

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated chip
- Low incremental surge resistance
- Excellent clamping capability
- 600W peak pulse power capability on 10/1000μs waveform repetition rate (duty cycle): 0.01%
- Very Fast response time
- Typical I_D less than 1μA at above 10V
- Component in accordance to RoHS 2002/95/1 and WEEE 2002/96/EC



SMB (DO – 214AA)

Mechanical Data

- **Case:** JEDEC DO-214AA(SMB) molded plastic body over glass passivated chip
- **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026. High temperature soldering guaranteed: 250°C/10 seconds at terminals.
- **Polarity:** For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation.

Major Ratings and Characteristics

P_{PPM}	600 W
V_{RRM}	6.8 V to 540 V
I_{FSM}	100 A
$T_j \text{ max.}$	150 °C

Devices for Bidirectional Applications

- For bi-directional devices, use suffix C or CA (e.g. P6BT10C, P6BT10CA). Electrical characteristics apply in both directions.

Maximum Ratings & Thermal Characteristics

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Items	Symbol	Value	UNIT
Peak pulse power dissipation with a 10/1000μs waveform (see fig. 1)	P_{PPM}	600	W
Peak pulse current with a waveform (see fig. 3, single pulse)	I_{PPM}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave uni-directional only	I_{FSM}	100	A
Typical thermal resistance, junction to ambient ⁽¹⁾	$R_{\theta JA}$	100	°C / W
Typical thermal resistance, junction to lead ⁽¹⁾	$R_{\theta JL}$	20	°C / W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Note 1: Mounted on P.C.B. with 0.2 x 0.2" (5.0 x 5.0mm) copper pads to each terminal.

Electrical Characteristics

(T_A=25 °C unless otherwise noted)

Device Type	Marking Code		Breakdown Voltage at I _T ⁽²⁾ V _(BR) (V)		Test Current	Stand-off Voltage	Maximum Reverse Leakage at V _{WM} ⁽⁴⁾	Maximum Peak Pulse Surge Current ⁽³⁾	Maximum Clamping Voltage at I _{PPM}
	UNI	BI	Min	Max	I _T (mA)	V _{WM} (V)	I _D (μA)	I _{PPM} (A)	V _C (V)
P6SMB6.8A	6V8A	6V8C	6.45	7.14	10	5.80	1000	57.1	10.5
P6SMB7.5A	7V5A	7V5C	7.13	7.88	10	6.40	500	53.1	11.3
P6SMB8.2A	8V2A	8V2C	7.79	8.61	10	7.02	200	49.6	12.1
P6SMB9.1A	9V1A	9V1C	8.65	9.55	1	7.78	50	44.8	13.4
P6SMB10A	10A	10C	9.5	10.5	1	8.55	10	41.4	14.5
P6SMB11A	11A	11C	10.5	11.6	1	9.40	5	38.5	15.6
P6SMB12A	12A	12C	11.4	12.6	1	10.2	5	35.9	16.7
P6SMB13A	13A	13C	12.4	13.7	1	11.1	5	33.0	18.2
P6SMB15A	15A	15C	14.3	15.8	1	12.8	1	28.3	21.2
P6SMB16A	16A	16C	15.2	16.8	1	13.6	1	26.7	22.5
P6SMB18A	18A	18C	17.1	18.9	1	15.3	1	23.8	25.2
P6SMB20A	20A	20C	19.0	21.0	1	17.1	1	21.7	27.7
P6SMB22A	22A	22C	20.9	23.1	1	18.8	1	19.6	30.6
P6SMB24A	24A	24C	22.8	25.2	1	20.5	1	18.1	33.2
P6SMB27A	27A	27C	25.7	28.4	1	23.1	1	16	37.5
P6SMB30A	30A	30C	28.5	31.5	1	25.6	1	14.5	41.4
P6SMB33A	33A	33C	31.4	34.7	1	28.2	1	13.1	45.7
P6SMB36A	36A	36C	34.2	37.8	1	30.8	1	12	49.9
P6SMB39A	39A	39C	37.1	41.0	1	33.3	1	11.1	53.9
P6SMB43A	43A	43C	40.9	45.2	1	36.8	1	10.1	59.3
P6SMB47A	47A	47C	44.7	49.4	1	40.2	1	9.3	64.8
P6SMB51A	51A	51C	48.5	53.6	1	43.6	1	8.6	70.1
P6SMB56A	56A	56C	53.2	58.8	1	47.8	1	7.8	77
P6SMB62A	62A	62C	58.9	65.1	1	53	1	7.1	85
P6SMB68A	68A	68C	64.6	71.4	1	58.1	1	6.5	92
P6SMB75A	75A	75C	71.3	78.8	1	64.1	1	5.8	103
P6SMB82A	82A	82C	77.9	86.1	1	70.1	1	5.3	113
P6SMB91A	91A	91C	86.5	95.5	1	77.8	1	4.8	125
P6SMB100A	100A	100C	95	105	1	85.5	1	4.4	137
P6SMB110A	110A	110C	105	116	1	94	1	3.9	152
P6SMB120A	120A	120C	114	126	1	102	1	3.6	165
P6SMB130A	130A	130C	124	137	1	111	1	3.4	179
P6SMB150A	150A	150C	143	158	1	128	1	2.9	207
P6SMB160A	160A	160C	152	168	1	136	1	2.7	219
P6SMB170A	170A	170C	162	179	1	145	1	2.6	234
P6SMB180A	180A	180C	171	189	1	154	1	2.4	246
P6SMB200A	200A	200C	190	210	1	171	1	2.2	274
P6SMB220A	220A	220C	209	231	1	185	1	1.8	328
P6SMB250A	250A	250C	237	263	1	214	1	1.74	344

