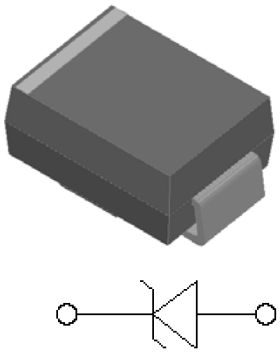
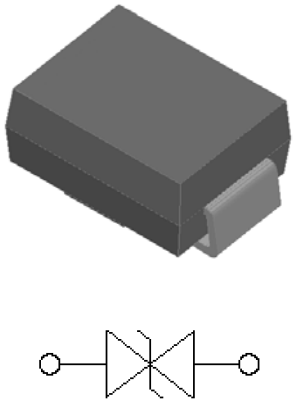
Surface Mount Transient Voltage Suppressors

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)				
1.0SMB6.8A	1.0SMB6.8CA	6.46	7.14	10	1000	5.8	95.2	10.5
1.0SMB7.5A	1.0SMB7.5CA	7.13	7.88	10	500	6.4	88.5	11.3
1.0SMB8.2A	1.0SMB8.2CA	7.79	8.61	10	200	7.0	82.6	12.1
1.0SMB9.1A	1.0SMB9.1CA	8.65	9.56	1	50	7.8	74.6	13.4
1.0SMB10A	1.0SMB10CA	9.50	10.50	1	10	8.6	69.0	14.5
1.0SMB11A	1.0SMB11CA	10.45	11.55	1	5	9.4	64.1	15.6
1.0SMB12A	1.0SMB12CA	11.40	12.60	1	5	10.2	59.9	16.7
1.0SMB13A	1.0SMB13CA	12.35	13.65	1	5	11.1	54.9	18.2
1.0SMB15A	1.0SMB15CA	14.25	15.75	1	5	12.8	47.2	21.2
1.0SMB16A	1.0SMB16CA	15.20	16.80	1	5	13.6	44.4	22.5
1.0SMB18A	1.0SMB18CA	17.10	18.90	1	5	15.3	39.7	25.2
1.0SMB20A	1.0SMB20CA	19.00	21.00	1	5	17.1	36.1	27.7
1.0SMB22A	1.0SMB22CA	20.90	23.10	1	5	18.8	32.7	30.6
1.0SMB24A	1.0SMB24CA	22.80	25.20	1	5	20.5	30.1	33.2
1.0SMB27A	1.0SMB27CA	25.65	28.35	1	5	23.1	26.7	37.5
1.0SMB30A	1.0SMB30CA	28.50	31.50	1	5	25.6	24.2	41.4
1.0SMB33A	1.0SMB33CA	31.35	34.65	1	5	28.2	21.9	45.7
1.0SMB36A	1.0SMB36CA	34.20	37.80	1	5	30.8	20.0	49.9
1.0SMB39A	1.0SMB39CA	37.05	40.95	1	5	33.3	18.6	53.9
1.0SMB43A	1.0SMB43CA	40.85	45.15	1	5	36.8	16.9	59.3
1.0SMB47A	1.0SMB47CA	44.65	49.35	1	5	40.2	15.4	64.8
1.0SMB51A	1.0SMB51CA	48.45	53.55	1	5	43.6	14.3	70.1
1.0SMB56A	1.0SMB56CA	53.20	58.80	1	5	47.8	13.0	77.0
1.0SMB62A	1.0SMB62CA	58.90	65.10	1	5	53.0	11.8	85.0
1.0SMB68A	1.0SMB68CA	64.60	71.40	1	5	58.1	10.9	92.0

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 VRWM of 10 V and less, the I_R limit is doubled.

■ Characteristics (Typical)

