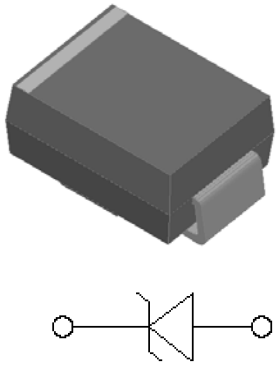
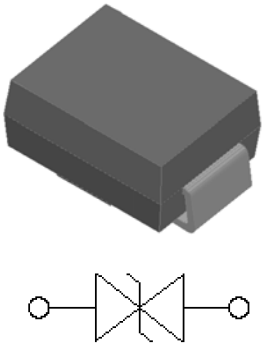
Surface Mount Transient Voltage Suppressors

Uni-directional



Bi-directional



Features

- UL recognition, file # E517074
- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1500 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 athode end, no marking on bi-directional types

■Maximum Ratings (T_a=25℃ 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℃	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（T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 25A for unidirectional only	V_F	V	3.5

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

■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:
(3) Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃per Fig.2.
(4) 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

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMB15J SERIES	F1	Approximate 0.0975	3000	/	48000	13” reel
SMB15J SERIES	F2	Approximate 0.0975	750	3000	24000	7” reel
SMB15J SERIES	F3	Approximate 0.0975	500	2000	16000	7” reel

■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@ 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)				
SMB15J8.0A	SMB15J8.0CA	8.89	9.83	1	50	8	110.29	13.6
SMB15J8.5A	SMB15J8.5CA	9.44	10.4	1	20	8.5	104.17	14.4
SMB15J9.0A	SMB15J9.0CA	10	11.1	1	10	9	97.4	15.4
SMB15J10A	SMB15J10CA	11.1	12.3	1	5	10	88.24	17
SMB15J11A	SMB15J11CA	12.2	13.5	1	5	11	82.42	18.2
SMB15J12A	SMB15J12CA	13.3	14.7	1	5	12	75.38	19.9
SMB15J13A	SMB15J13CA	14.4	15.9	1	5	13	69.77	21.5
SMB15J14A	SMB15J14CA	15.6	17.2	1	5	14	64.66	23.2
SMB15J15A	SMB15J15CA	16.70	18.50	1	5	15.0	61.48	24.4
SMB15J16A	SMB15J16CA	17.80	19.70	1	5	16.0	57.69	26.0
SMB15J17A	SMB15J17CA	18.90	20.90	1	5	17.0	54.35	27.6
SMB15J18A	SMB15J18CA	20.00	22.10	1	5	18.0	51.37	29.2
SMB15J19A	SMB15J19CA	21.10	23.30	1	5	19.0	48.73	30.8
SMB15J20A	SMB15J20CA	22.20	24.50	1	5	20.0	46.30	32.4
SMB15J22A	SMB15J22CA	24.40	26.90	1	5	22.0	42.25	35.5
SMB15J24A	SMB15J24CA	26.70	29.50	1	5	24.0	38.56	38.9
SMB15J26A	SMB15J26CA	28.90	31.90	1	5	26.0	35.63	42.1

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R@ 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)				
SMB15J28A	SMB15J28CA	31.10	34.40	1	5	28.0	33.04	45.4
SMB15J30A	SMB15J30CA	33.30	36.80	1	5	30.0	30.99	48.4
SMB15J33A	SMB15J33CA	36.70	40.60	1	5	33.0	28.14	53.3
SMB15J36A	SMB15J36CA	40.00	44.20	1	5	36.0	25.82	58.1
SMB15J40A	SMB15J40CA	44.40	49.10	1	5	40.0	23.26	64.5
SMB15J43A	SMB15J43CA	47.80	52.80	1	5	43.0	21.61	69.4
SMB15J45A	SMB15J45CA	50.00	55.30	1	5	45.0	20.63	72.7
SMB15J48A	SMB15J48CA	53.30	58.90	1	5	48.0	19.38	77.4
SMB15J51A	SMB15J51CA	56.70	62.70	1	5	51.0	18.20	82.4
SMB15J28A	SMB15J28CA	31.10	34.40	1	5	28.0	33.04	45.4
SMB15J30A	SMB15J30CA	33.30	36.80	1	5	30.0	30.99	48.4
SMB15J54A	SMB15J54CA	60.00	66.30	1	5	54.0	17.22	87.1
SMB15J58A	SMB15J58CA	64.40	71.20	1	5	58.0	16.03	93.6
SMB15J60A	SMB15J60CA	66.7	73.7	1	5	60	15.5	96.8
SMB15J64A	SMB15J64CA	71.1	78.6	1	5	64	14.56	103
SMB15J70A	SMB15J70CA	77.8	86	1	5	70	13.27	113
SMB15J75A	SMB15J75CA	83.3	92.1	1	5	75	12.4	121
SMB15J78A	SMB15J78CA	86.7	95.8	1	5	78	11.9	126
SMB15J80A	SMB15J80CA	88.8	97.6	1	5	80	11.57	129.6
SMB15J85A	SMB15J85CA	94.4	104	1	5	85	10.95	137

Notes:
(1) Pulse test: t_p≤50ms.
(2) Surge current waveform per Fig. 3 and derated per Fig.2.