Electrical Characteristics

Device Type	Marking Code		Breakdown Voltage at $I_T^{(2)}$ $V_{(BR)}$ (V)		Test Current	Stand-off Voltage	Maximum Reverse Leakage at $V_{WM}^{(4)}$	Maximum Peak Pulse Surge Current ⁽³⁾	Maximum Clamping Voltage at I_{PPM}
							I_D (μ A)	I_{PPM} (A)	V_C (V)
	UNI	BI	Min	Max	I_T (mA)	V_{WM} (V)			
P6SMB300A	300A	300C	285	315	1	256	1	1.45	414
P6SMB350A	350A	350C	333	368	1	300	1	1.24	482
P6SMB400A	400A	400C	380	420	1	342	1	1.1	548
P6SMB440A	440A	440C	418	462	1	376	1	1	602
P6SMB480A	480A	480C	456	504	1	408	1	0.91	658
P6SMB510A	510A	510C	485	535	1	434	1	0.86	698
P6SMB540A	540A	540C	513	567	1	459	1	0.81	740

Note 2: Pulse test : $T_p \leq 50$ ms.

Note 3: Surge current waveform Per Fig. 3 and derate Per Fig. 2.

Note 4: For bi-directional types with V_{WM} of 10 V and less, the I_D limit is doubled

Note 5: $V_F = 3.5$ V at $I_F = 50$ A (uni-directional only)

