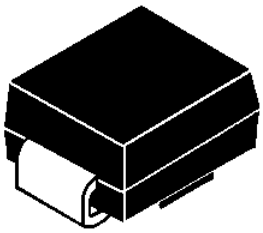
600W Surface Mount Transient Voltage Suppressors

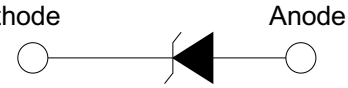
Features

- Peak power dissipation 600W @10 x 1000 us Pulse
- Low profile package.
- Excellent clamping capability.
- Glass passivated junction.
- Fast response time: typically less than 1ps from 0 Volts to BV min
- Typical I_R less than 1uA when V_{BR} min above 12V.
- IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Halogen free and RoHS compliant
- Lead-free finish



SMB

Bi-directional



Uni-directional

Mechanical Characteristics

- CASE: SMB (DO-214AA) Molded Plastic over glass passivated junction.
- Mounting Position: Any
- Polarity: by cathode band denotes uni-directional device, none cathode band denotes bi-directional device.
- Terminal: Solder plated.

Maximum Ratings and Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, 2, FIG.1)	P_{PPM}	Min 600	W
Power Dissipation on Infinite Heat Sink at T_L=50°C	P_D	3	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	I_{PPM}	See Table 1	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2. 3)	I_{FSM}	100	A
Operating Junction Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.
2. Mounted on 5.0x5.0mm^2 (0.03mm thick) Copper Pads to each terminal.
3. Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

Electrical Specification @ Tamb 25°C

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RMW}
(Uni)	(Bi)	V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
P6SMB6.8A	P6SMB6.8CA	5.80	6.45	7.14	10	10.5	58.1	300
P6SMB7.5A	P6SMB7.5CA	6.40	7.13	7.88	10	11.3	54.0	200
P6SMB8.2A	P6SMB8.2CA	7.02	7.79	8.61	10	12.1	50.4	100
P6SMB9.1A	P6SMB9.1CA	7.78	8.65	9.55	1	13.4	45.5	50
P6SMB10A	P6SMB10CA	8.55	9.50	10.50	1	14.5	42.1	10
P6SMB11A	P6SMB11CA	9.40	10.50	11.60	1	15.6	39.1	5
P6SMB12A	P6SMB12CA	10.20	11.40	12.60	1	16.7	36.5	1
P6SMB13A	P6SMB13CA	11.10	12.40	13.70	1	18.2	33.5	1
P6SMB15A	P6SMB15CA	12.80	14.30	15.80	1	21.2	28.8	1
P6SMB16A	P6SMB16CA	13.60	15.20	16.80	1	22.5	27.1	1
P6SMB18A	P6SMB18CA	15.30	17.10	18.90	1	25.2	24.2	1
P6SMB20A	P6SMB20CA	17.10	19.00	21.00	1	27.7	22.0	1
P6SMB22A	P6SMB22CA	18.80	20.90	23.10	1	30.6	19.9	1
P6SMB24A	P6SMB24CA	20.50	22.80	25.20	1	33.2	18.4	1
P6SMB27A	P6SMB27CA	23.10	25.70	28.40	1	37.5	16.3	1
P6SMB30A	P6SMB30CA	25.60	28.50	31.50	1	41.4	14.7	1
P6SMB33A	P6SMB33CA	28.20	31.40	34.70	1	45.7	13.3	1
P6SMB36A	P6SMB36CA	30.80	34.20	37.80	1	49.9	12.2	1
P6SMB39A	P6SMB39CA	33.30	37.10	41.00	1	53.9	11.3	1
P6SMB43A	P6SMB43CA	36.80	40.90	45.20	1	59.3	10.3	1
P6SMB47A	P6SMB47CA	40.20	44.70	49.40	1	64.8	9.4	1
P6SMB51A	P6SMB51CA	43.60	48.50	53.60	1	70.1	8.7	1
P6SMB56A	P6SMB56CA	47.80	53.20	58.80	1	77.0	7.9	1
P6SMB62A	P6SMB62CA	53.00	58.90	65.10	1	85.0	7.2	1
P6SMB68A	P6SMB68CA	58.10	64.60	71.40	1	92.0	6.6	1
P6SMB75A	P6SMB75CA	64.10	71.30	78.80	1	103.0	5.9	1
P6SMB82A	P6SMB82CA	70.10	77.90	86.10	1	113.0	5.4	1
P6SMB91A	P6SMB91CA	77.80	86.50	95.50	1	125.0	4.9	1
P6SMB100A	P6SMB100CA	85.50	95.00	105.00	1	137.0	4.5	1
P6SMB110A	P6SMB110CA	94.00	105.00	116.00	1	152.0	4.0	1
P6SMB120A	P6SMB120CA	102.00	114.00	126.00	1	165.0	3.7	1
P6SMB130A	P6SMB130CA	111.00	124.00	137.00	1	179.0	3.4	1
P6SMB150A	P6SMB150CA	128.00	143.00	158.00	1	207.0	2.9	1
P6SMB160A	P6SMB160CA	136.00	152.00	168.00	1	219.0	2.8	1
P6SMB170A	P6SMB170CA	145.00	162.00	179.00	1	234.0	2.6	1
P6SMB180A	P6SMB180CA	154.00	171.00	189.00	1	246.0	2.5	1

