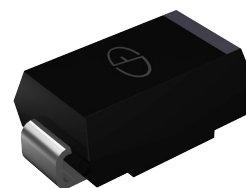


## Features

- Glass passivated junction
- Low incremental surge resistance
- 600W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- High temperature soldering guaranteed:250°C/10seconds at terminals



DO-214AA(SMB)

## Mechanical Data

**Case:** JEDEC DO-214AA(SMB) molded plastic over passivated junction

**Terminals:** Solder plated, solderable per MIL-STD-750 Method 2026

**Polarity:** For unidirectional types the band denotes the cathode, which is positive with respect to the anode under normal TVS

**Weight:** 0.003oz., 0.093g



**RoHS**  
COMPLIANT

## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation With a 10/1000us Waveform <sup>1,2</sup>	P <sub>PPM</sub>	Minimum 600	W
Peak Pulse Current With a 10/1000us Waveform <sup>1</sup>	I <sub>PPM</sub>	See Next Table	A
Power Dissipation On Infinite Heatsink, T <sub>A</sub> =50°C	P <sub>M(AV)</sub>	5	W
Peak Forward Surge Current 8.3ms Single Half Sine-wave Uni-Directional Only <sup>2</sup>	I <sub>FSM</sub>	100	A
Typical Thermal Resistance, Junction To Ambient Air <sup>3</sup>	R <sub>θJA</sub>	100	°C/W
Typical Thermal Resistance, Junction To Leads	R <sub>θJL</sub>	20	°C/W
Operating Junction Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

**Notes:**

1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2
2. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal
3. Mounted on minimum recommended pad layout

**Electrical Characteristics**  $T_A=25^\circ\text{C}$  unless otherwise specified,  $V_F=3.5\text{V}$  at  $I_F=50\text{A}$  (uni-directional only)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage <sup>1</sup>		Test Current	Stand-off Voltage	Max. Reverse Leakage Current <sup>3</sup>	Max. Clamping Voltage	Max. Peak Pulse Current <sup>2</sup>	Max. Temperature Coefficient Of $V_{BR}$
				$V_{(BR)}^1$							
		Min.	Max.	V	V	$\mu\text{A}$	V	A			
		UNI	BI						V	V	
P6SMB6.8A	P6SMB6.8CA	6V8A	6V8C	6.45	7.14	10	5.80	1000	10.5	57.1	0.05
P6SMB7.5A	P6SMB7.5CA	7V5A	7V5C	7.13	7.88	10	6.40	500	11.3	53.1	0.061
P6SMB8.2A	P6SMB8.2CA	8V2A	8V2C	7.79	8.61	10	7.02	200	12.1	49.6	0.065
P6SMB9.1A	P6SMB9.1CA	9V1A	9V1C	8.65	9.55	1.0	7.78	50	13.4	44.8	0.068
P6SMB10A	P6SMB10CA	10A	10C	9.50	10.5	1.0	8.55	10	14.5	41.4	0.073
P6SMB11A	P6SMB11CA	11A	11C	10.5	11.6	1.0	9.40	5.0	15.6	38.5	0.075
P6SMB12A	P6SMB12CA	12A	12C	11.4	12.6	1.0	10.2	5.0	16.7	35.9	0.078
P6SMB13A	P6SMB13CA	13A	13C	12.4	13.7	1.0	11.1	5.0	18.2	33.0	0.081
P6SMB15A	P6SMB15CA	15A	15C	14.3	15.8	1.0	12.8	1.0	21.2	28.3	0.084
P6SMB16A	P6SMB16CA	16A	16C	15.2	16.8	1.0	13.6	1.0	22.5	26.7	0.086
P6SMB18A	P6SMB18CA	18A	18C	17.1	18.9	1.0	15.3	1.0	25.2	23.8	0.088
P6SMB20A	P6SMB20CA	20A	20C	19.0	21.0	1.0	17.1	1.0	27.7	21.7	0.090
P6SMB22A	P6SMB22CA	22A	22C	20.9	23.1	1.0	18.8	1.0	30.6	19.6	0.092
P6SMB24A	P6SMB24CA	24A	24C	22.8	25.2	1.0	20.5	1.0	33.2	18.1	0.094
P6SMB27A	P6SMB27CA	27A	27C	25.7	28.4	1.0	23.1	1.0	37.5	16.0	0.096
P6SMB30A	P6SMB30CA	30A	30C	28.5	31.5	1.0	25.6	1.0	41.4	14.5	0.097
P6SMB33A	P6SMB33CA	33A	33C	31.4	34.7	1.0	28.2	1.0	45.7	13.1	0.098
P6SMB36A	P6SMB36CA	36A	36C	34.2	37.8	1.0	30.8	1.0	49.9	12.0	0.099
P6SMB39A	P6SMB39CA	39A	39C	37.1	41.0	1.0	33.3	1.0	53.9	11.1	0.100
P6SMB43A	P6SMB43CA	43A	43C	40.9	45.2	1.0	36.8	1.0	59.3	10.1	0.101
P6SMB47A	P6SMB47CA	47A	47C	44.7	49.4	1.0	40.2	1.0	64.8	9.3	0.101
P6SMB51A	P6SMB51CA	51A	51C	48.5	53.6	1.0	43.6	1.0	70.1	8.6	0.102
P6SMB56A	P6SMB56CA	56A	56C	53.2	58.8	1.0	47.8	1.0	77.0	7.8	0.103
P6SMB62A	P6SMB62CA	62A	62C	58.9	65.1	1.0	53.0	1.0	85.0	7.1	0.104
P6SMB68A	P6SMB68CA	68A	68C	64.6	71.4	1.0	58.1	1.0	92.0	6.5	0.104
P6SMB75A	P6SMB75CA	75A	75C	71.3	78.8	1.0	64.1	1.0	103	5.8	0.105
P4SMA82A	P4SMA82CA	82A	82C	77.9	86.1	1.0	70.1	1.0	113	5.3	0.105

## Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise specified, $V_F=3.5\text{V}$ at $I_F=50\text{A}$ (uni-directional only)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage <sup>1</sup>		Test Current	Stand-off Voltage	Max. Reverse Leakage Current <sup>3</sup>	Max. Clamping Voltage	Max. Peak Pulse Current <sup>2</sup>	Max. Temperature Coefficient Of $V_{BR}$
				$V_{(BR)}^1$							
		UNI	BI	Min.	Max.						
		V	V	mA	V	$\mu\text{A}$	V	A	(% / °C)		
P6SMB91A	P6SMB91CA	91A	91C	86.5	95.5	1.0	77.8	1.0	125	4.8	0.106
P6SMB100A	P6SMB100CA	100A	100C	95.0	105	1.0	85.5	1.0	137	4.4	0.106
P6SMB110A	P6SMB110CA	110A	110C	105	116	1.0	94.0	1.0	152	3.9	0.107
P6SMB120A	P6SMB120CA	120A	120C	114	126	1.0	102	1.0	165	3.6	0.107
P6SMB130A	P6SMB130CA	130A	130C	124	137	1.0	111	1.0	179	3.4	0.107
P6SMB150A	P6SMB150CA	150A	150C	143	158	1.0	128	1.0	207	2.9	0.108
P6SMB160A	P6SMB160CA	160A	160C	152	168	1.0	136	1.0	219	2.7	0.108
P6SMB170A	P6SMB170CA	170A	170C	162	179	1.0	145	1.0	234	2.6	0.108
P6SMB180A	P6SMB180CA	180A	180C	171	189	1.0	154	1.0	246	2.4	0.108
P6SMB200A	P6SMB200CA	200A	200C	190	210	1.0	171	1.0	274	2.2	0.108
P6SMB220A	P6SMB220CA	220A	220C	209	231	1.0	185	1.0	328	1.9	0.108
P6SMB250A	P6SMB250CA	250A	250C	237	263	1.0	214	1.0	344	1.8	0.108
P6SMB300A	P6SMB300CA	300A	300C	285	315	1.0	256	1.0	414	1.5	0.108
P6SMB350A	P6SMB350CA	350A	350C	332	368	1.0	300	1.0	482	1.3	0.108
P6SMB400A	P6SMB400CA	400A	400C	380	420	1.0	342	1.0	548	1.1	0.108
P6SMB440A	P6SMB440CA	440A	440C	418	462	1.0	376	1.0	602	1.0	0.108
P6SMB480A	P6SMB480CA	480A	480C	456	504	1.0	408	1.0	658	0.9	0.108
P6SMB510A	P6SMB510CA	510A	510C	485	535	1.0	434	1.0	698	0.9	0.108
P6SMB530A	P6SMB530CA	530A	530C	503.5	556.5	1.0	477	1.0	725	0.8	0.108
P6SMB540A	P6SMB540CA	540A	540C	513	567	1.0	459	1.0	740	0.8	0.108
P6SMB550A	P6SMB550CA	550A	550C	522.5	577.5	1.0	495	1.0	760	0.8	0.108

