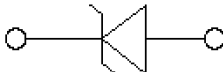
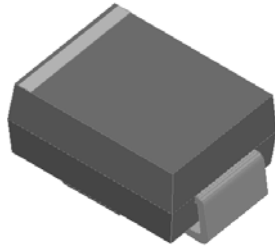


Surface Mount Transient Voltage Suppressors

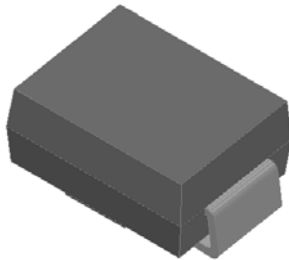
Uni-directional



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



1.5SMB SERIES

■ 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 mm 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} @I _T			Maximum Reverse Leakage I _R ⁽⁴⁾ _{RWM} (μA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} ⁽⁵⁾ (A)	Maximum Clamping Voltage V _c @ I _{PP} (V)
		Min(V)	Max (V)	I _T ⁽³⁾ (mA)				
1.5SMB7.5AQ	1.5SMB7.5CAQ	7.13	7.88	10	500	6.4	142.9	10.5
1.5SMB8.2AQ	1.5SMB8.2CAQ	7.79	8.61	10	200	7.0	124.0	12.1
1.5SMB9.1AQ	1.5SMB9.1CAQ	8.65	9.56	1	50	7.8	111.9	13.4
1.5SMB10AQ	1.5SMB10CAQ	9.50	10.50	1	10	8.6	103.5	14.5
1.5SMB11AQ	1.5SMB11CAQ	10.45	11.55	1	5	9.4	96.2	15.6
1.5SMB12AQ	1.5SMB12CAQ	11.40	12.60	1	5	10.2	89.8	16.7
1.5SMB13AQ	1.5SMB13CAQ	12.35	13.65	1	5	11.1	82.4	18.2
1.5SMB15AQ	1.5SMB15CAQ	14.25	15.75	1	1	12.8	70.8	21.2
1.5SMB16AQ	1.5SMB16CAQ	15.20	16.80	1	1	13.6	66.7	22.5
1.5SMB18AQ	1.5SMB18CAQ	17.10	18.90	1	1	15.3	59.5	25.2
1.5SMB20AQ	1.5SMB20CAQ	19.00	21.00	1	1	17.1	54.2	27.7
1.5SMB22AQ	1.5SMB22CAQ	20.90	23.10	1	1	18.8	49.0	30.6
1.5SMB24AQ	1.5SMB24CAQ	22.80	25.20	1	1	20.5	45.2	33.2
1.5SMB27AQ	1.5SMB27CAQ	25.65	28.35	1	1	23.1	40.0	37.5
1.5SMB30AQ	1.5SMB30CAQ	28.50	31.50	1	1	25.6	36.2	41.4
1.5SMB33AQ	1.5SMB33CAQ	31.35	34.65	1	1	28.2	32.8	45.7
1.5SMB36AQ	1.5SMB36CAQ	34.20	37.80	1	1	30.8	30.1	49.9
1.5SMB39AQ	1.5SMB39CAQ	37.05	40.95	1	1	33.3	27.8	53.9
1.5SMB43AQ	1.5SMB43CAQ	40.85	45.15	1	1	36.8	25.3	59.3
1.5SMB47AQ	1.5SMB47CAQ	44.65	49.35	1	1	40.2	23.2	64.8
1.5SMB51AQ	1.5SMB51CAQ	48.45	53.55	1	1	43.6	21.4	70.1
1.5SMB56AQ	1.5SMB56CAQ	53.20	58.80	1	1	47.8	19.5	77.0
1.5SMB62AQ	1.5SMB62CAQ	58.90	65.10	1	1	53.0	17.7	85.0
1.5SMB68AQ	1.5SMB68CAQ	64.60	71.40	1	1	58.1	16.3	92.0
1.5SMB75AQ	1.5SMB75CAQ	71.25	78.75	1	1	64.1	14.6	103.0
1.5SMB82AQ	1.5SMB82CAQ	77.90	86.10	1	1	70.1	13.3	113.0
1.5SMB91AQ	1.5SMB91CAQ	86.45	95.35	1	1	77.8	12.0	125.0

Notes:

- (3) Pulse test: t_p≤50ms.
- (4) For bi-directional types having VRWM of 10 V and less, the IR limit is doubled.
- (5) Surge current waveform per Fig. 3 and derated per Fig.2.