※ For Bi-directional type having V_{RWM} of 10 Volts and less, the I_R limit is double.

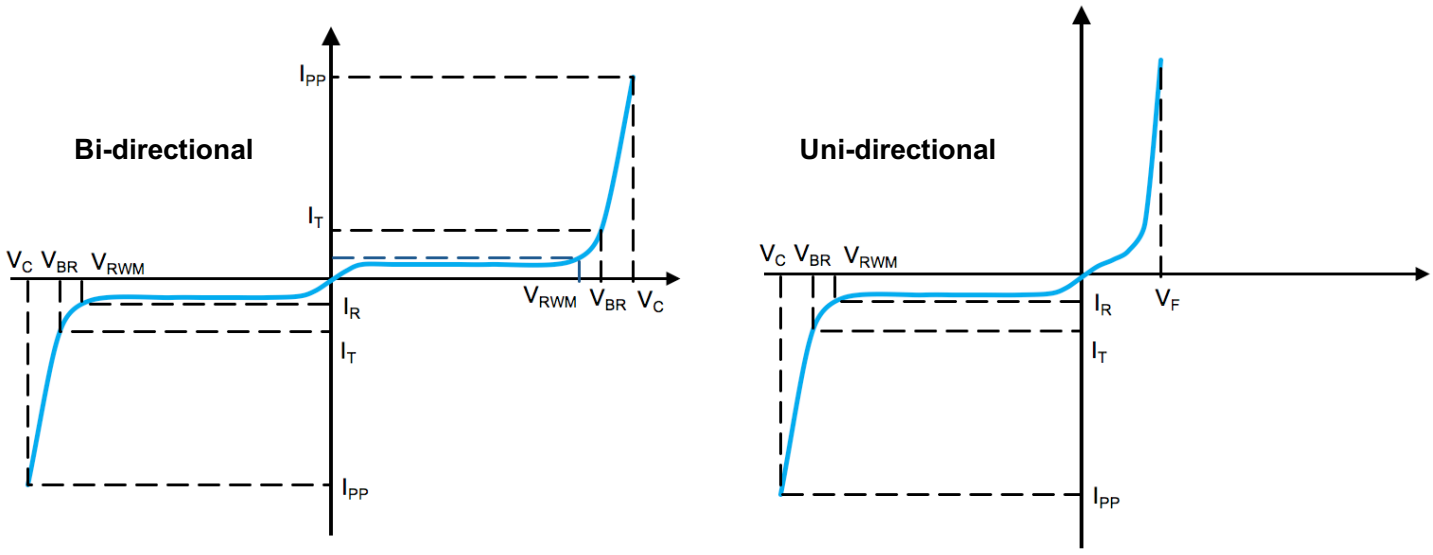
※ For parts without A, the VBR is ± 10% and VC is 5% higher than with A parts.

