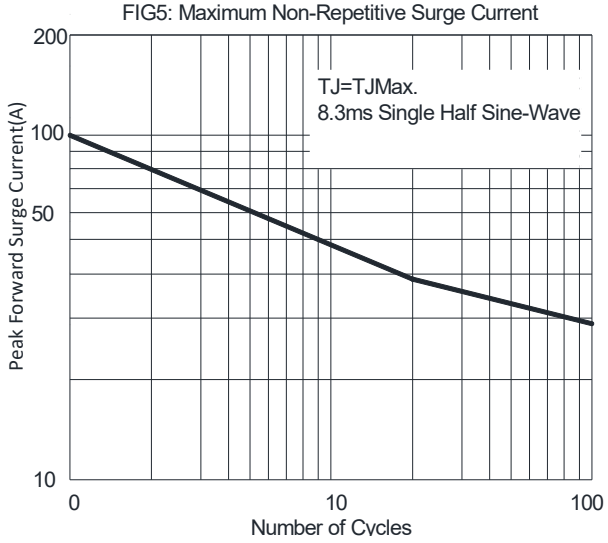
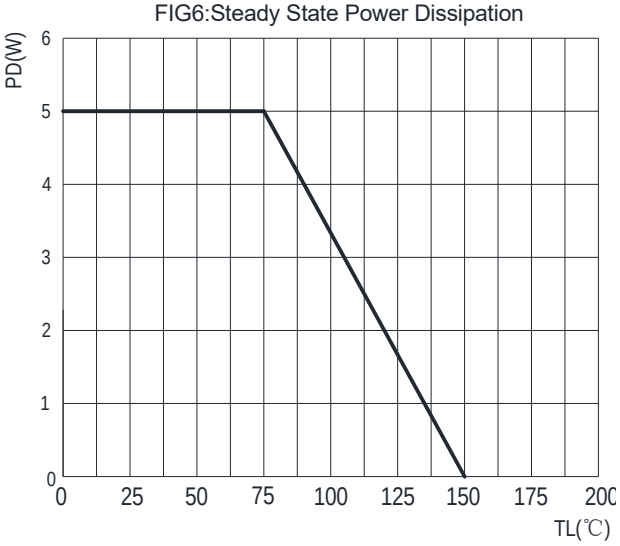


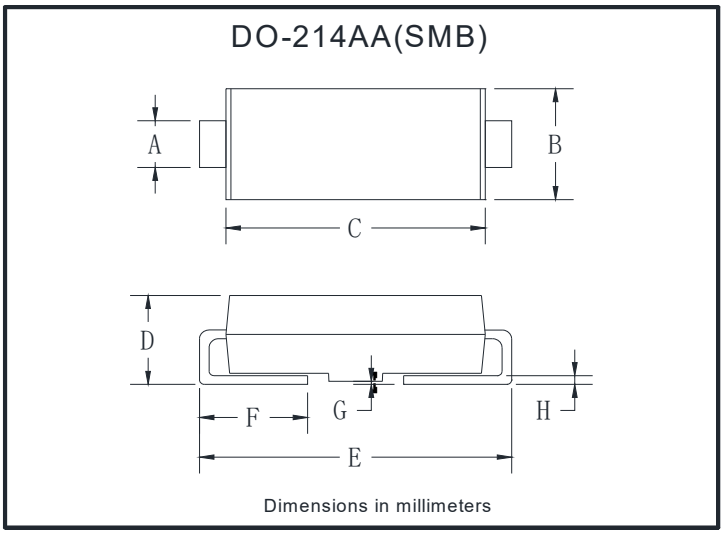
FIG6:Steady State Power Dissipation



■Ordering Information (Example)

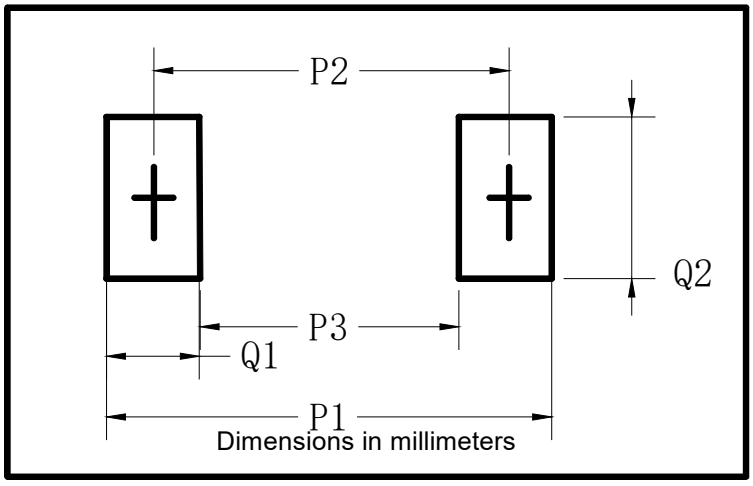
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB10J SERIES	F1	0.0975	3000	/	48000	13” reel
SMB10J SERIES	F2	0.0975	750	3000	24000	7” reel
SMB10J SERIES	F3	0.0975	500	2000	16000	7” reel

■ 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

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