THE DATASHEET OF

P6SMB33CA

P6SMB Series

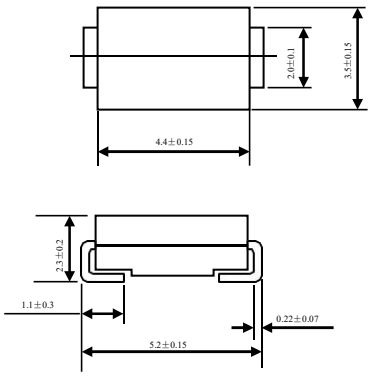
Features:

- 600W peak pulse power
- Excellent clamping capability
- Small clamping voltage
- Fast response time: uni-directional less than 1.0ps from 0V to V_{BR}, bi-directional less than 5.0ns

Mechanical characteristics:

- Package: Molded package
- Encapsulation material: Flame-retardant epoxy recognized by UL94V-O
- Terminals: Tin-plated
- Polarity: Cathode indicated by color band
- Mounting position: Any

SMB / DO-214AA



600W Surface Mount TVS

Dimensional units：inch（mm）

Maximum ratings and electrical characteristics

Measured at an ambient temperature of 25℃ unless otherwise specified.

Parameter	Symbol	Rated Value	Unit
maximum peak pulse power	P_{PPM}	min. 600	W
maximum peak reverse pulse current (note 1)	I_{PPM}	see table	A
steady state power (note 2)	$P_{m(AV)}$	5.0	W
maximum peak forward surge current (note 3)	I_{FSM}	100	A
maximum transient forward voltage @ 50 A (uni-directional only) (note 4)	V_F	3.5	V
operating and storage temperature	T_J,T_{STG}	-55～+175	℃

Note 1: Pulse current duration 10/1000 μ s.

Note 2: Installation area at lead terminal 5.0mm², with 0.013mm thick thermal copper.

Note 3: Using single half sine wave, 10ms duration; or equivalent square wave, 4 cycles per minute.