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RMW}
(Uni)	(Bi)	V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
P6SMB200A	P6SMB200CA	171.00	190.00	210.00	1	274.0	2.2	1
P6SMB220A	P6SMB220CA	185.00	209.00	231.00	1	328.0	1.9	1
P6SMB250A	P6SMB250CA	214.00	237.00	263.00	1	344.0	1.8	1
P6SMB300A	P6SMB300CA	256.00	285.00	315.00	1	414.0	1.5	1
P6SMB350A	P6SMB350CA	300.00	332.00	368.00	1	482.0	1.3	1
P6SMB400A	P6SMB400CA	342.00	380.00	420.00	1	548.0	1.1	1
P6SMB440A	P6SMB440CA	376.00	418.00	462.00	1	602.0	1.0	1
P6SMB480A	P6SMB480CA	408.00	456.00	504.00	1	658.0	0.9	1
P6SMB510A	P6SMB510CA	434.00	485.00	535.00	1	698.0	0.9	1
P6SMB530A	P6SMB530CA	451.00	503.50	556.50	1	725.0	0.8	1
P6SMB540A	P6SMB540CA	460.00	513.00	567.00	1	740.0	0.8	1
P6SMB550A	P6SMB550CA	468.00	522.50	577.50	1	760.0	0.8	1

※ For Bi-directional type having V_{RWM} of 10 Volts and less, the I_R limit is double.

※ For parts without A, the VBR is ± 10% and VC is 5% higher than with A parts.

I-V Curve Characteristics



P_{PPM} **Peak Pulse Power Dissipation** - Max power dissipation

V_{RWM} **Reverse Stand-off Voltage** - Maximum voltage that can be applied to TVS without operation

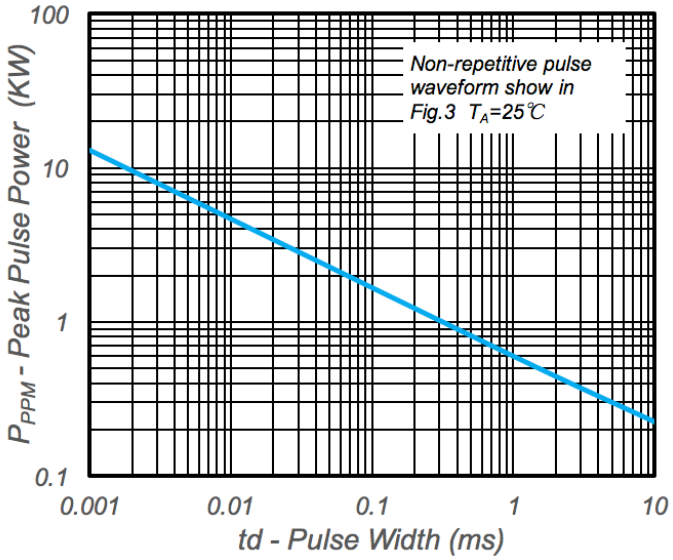
V_{BR} **Breakdown Voltage** – Maximum voltage that flows though the TVS at a specified current (I_T)

V_C **Clamping Voltage** – Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)

I_R **Reverse Leakage Current** – Current measured at V_R

V_F **Forward Voltage Drop for Uni-directional**

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)



Tp-Pulse Width(ms)

