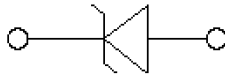
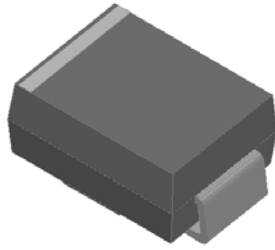


Surface Mount Transient Voltage Suppressors

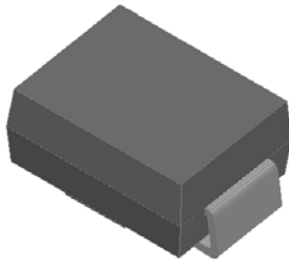
Uni-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1000W peak pulse power capability with a 10/1000 μ s waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- Meets MSL level 1, per J-STD-020C, LF maximum peak of 260 °C
- ESD protection of data lines in accordance with IEC 61000-4-2, 30kV(Air),30kV (Contact)
- Part no. with suffix "Q" means AEC-Q101 qualified

Bi-directional



Typical Applications

For 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, automotive, and 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 ⁽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 $T_L=75^\circ\text{C}$	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	T_J	$^\circ\text{C}$	-55 to +175
Storage temperature range	T_{STG}	$^\circ\text{C}$	-55 to +175

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

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



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■ Thermal Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R _{θJL}	°C/W	junction to lead	20
	R _{θJA}	°C/W	junction to ambient	100

Notes:

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

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V _{BR@IT}			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 V _c @ I _{PP} (V)
		Min(V)	Max (V)	I _T ⁽³⁾ (mA)				
SMB10J5.0AQ	SMB10J5.0CAQ	6.4	7.07	10	1000	5	108.70	9.2
SMB10J6.0AQ	SMB10J6.0CAQ	6.67	7.37	10	1000	6	97.09	10.3
SMB10J6.5AQ	SMB10J6.5CAQ	7.22	7.98	10	500	6.5	89.29	11.2
SMB10J7.0AQ	SMB10J7.0CAQ	7.78	8.6	10	200	7	83.33	12
SMB10J7.5AQ	SMB10J7.5CAQ	8.33	9.21	1	100	7.5	77.52	12.9
