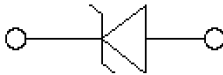
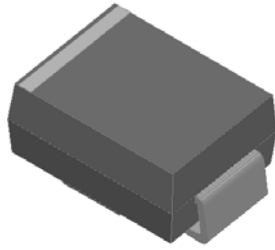


Surface Mount Transient Voltage Suppressors

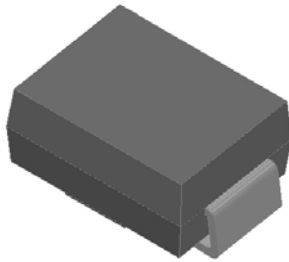
Uni-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1500W 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	1500
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)				
SMB15J5.0AQ	SMB15J5.0CAQ	6.4	7.07	10	1000	5	163.0	9.2
SMB15J6.0AQ	SMB15J6.0CAQ	6.67	7.37	10	1000	6	145.6	10.3
SMB15J6.5AQ	SMB15J6.5CAQ	7.22	7.98	10	500	6.5	133.9	11.2
SMB15J7.0AQ	SMB15J7.0CAQ	7.78	8.6	10	200	7	125.0	12
SMB15J7.5AQ	SMB15J7.5CAQ	8.33	9.21	1	100	7.5	116.3	12.9
SMB15J8.0AQ	SMB15J8.0CAQ	8.89	9.83	1	50	8	110.29	13.6
SMB15J8.5AQ	SMB15J8.5CAQ	9.44	10.4	1	20	8.5	104.17	14.4
SMB15J9.0AQ	SMB15J9.0CAQ	10	11.1	1	10	9	97.4	15.4
SMB15J10AQ	SMB15J10CAQ	11.1	12.3	1	5	10	88.24	17
SMB15J11AQ	SMB15J11CAQ	12.2	13.5	1	5	11	82.42	18.2
SMB15J12AQ	SMB15J12CAQ	13.3	14.7	1	5	12	75.38	19.9
SMB15J13AQ	SMB15J13CAQ	14.4	15.9	1	5	13	69.77	21.5
SMB15J14AQ	SMB15J14CAQ	15.6	17.2	1	5	14	64.66	23.2
SMB15J15AQ	SMB15J15CAQ	16.70	18.50	1	5	15.0	61.48	24.4
SMB15J16AQ	SMB15J16CAQ	17.80	19.70	1	5	16.0	57.69	26.0
SMB15J17AQ	SMB15J17CAQ	18.90	20.90	1	5	17.0	54.35	27.6
SMB15J18AQ	SMB15J18CAQ	20.00	22.10	1	5	18.0	51.37	29.2
SMB15J19AQ	SMB15J19CAQ	21.10	23.30	1	5	19.0	48.73	30.8
SMB15J20AQ	SMB15J20CAQ	22.20	24.50	1	5	20.0	46.30	32.4
SMB15J22AQ	SMB15J22CAQ	24.40	26.90	1	5	22.0	42.25	35.5
SMB15J24AQ	SMB15J24CAQ	26.70	29.50	1	5	24.0	38.56	38.9
SMB15J26AQ	SMB15J26CAQ	28.90	31.90	1	5	26.0	35.63	42.1
SMB15J28AQ	SMB15J28CAQ	31.10	34.40	1	5	28.0	33.04	45.4
SMB15J30AQ	SMB15J30CAQ	33.30	36.80	1	5	30.0	30.99	48.4
SMB15J33AQ	SMB15J33CAQ	36.70	40.60	1	5	33.0	28.14	53.3
SMB15J36AQ	SMB15J36CAQ	40.00	44.20	1	5	36.0	25.82	58.1
SMB15J40AQ	SMB15J40CAQ	44.40	49.10	1	5	40.0	23.26	64.5
SMB15J43AQ	SMB15J43CAQ	47.80	52.80	1	5	43.0	21.61	69.4
SMB15J45AQ	SMB15J45CAQ	50.00	55.30	1	5	45.0	20.63	72.7
SMB15J48AQ	SMB15J48CAQ	53.30	58.90	1	5	48.0	19.38	77.4
SMB15J51AQ	SMB15J51CAQ	56.70	62.70	1	5	51.0	18.20	82.4
SMB15J54AQ	SMB15J54CAQ	60.00	66.30	1	5	54.0	17.22	87.1
SMB15J58AQ	SMB15J58CAQ	64.40	71.20	1	5	58.0	16.03	93.6
SMB15J60AQ	SMB15J60CAQ	66.7	73.7	1	5	60	15.5	96.8
SMB15J64AQ	SMB15J64CAQ	71.1	78.6	1	5	64	14.56	103
SMB15J70AQ	SMB15J70CAQ	77.8	86	1	5	70	13.27	113
SMB15J75AQ	SMB15J75CAQ	83.3	92.1	1	5	75	12.4	121
SMB15J78AQ	SMB15J78CAQ	86.7	95.8	1	5	78	11.9	126
SMB15J80AQ	SMB15J80CAQ	88.8	97.6	1	5	80	11.57	129.6
SMB15J85AQ	SMB15J85CAQ	94.4	104	1	5	85	10.95	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.