Fig.1 - Peak Pulse Power Rating

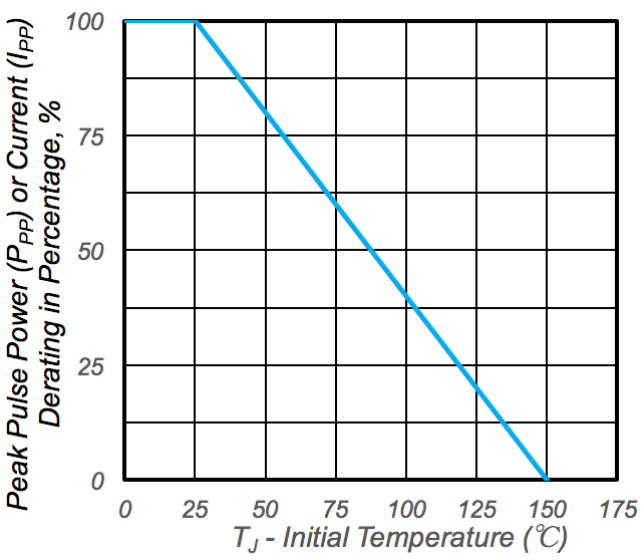


Fig.2 - Pulse Derating Cure

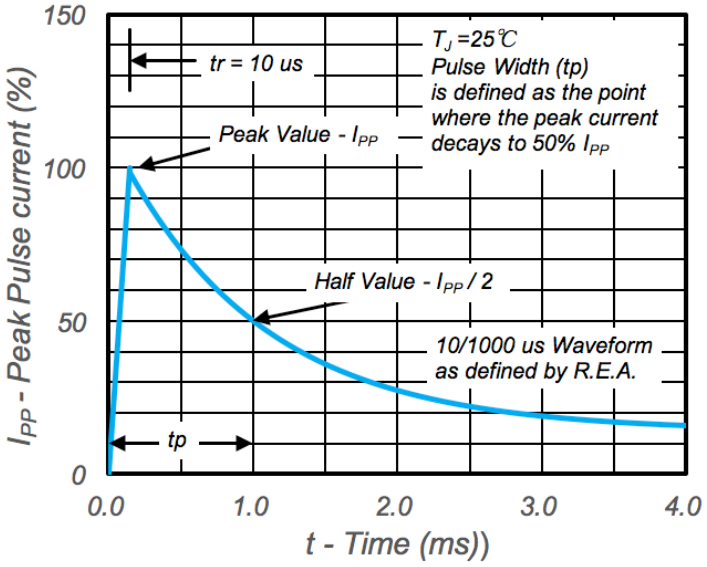


Fig.3 – Pulse Waveform

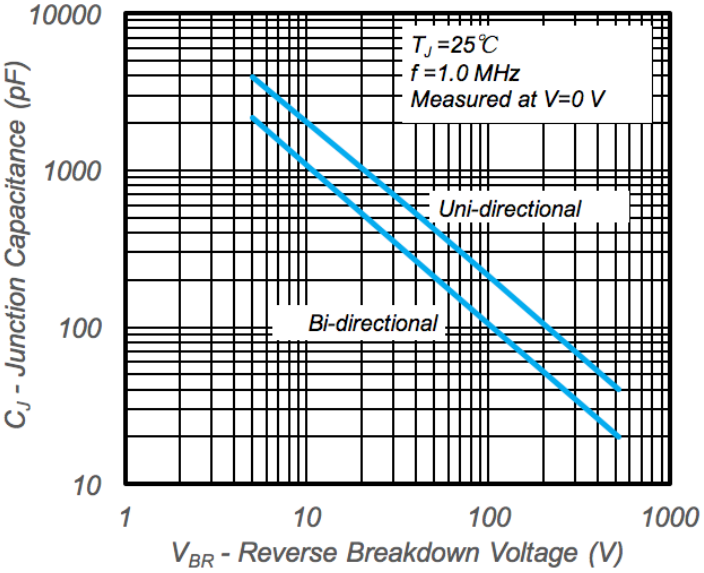
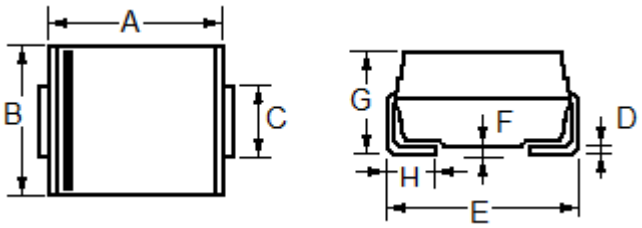


Fig.4 - Typical Junction Capacitance

Package Outline Dimensions and Pad Layouts

DO-214AA (SMB)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	4.06	4.57	0.160	0.180
B	3.30	3.94	0.130	0.155
C	1.95	2.20	0.077	0.086
D	0.13	0.31	0.006	0.012
E	5.11	5.49	0.201	0.216
F	----	0.20	----	0.008
G	2.13	2.44	0.084	0.096
H	0.76	1.52	0.030	0.060