SMB10J8.0AQ	SMB10J8.0CAQ	8.89	9.83	1	50	8	73.53	13.6
SMB10J8.5AQ	SMB10J8.5CAQ	9.44	10.4	1	20	8.5	69.44	14.4
SMB10J9.0AQ	SMB10J9.0CAQ	10	11.1	1	10	9	64.94	15.4
SMB10J10AQ	SMB10J10CAQ	11.1	12.3	1	5	10	58.82	17
SMB10J11AQ	SMB10J11CAQ	12.2	13.5	1	5	11	54.95	18.2
SMB10J12AQ	SMB10J12CAQ	13.3	14.7	1	5	12	50.25	19.9
SMB10J13AQ	SMB10J13CAQ	14.4	15.9	1	1	13	46.51	21.5
SMB10J14AQ	SMB10J14CAQ	15.6	17.2	1	1	14	43.10	23.2
SMB10J15AQ	SMB10J15CAQ	16.7	18.5	1	1	15	40.98	24.4
SMB10J16AQ	SMB10J16CAQ	17.8	19.7	1	1	16	38.46	26
SMB10J17AQ	SMB10J17CAQ	18.9	20.9	1	1	17	36.23	27.6
SMB10J18AQ	SMB10J18CAQ	20	22.1	1	1	18	34.25	29.2
SMB10J19AQ	SMB10J19CAQ	21.1	23.3	1	1	19	32.47	30.8
SMB10J20AQ	SMB10J20CAQ	22.2	24.5	1	1	20	30.86	32.4
SMB10J22AQ	SMB10J22CAQ	24.4	26.9	1	1	22	28.17	35.5
SMB10J24AQ	SMB10J24CAQ	26.7	29.5	1	1	24	25.71	38.9
SMB10J26AQ	SMB10J26CAQ	28.9	31.9	1	1	26	23.75	42.1
SMB10J28AQ	SMB10J28CAQ	31.1	34.4	1	1	28	22.03	45.4
SMB10J30AQ	SMB10J30CAQ	33.3	36.8	1	1	30	20.66	48.4
SMB10J33AQ	SMB10J33CAQ	36.7	40.6	1	1	33	18.76	53.3
SMB10J36AQ	SMB10J36CAQ	40	44.2	1	1	36	17.21	58.1
SMB10J40AQ	SMB10J40CAQ	44.4	49.1	1	1	40	15.50	64.5
SMB10J43AQ	SMB10J43CAQ	47.8	52.8	1	1	43	14.41	69.4
SMB10J45AQ	SMB10J45CAQ	50	55.3	1	1	45	13.76	72.7
SMB10J48AQ	SMB10J48CAQ	53.3	58.9	1	1	48	12.92	77.4
SMB10J51AQ	SMB10J51CAQ	56.7	62.7	1	1	51	12.14	82.4
SMB10J54AQ	SMB10J54CAQ	60	66.3	1	1	54	11.48	87.1
SMB10J58AQ	SMB10J58CAQ	64.4	71.2	1	1	58	10.68	93.6
SMB10J60AQ	SMB10J60CAQ	66.7	73.7	1	1	60	10.33	96.8
SMB10J64AQ	SMB10J64CAQ	71.1	78.6	1	1	64	9.71	103
SMB10J70AQ	SMB10J70CAQ	77.8	86	1	1	70	8.85	113
SMB10J75AQ	SMB10J75CAQ	83.3	92.1	1	1	75	8.26	121
SMB10J78AQ	SMB10J78CAQ	86.7	95.8	1	1	78	7.94	126
SMB10J80AQ	SMB10J80CAQ	88.8	97.6	1	1	80	7.72	129.6
SMB10J85AQ	SMB10J85CAQ	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)