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■ Characteristics (Typical)

Fig.1 Peak Pulse Power Rating Curve

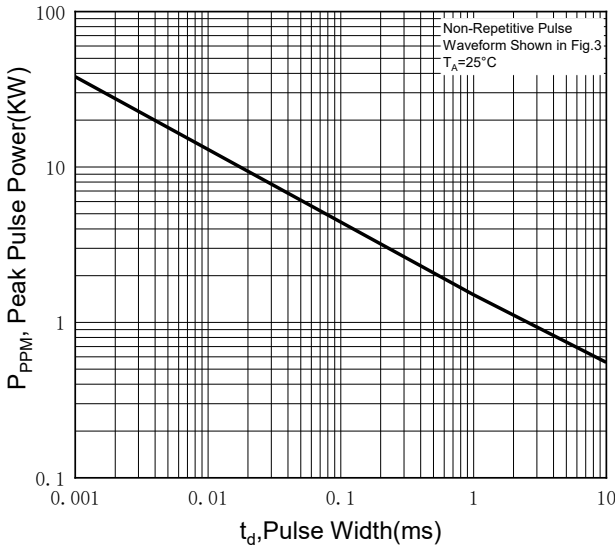


Fig.2 Pulse Power or Current vs. Initial Junction Temperature

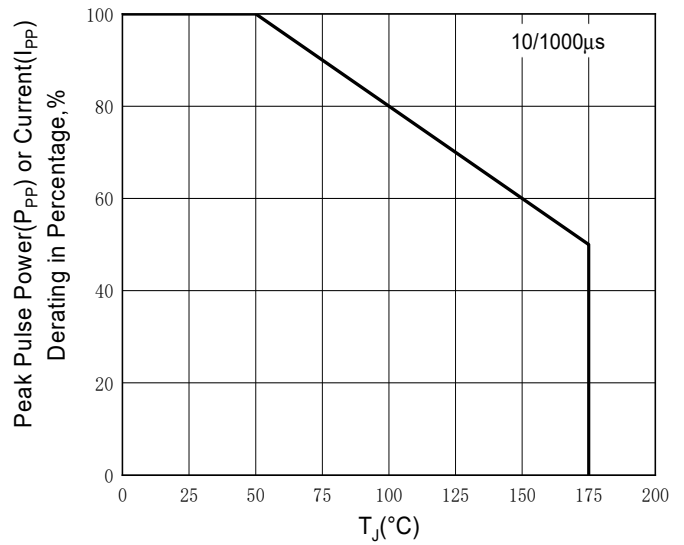


Fig.3 Pulse Waveform

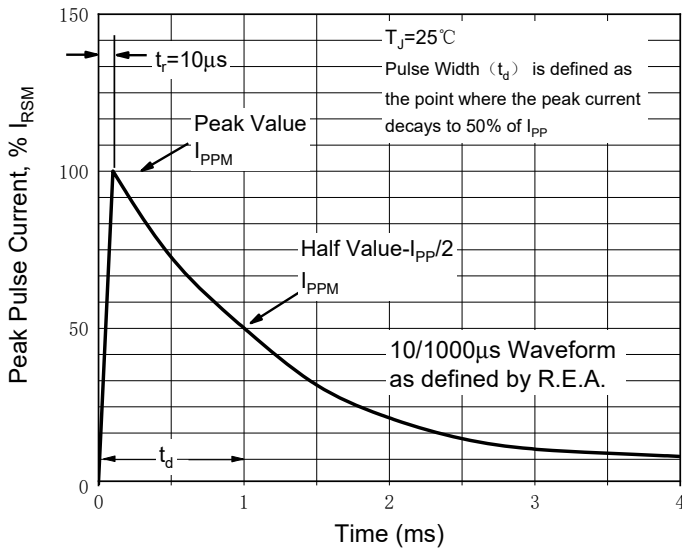


Fig.4 Typical Transient Thermal Impedance

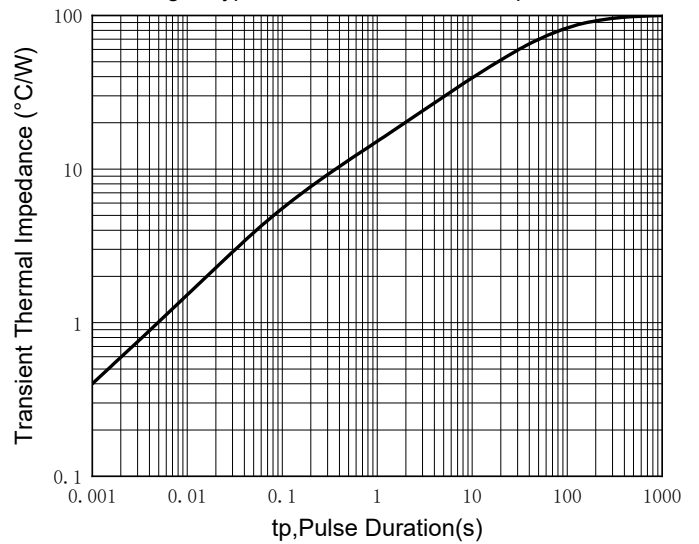


Fig.5 Maximum Non-Repetitive Forward Surge Current

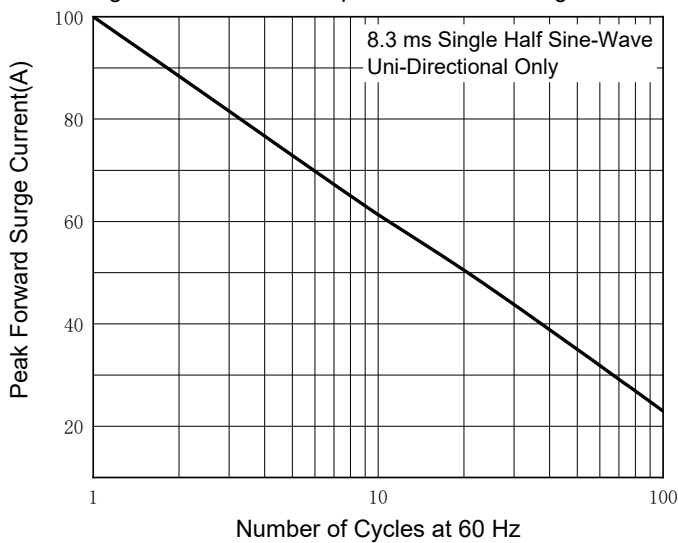