■ **Characteristics** (Typical)

FIG1:Peak Pulse Power Rating Curve

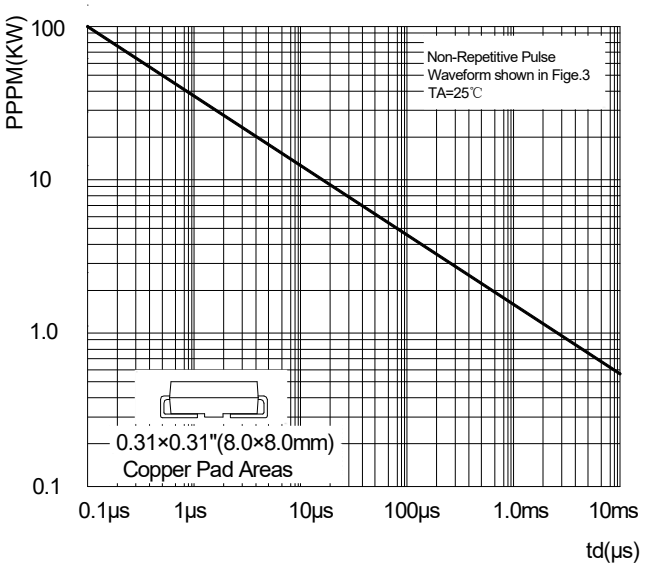


FIG2: Pulse Power or Current vs. Initial Junction Temperature

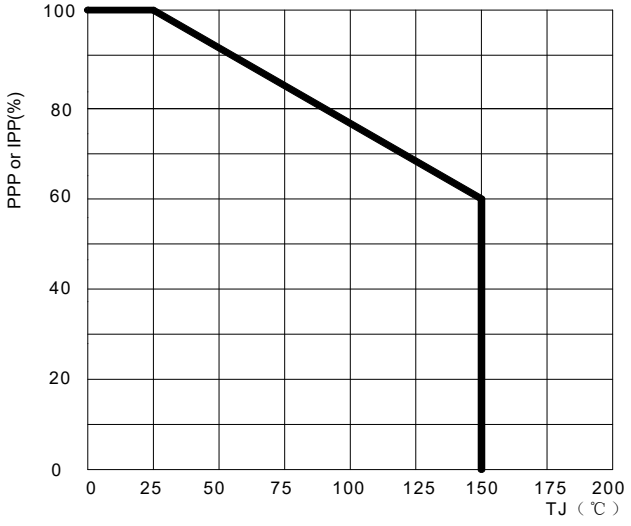


FIG3: Pulse Waveform

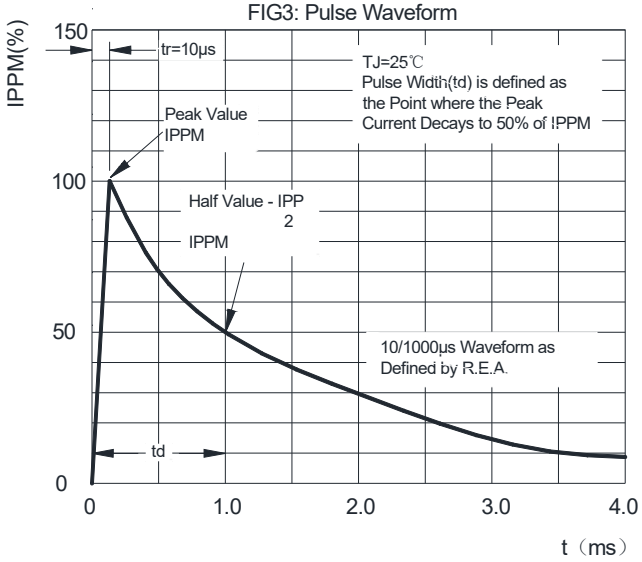


FIG4: Maximum Non-Repetitive Surge Current

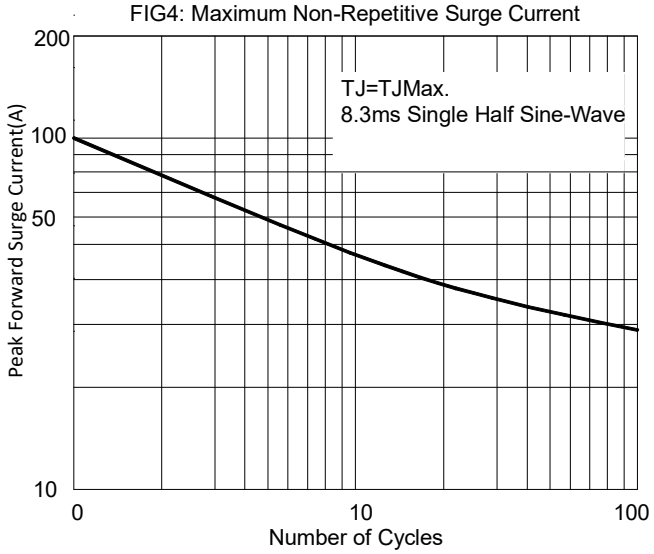
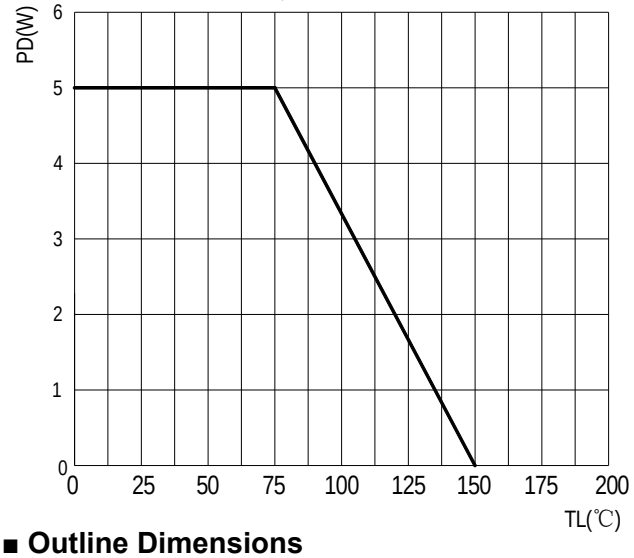