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

Fig. 1 -- Peak Pulse Power Rating Cure

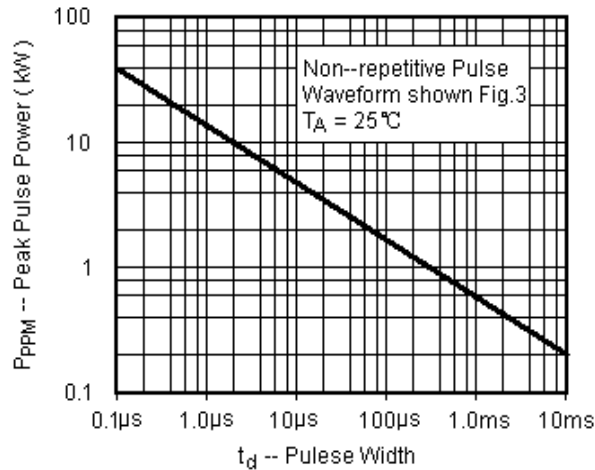


Fig.2-- Pulse Derating Cure

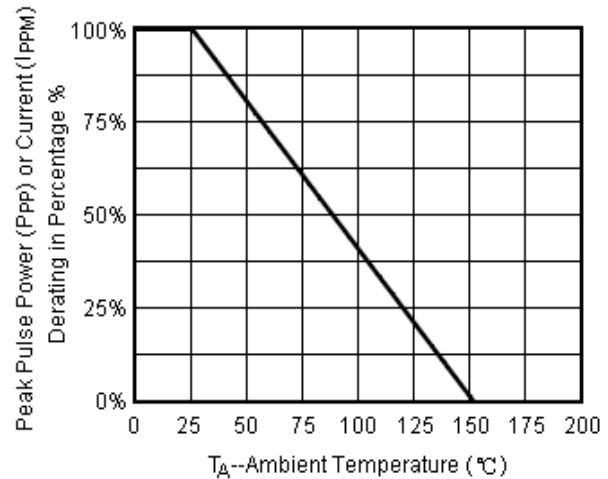


Fig. 3 -- Pulse Waveform

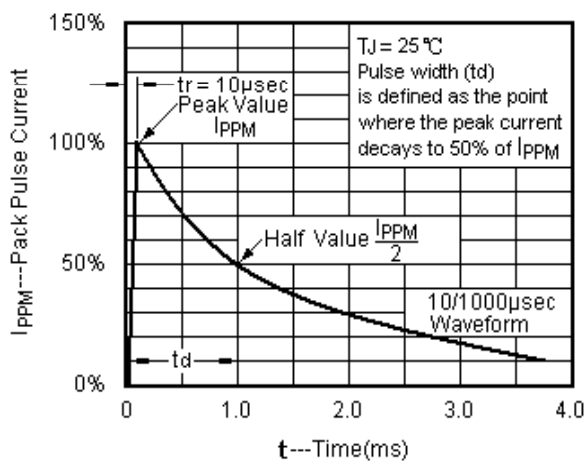


Fig. 4 -- Typical Junction Capacitance

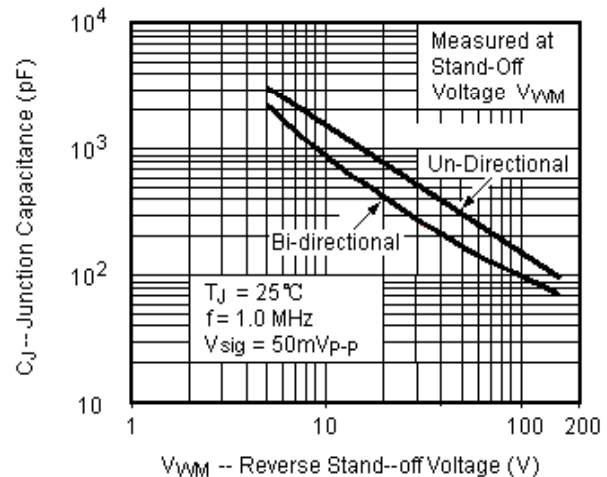


Fig. 5 -- Typical Transient Thermal Impedance

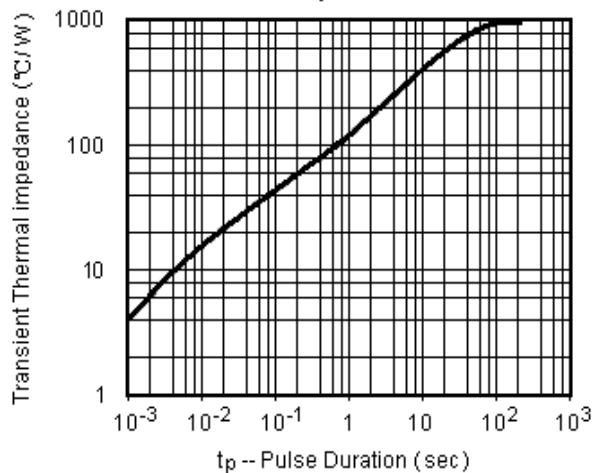
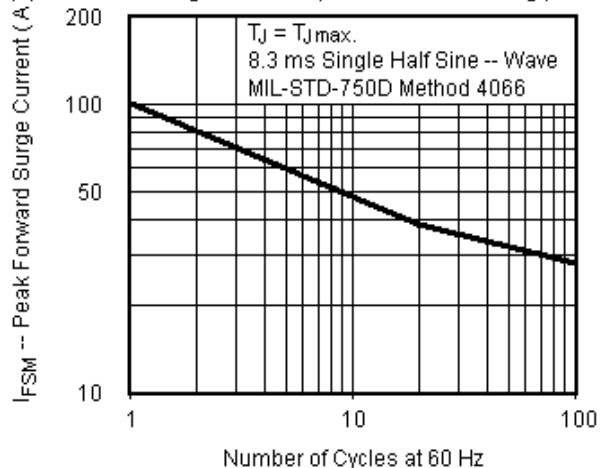
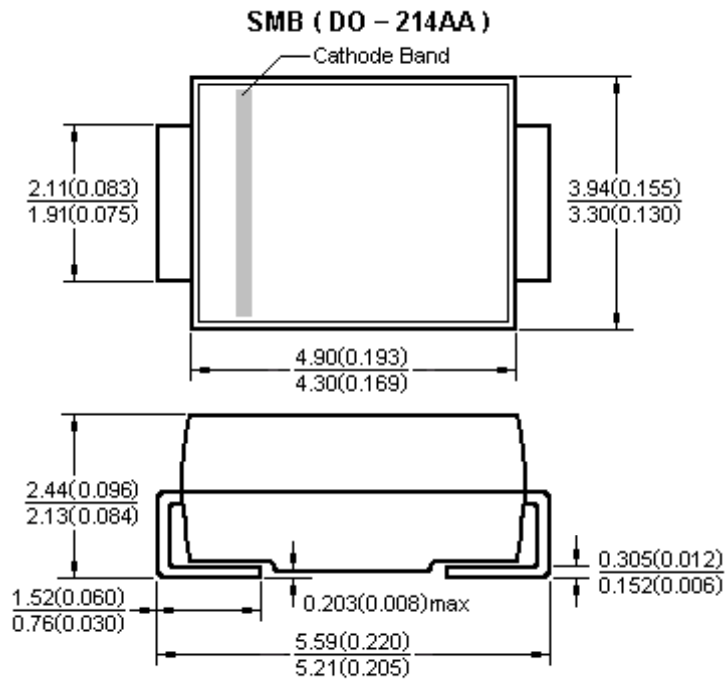


Fig. 6 -- Maximum Non-Repetitive Forward Surge Current (Uni-Directional Only)



Package Outline

Dimensions in millimeters and (inches)

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