Fig.1 Peak Pulse Power Rating Curve

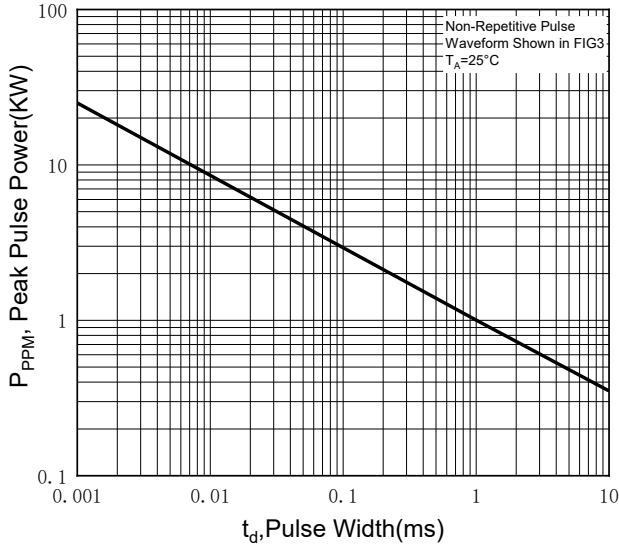


Fig.2 Pulse Power or Current vs. Initial Junction Temperature

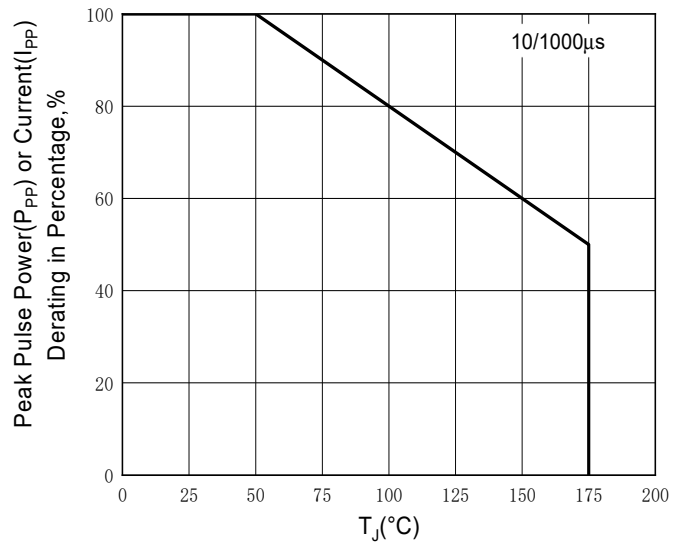


Fig.3 Pulse Waveform

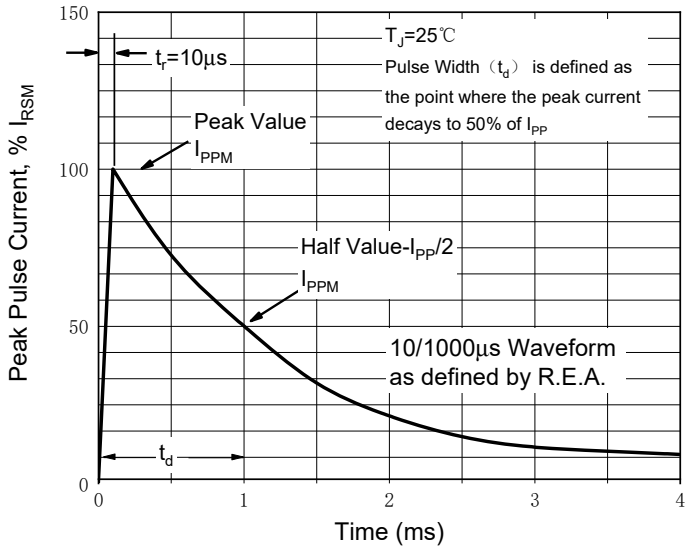


Fig.4 Typical Transient Thermal Impedance

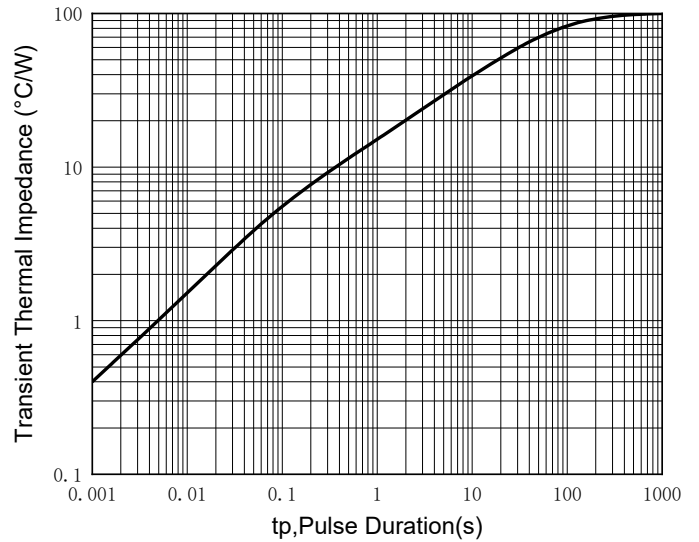


Fig.5 Maximum Non-Repetitive Forward Surge Current

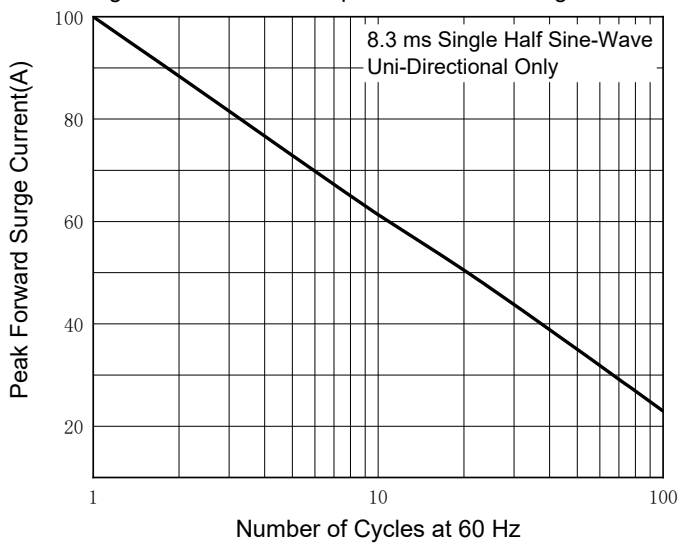
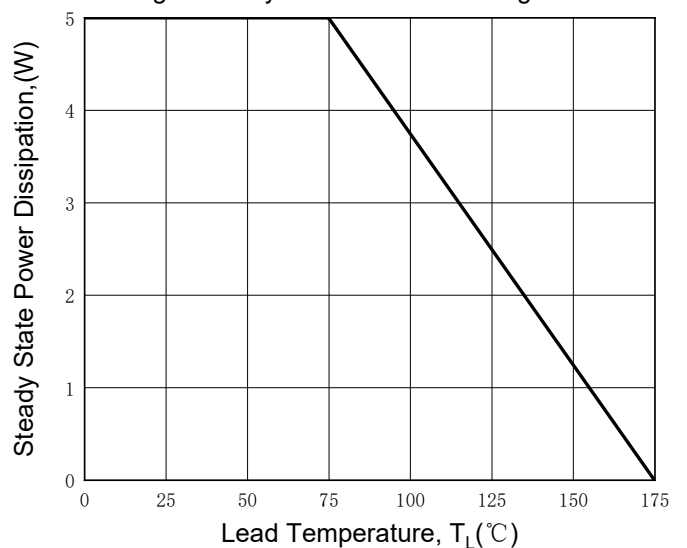