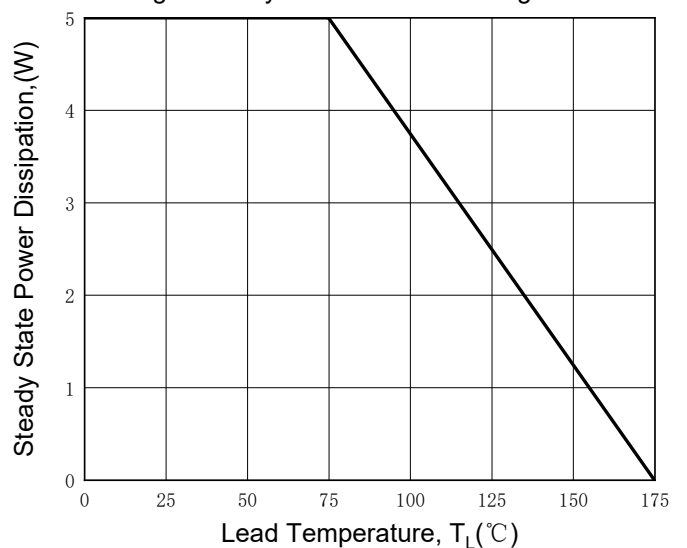


Fig.6 Steady State Power Derating Curve



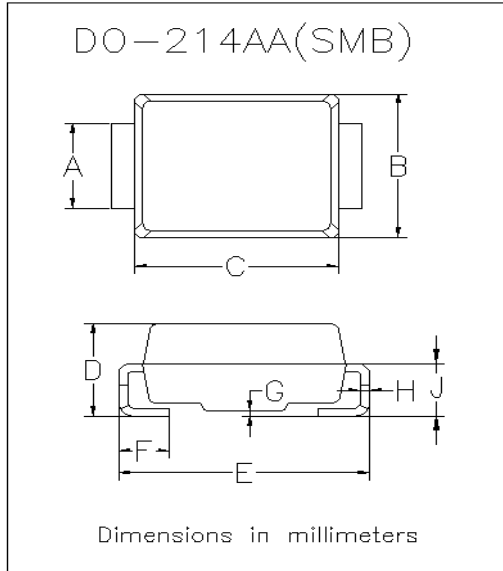


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Ordering Information (Example)

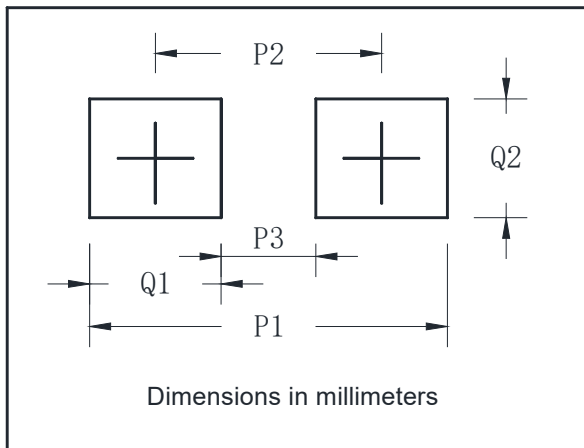
REFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB15J SERIES	F1	0.0975	3000	48000	13" reel

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



SMB10J SERIES

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