Electrical Characteristics（at TA=25 ℃ unless otherwise noted）										
Type	Marking		Breakdown Voltage		Test Current	Reverse Stand-Off Voltage	Reverse Leakage	Peak Pulse Current	Maximum Clamping Voltage	Maximum Temperature Coefficient of $V_{(BR)}$
	One-way	Two-Way	$V_{(BR)}$ (note 1)		I_T	V_{WM}	I_D @V_{WM} (note 2)	I_{PPM}	V_C @ I_{PPM}	
			V(min)	V(max)	mA	V	μA	A	V	% / ℃
P6SMB6.8			6.12	7.48	10.0	5.50	1000.0	58.0	10.8	0.057
P6SMB6.8A	6V8A	6V8C	6.45	7.14	10.0	5.80	1000.0	60.0	10.5	0.057
P6SMB7.5			6.75	8.25	10.0	6.05	500.0	53.0	11.7	0.061
P6SMB7.5A	7V5A	7V5C	7.13	7.88	10.0	6.40	500.0	55.0	11.3	0.061
P6SMB8.2			7.38	9.02	10.0	6.63	200.0	50.0	12.5	0.065
P6SMB8.2A	8V2A	8V2C	7.79	8.61	10.0	7.02	200.0	52.0	12.1	0.065
P6SMB9.1			8.19	10.0	1.0	7.37	50.0	45.0	13.8	0.068
P6SMB9.1A	9V1A	9V1C	8.65	9.55	1.0	7.78	50.0	47.0	13.4	0.068
P6SMB10			9.00	11.0	1.0	8.10	10.0	42.0	15.0	0.073
P6SMB10A	10A	10C	9.50	10.5	1.0	8.55	10.0	43.0	14.5	0.073
P6SMB11			9.90	12.1	1.0	8.92	5.0	38.0	16.2	0.075
P6SMB11A	11A	11C	10.5	11.6	1.0	9.40	5.0	40.0	15.6	0.075
P6SMB12			10.8	13.2	1.0	9.72	5.0	36.0	17.3	0.078
P6SMB12A	12A	12C	11.4	12.6	1.0	10.2	5.0	37.0	16.7	0.078
P6SMB13			11.7	14.3	1.0	10.5	5.0	33.0	19.0	0.081
P6SMB13A	13A	13C	12.4	13.7	1.0	11.1	5.0	34.0	18.2	0.081
P6SMB15			13.5	16.5	1.0	12.1	5.0	28.0	22.0	0.084
P6SMB15A	15A	15C	14.3	15.8	1.0	12.8	5.0	29.0	21.2	0.084
P6SMB16			14.4	17.6	1.0	12.9	5.0	26.0	23.5	0.086
P6SMB16A	16A	16C	15.2	16.8	1.0	13.6	5.0	28.0	22.5	0.086
P6SMB18			16.2	19.8	1.0	14.5	5.0	23.0	26.5	0.088
P6SMB18A	18A	18C	17.1	18.9	1.0	15.3	5.0	25.0	25.2	0.088
P6SMB20			18.0	22.0	1.0	16.2	5.0	21.0	29.1	0.090
P6SMB20A	20A	20C	19.0	21.0	1.0	17.1	5.0	22.0	27.7	0.090
P6SMB22			19.8	24.2	1.0	17.8	5.0	19.0	31.9	0.092
P6SMB22A	22A	22C	20.9	23.1	1.0	18.8	5.0	20.0	30.6	0.092
P6SMB24			21.6	26.4	1.0	19.4	5.0	18.0	34.7	0.094
P6SMB24A	24A	24C	22.8	25.2	1.0	20.5	5.0	19.0	33.2	0.094
P6SMB27			24.3	29.7	1.0	21.8	5.0	16.0	39.1	0.096
P6SMB27A	27A	27C	25.7	28.4	1.0	23.1	5.0	16.8	37.5	0.096
P6SMB30			27.0	33.0	1.0	24.3	5.0	14.0	43.5	0.097
P6SMB30A	30A	30C	28.5	31.5	1.0	25.6	5.0	15.0	41.4	0.097
P6SMB33			29.7	36.3	1.0	26.8	5.0	13.0	47.7	0.098
P6SMB33A	33A	33C	31.4	34.7	1.0	28.2	5.0	13.8	45.7	0.098
P6SMB36			32.4	39.6	1.0	29.1	5.0	12.0	52.0	0.099
P6SMB36A	36A	36C	34.2	37.8	1.0	30.8	5.0	12.6	49.9	0.099
P6SMB39			35.1	42.9	1.0	31.6	5.0	11.1	56.4	0.100
P6SMB39A	39A	39C	37.1	41.0	1.0	33.3	5.0	11.6	53.9	0.100
P6SMB43			38.7	47.3	1.0	34.8	5.0	10.0	61.9	0.101
P6SMB43A	43A	43C	40.9	45.2	1.0	36.8	5.0	10.6	59.3	0.101
P6SMB47			42.3	51.7	1.0	38.1	5.0	9.2	67.8	0.101