- Notes:** 1.  $V_{(BR)}$  measured after  $I_T$  applied for 300us square wave pulse or equivalent  
2. Surge current waveform per Fig. 3 and derate per Fig. 2  
3. For bi-directional types having  $V_{WM}$  of 10 Volts and less, the  $I_D$  limit is doubled  
4. All terms and symbols are consistent with ANSI/IEEE C62.35

## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

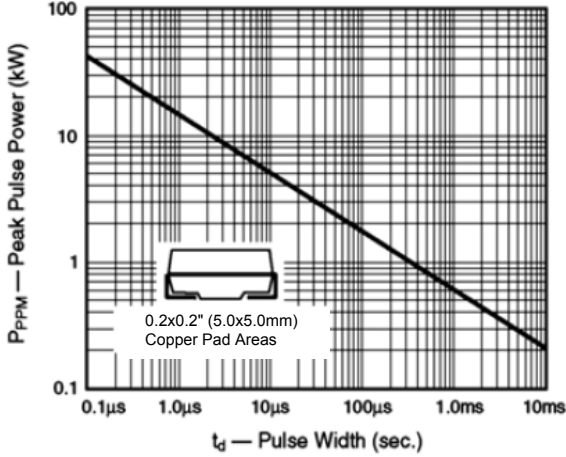


Figure 1. Peak Pulse Power Rating Curve

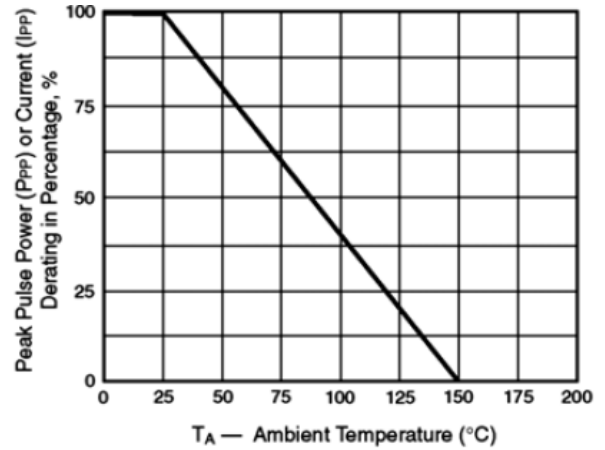


Figure 2. Pulse Derating Curve

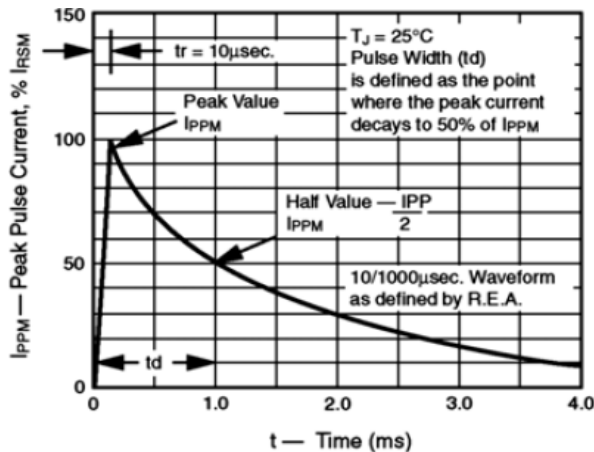


Figure 3. Pulse Waveform

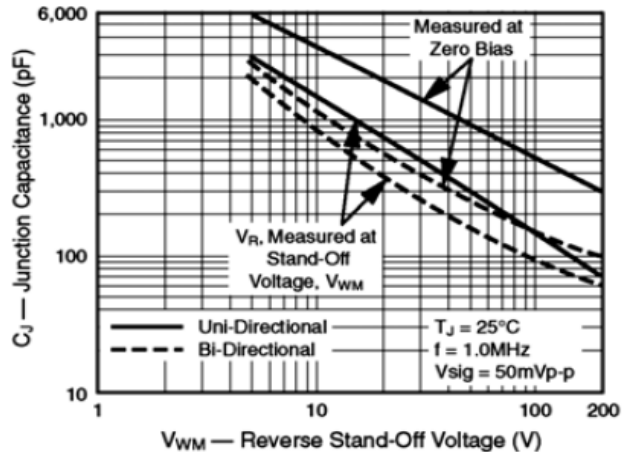


Figure 4. Typical Junction Capacitance

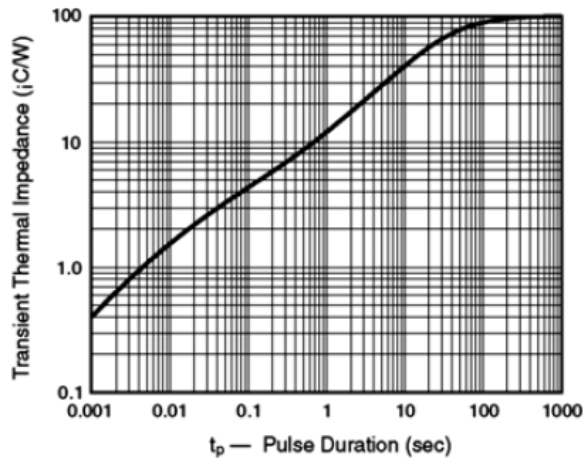