Fig.6 Steady State Power Derating Curve



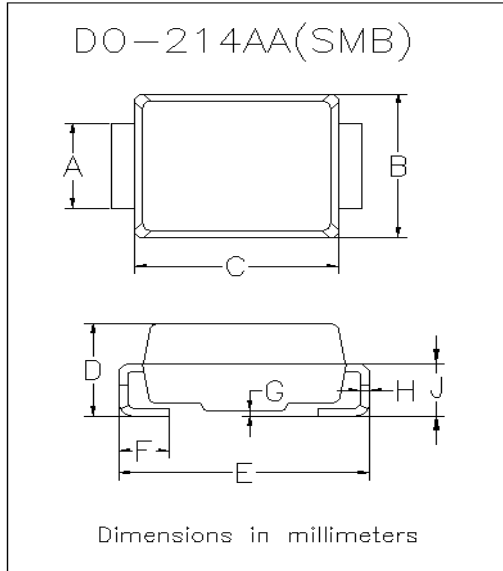


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Ordering Information (Example)

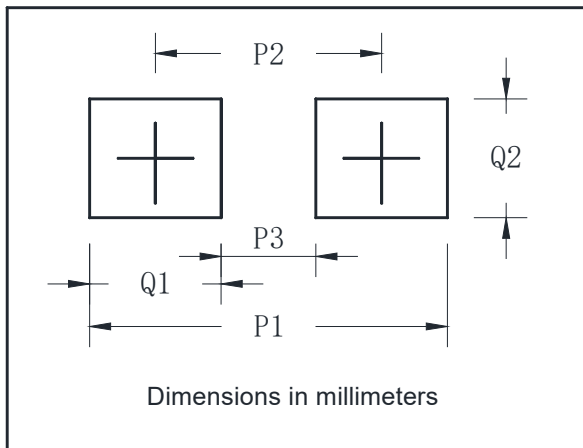
REFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB10J SERIES	F1	0.0975	3000	48000	13" reel

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
J	1.05	1.55

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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