Type	Marking		Breakdown Voltage		Test Current	Reverse Leakage	Peak Pulse Current	Maximum Clamping Voltage	Maximum Temperature Coefficient of $V_{(BR)}$
	One-way	Two-Way	$V_{(BR)}$ (note 1)		I_T	I_D @V_{WM} (note 2)	I_{PPM}	V_C @ I_{PPM}	
			V(min)	V(max)	mA	μA	A	V	% / ℃
P6SMB47A	47A	47C	44.7		49.4	5.0	9.7	64.8	0.101
P6SMB51			45.9		56.1	5.0	8.5	73.5	0.102
P6SMB51A	51A	51C	48.5		53.6	5.0	8.9	70.1	0.102
P6SMB56			50.4		61.6	5.0	7.8	80.5	0.103
P6SMB56A	56A	56C	53.2		58.8	5.0	8.1	77.0	0.103
P6SMB58A	58A	58C	55.1		60.9	5.0	7.8	80.7	0.103
P6SMB62			55.8		68.2	5.0	7.0	89.0	0.104
P6SMB62A	62A	62C	58.9		65.1	5.0	7.4	85.0	0.104
P6SMB68			61.2		74.8	5.0	6.4	98.0	0.104
P6SMB68A	68A	68C	64.6		71.4	5.0	6.8	92.0	0.104
P6SMB75			67.5		82.5	5.0	5.8	108	0.105
P6SMB75A	75A	75C	71.3		78.8	5.0	6.1	103	0.105
P6SMB82			73.8		90.2	5.0	5.3	118	0.105
P6SMB82A	82A	82C	77.9		86.1	5.0	5.5	113	0.105
P6SMB91			81.9		100	5.0	4.8	131	0.106
P6SMB91A	91A	91C	86.5		95.5	5.0	5.0	125	0.106
P6SMB100			90.0		110	5.0	4.3	144	0.106
P6SMB100A	100A	100C	95.0		105	5.0	4.5	137	0.106
P6SMB110			99.0		121	5.0	3.9	158	0.107
P6SMB110A	110A	110C	105		116	5.0	4.1	152	0.107
P6SMB120			108		132	5.0	3.6	173	0.107
P6SMB120A	120A	120C	114		126	5.0	3.8	165	0.107
P6SMB130			117		143	5.0	3.3	187	0.107
P6SMB130A	130A	130C	124		137	5.0	3.5	179	0.107
P6SMB150			135		165	5.0	2.9	215	0.108
P6SMB150A	150A	150C	143		158	5.0	3.0	207	0.108
P6SMB160			144		176	5.0	2.7	230	0.108
P6SMB160A	160A	160C	152		168	5.0	2.8	219	0.108
P6SMB170			153		187	5.0	2.5	244	0.108
P6SMB170A	170A	170C	162		179	5.0	2.6	234	0.108
P6SMB180			162		198	5.0	2.4	258	0.108
P6SMB180A	180A	180C	171		189	5.0	2.5	246	0.108
P6SMB200			180		220	5.0	2.1	287	0.108
P6SMB200A	200A	200C	190		210	5.0	2.2	274	0.108

Note 1: $V_{(BR)}$ is measured after applying I_T for 300μs, where I_T is a square wave or equivalent pulse waveform.

Note 2: For bidirectional types, if V_{RWM} is 10V or less, I_D doubles.

Note 3: Models labeled with C or CA after the part number indicate bidirectional types, with electrical characteristics applicable in both directions.