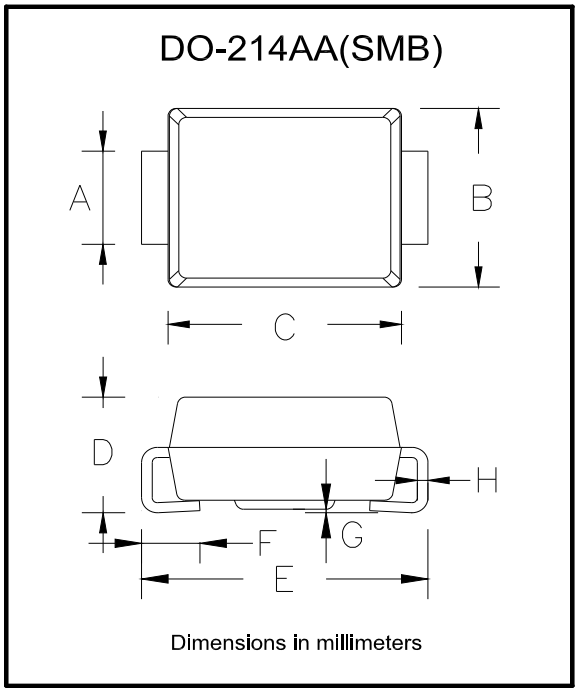


FIG5:Steady State Power Dissipation

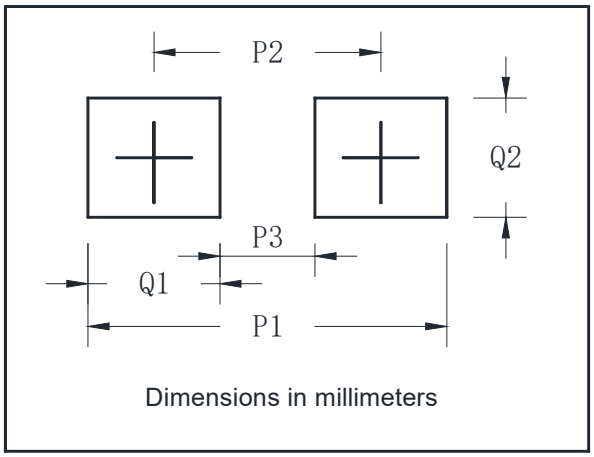


■ Outline Dimensions



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

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 ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), 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 , or consult your nearest Yangjie's sales office for further assistance.