FIG1:Peak Pulse Power Rating Curve

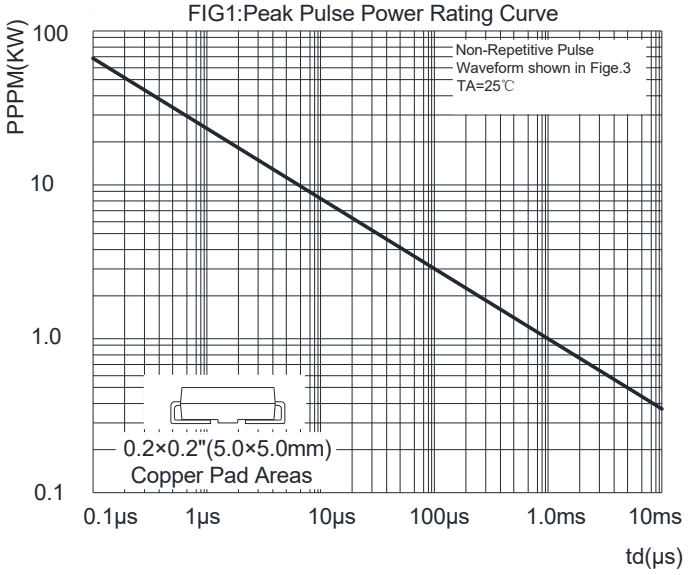


FIG2: Pulse Power or Current vs. Initial Junction Temperature

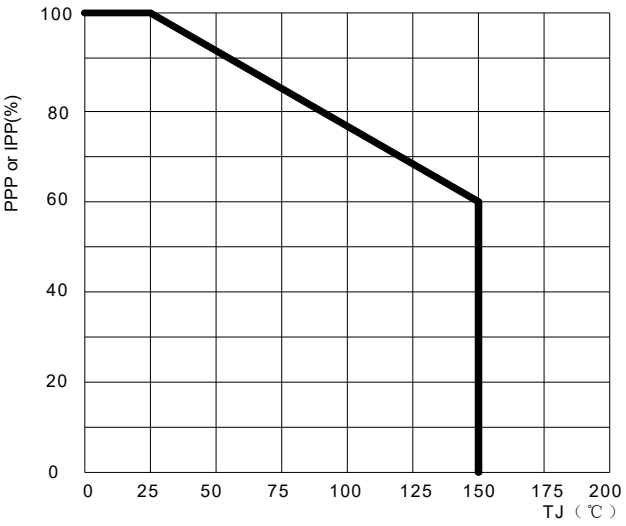


FIG3: Pulse Waveform

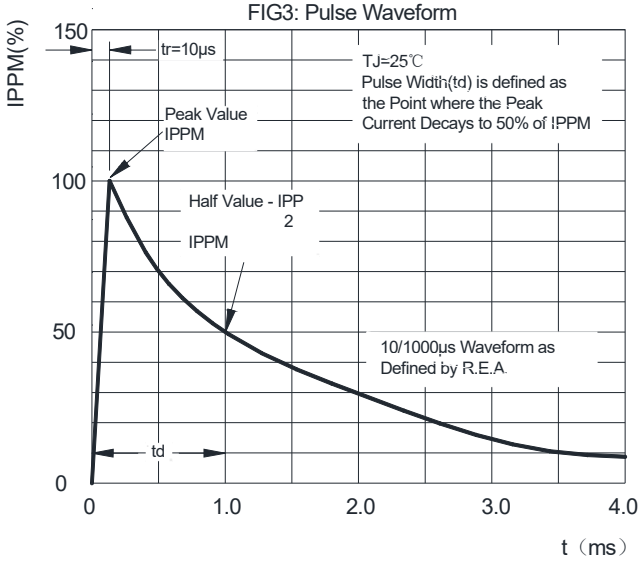


FIG4:Typical Transient Thermal Impedance

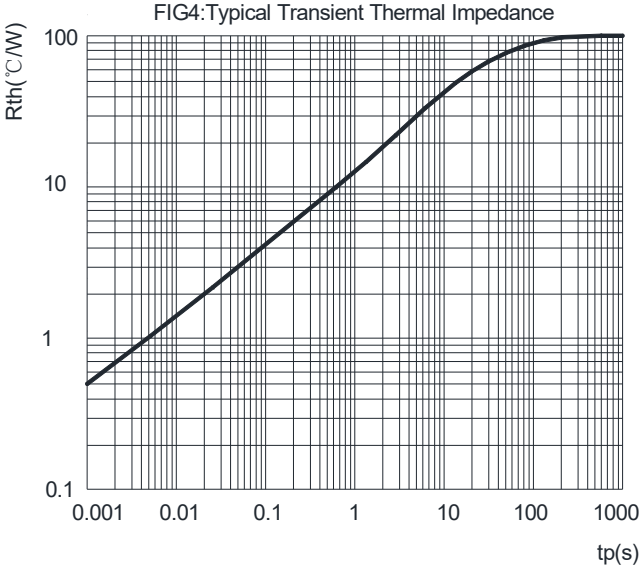


FIG5: Maximum Non-Repetitive Surge Current

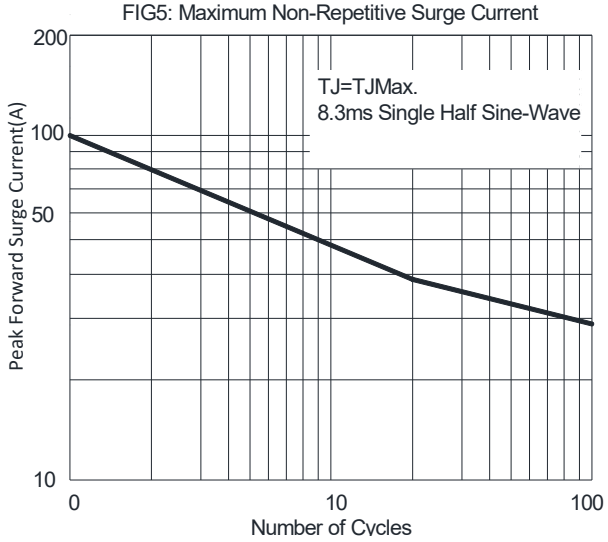
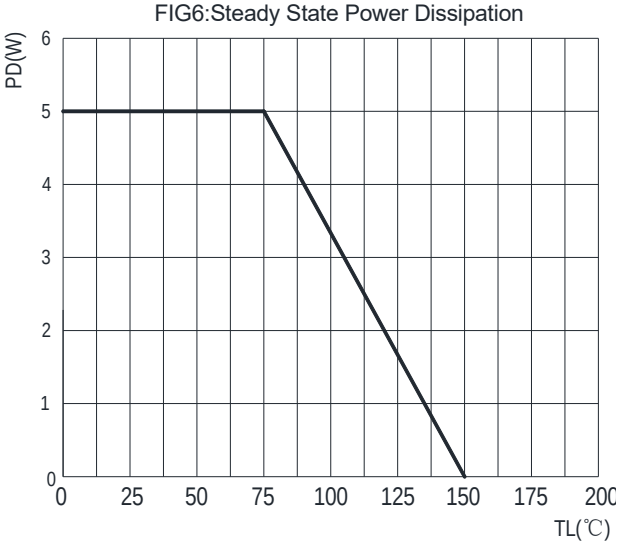