Figure 5. Typical Transient Thermal Impedance

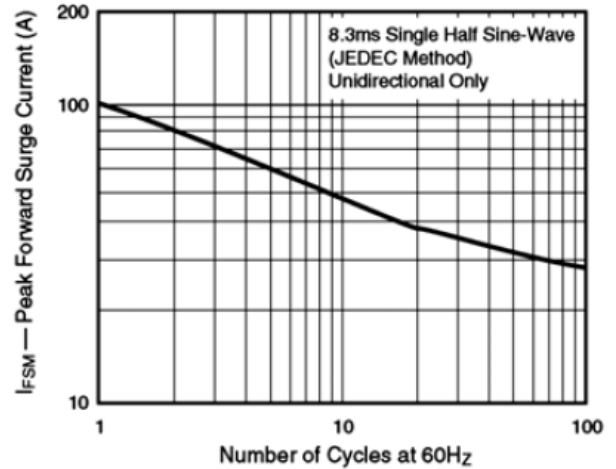
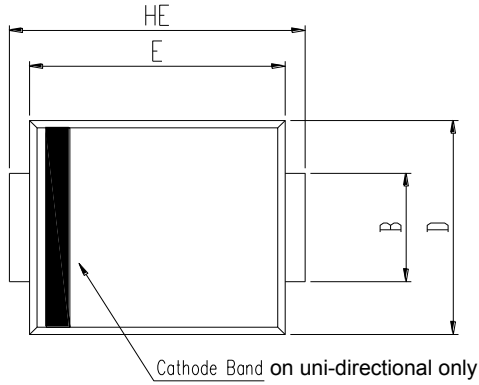
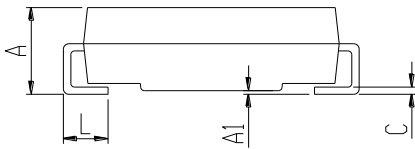


Figure 6. Maximum Non-Repetitive Peak Forward Surge Current

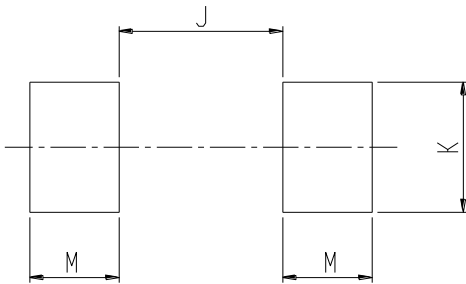
## Package Outline Dimensions DO-214AA(SMB)



SMB (DO-214AA)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.99	2.61	0.078	0.103
A1	0.00	0.20	0.000	0.008
B	1.93	2.08	0.076	0.082
C	0.15	0.31	0.006	0.012
D	3.48	3.73	0.137	0.147
E	4.25	4.75	0.167	0.187
HE	5.26	5.46	0.207	0.215
L	0.90	1.41	0.035	0.056



## Recommended Pad Layout



SMB Recommended Pad Layout (Reference Only)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	2.60	-	0.102
K	2.20	-	0.087	-
M	1.80	-	0.071	-