1.5SMB SERIES

■ Characteristics (Typical)

Fig.1 Peak Pulse Power Rating Curve

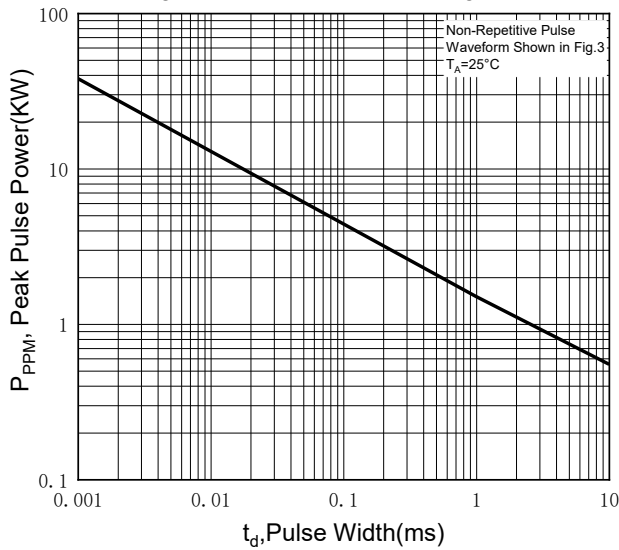


Fig.2 Pulse Power or Current vs. Initial Junction Temperature

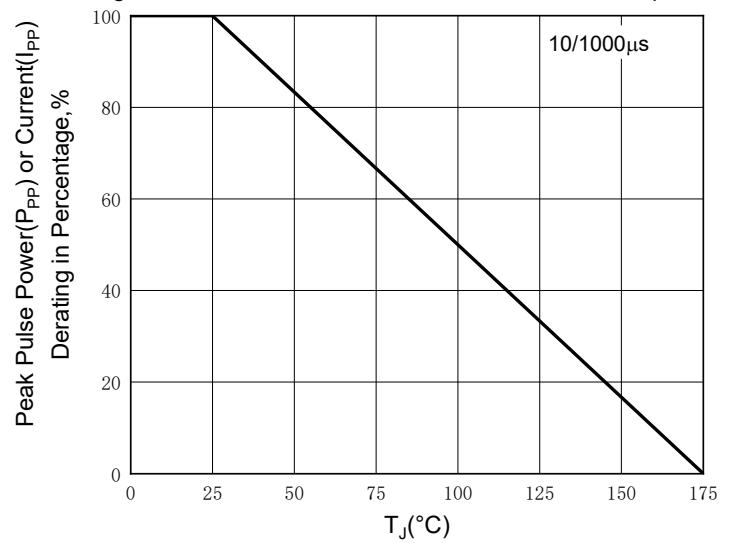


Fig.3 Pulse Waveform

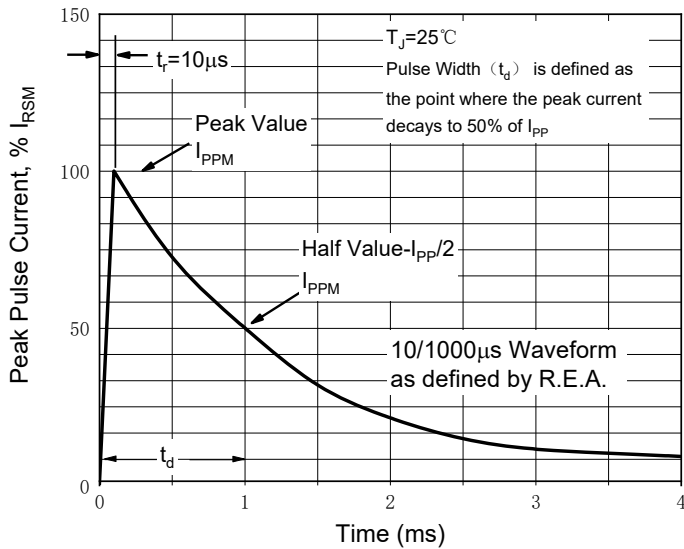


Fig.4 Typical Transient Thermal Impedance

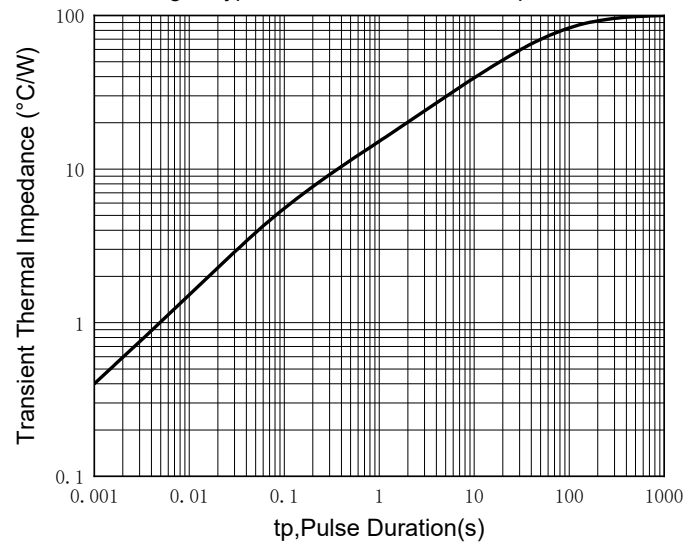


Fig.5 Maximum Non-Repetitive Forward Surge Current

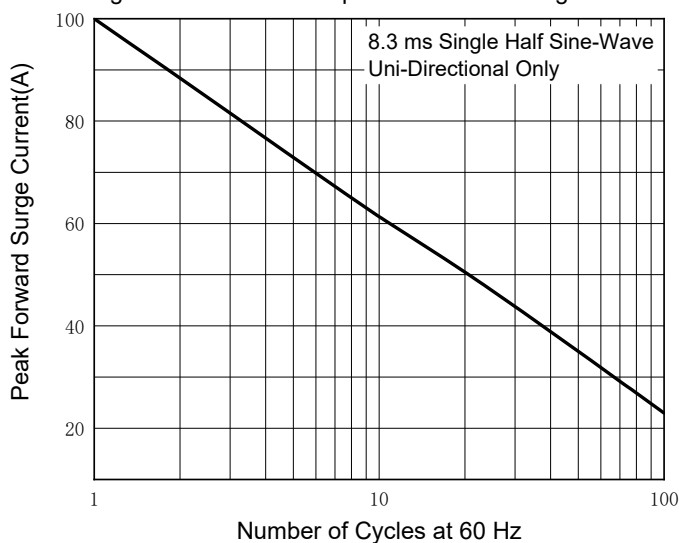
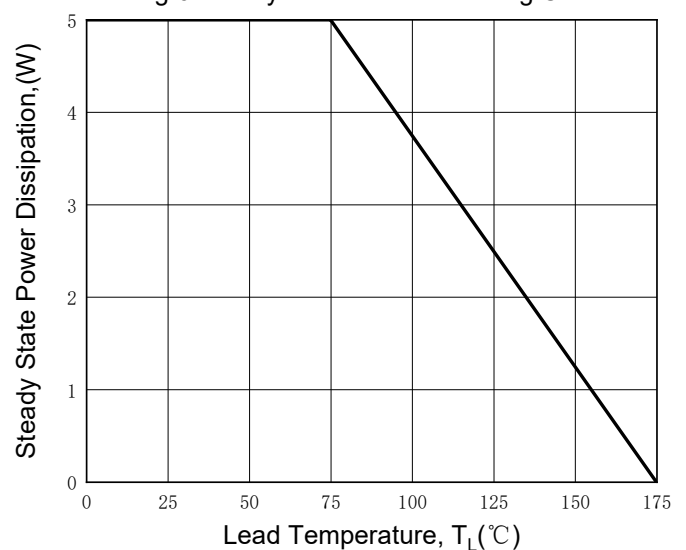


Fig.6 Steady State Power Derating Curve