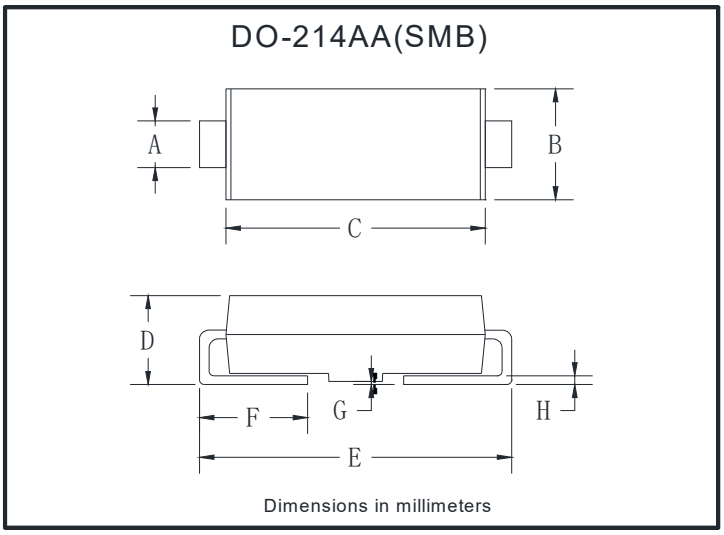
FIG6:Steady State Power Dissipation



■Ordering Information (Example)

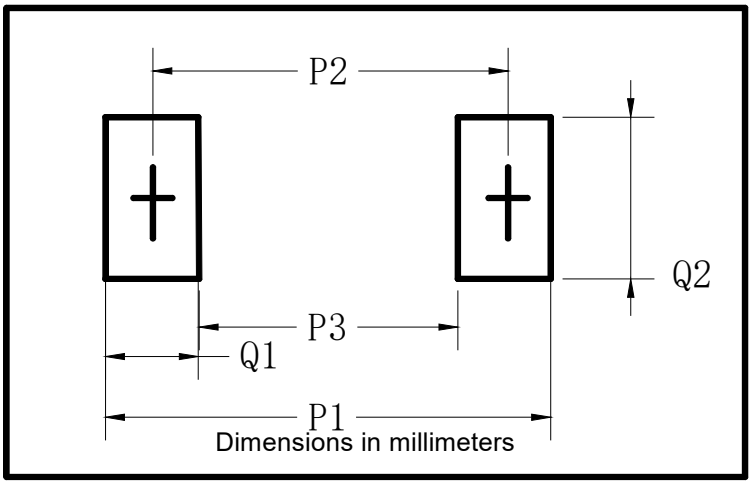
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
1.0SMB SERIES	F1	0.0975	3000	/	48000	13” reel
1.0SMB SERIES	F2	0.0975	750	3000	24000	7” reel
1.0SMB SERIES	F3	0.0975	500	2000	16000	7” reel

■ 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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