Ratings And Characteristic Curves

FIG. 1 - PEAK PULSE POWER RATING CURVE

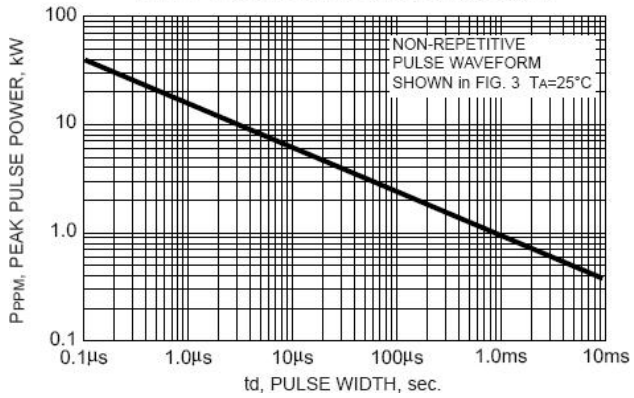


FIG. 2 - PULSE DERATING CURVE

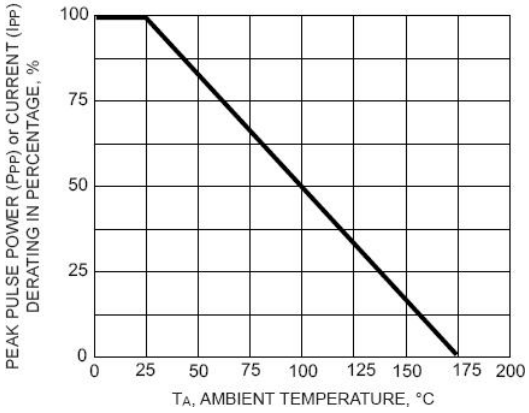


FIG. 3 - PULSE WAVEFORM

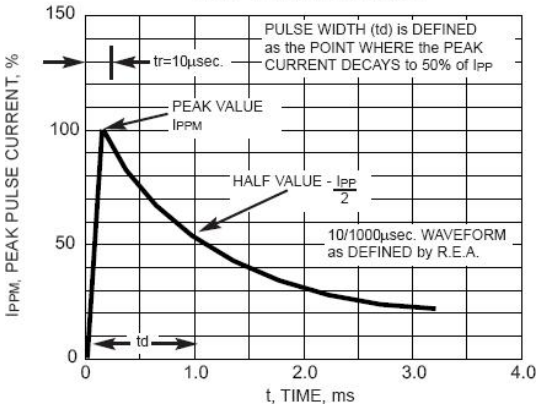


FIG. 4 - TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

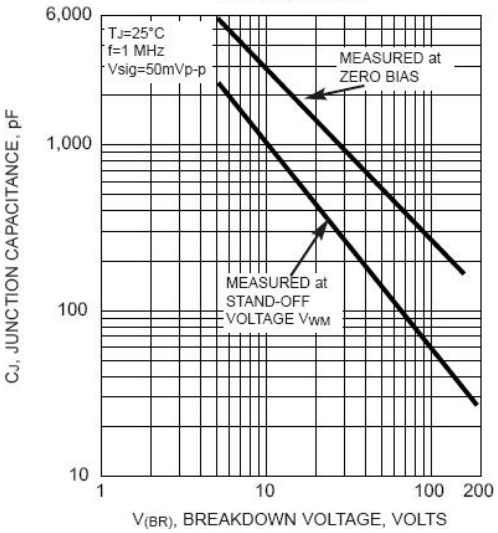


FIG. 5 - STEADY STATE POWER DERATING CURVE

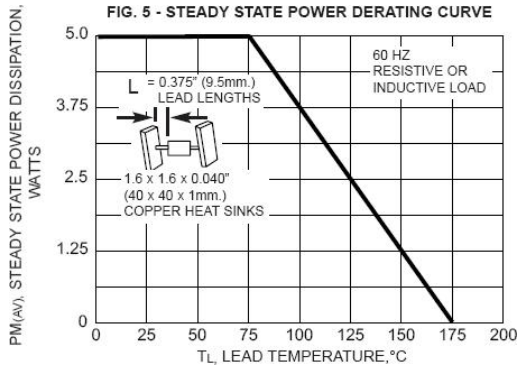


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD
SURGE CURRENT UNI-DIRECTIONAL

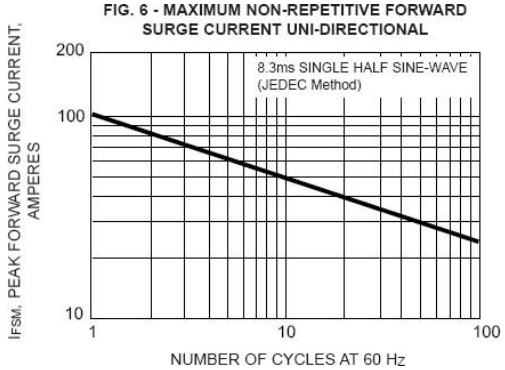
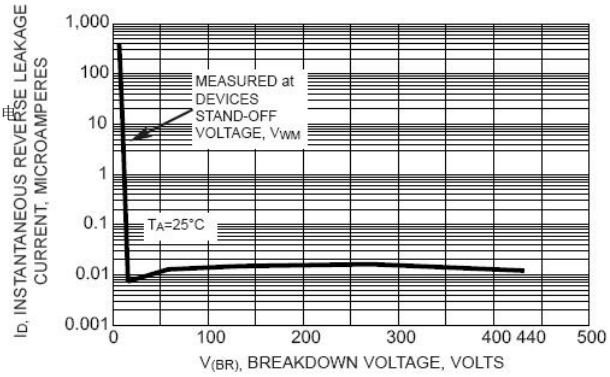


FIG. 7- TYPICAL REVERSE LEAKAGE CHARACTERISTICS



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