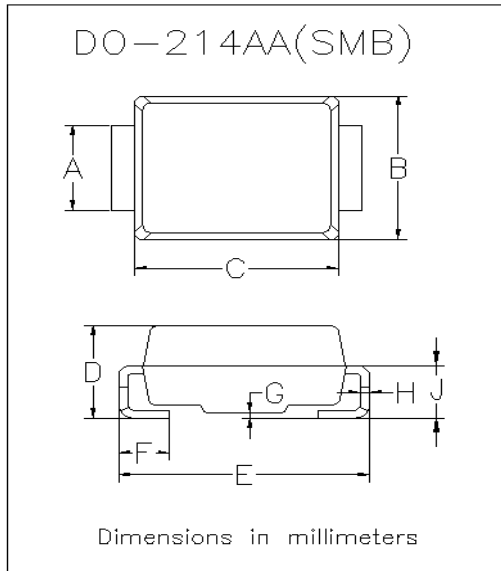


1.5SMB SERIES

■ Ordering Information (Example)

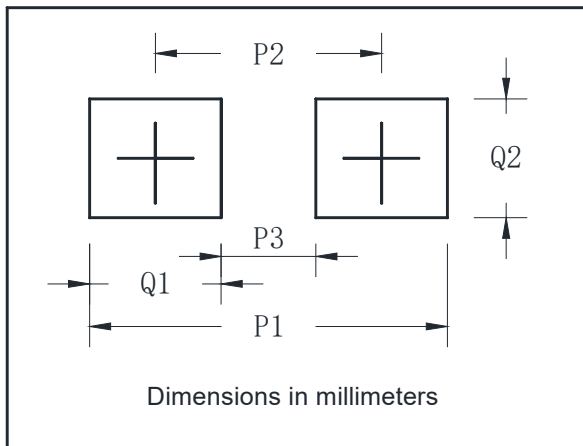
REFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
1.5SMB SERIES	F1	0.0975	3000	48000	13" reel

■ 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



1.5SMB SERIES

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with automotive electronics, are not designed for use in medical, lifesaving, lifesustaining, or military, Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.