



## Data Sheet

Customer :

Product : Transient Voltage Suppressor

Part No.: P6SMBJ Series

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Edition : REV.A



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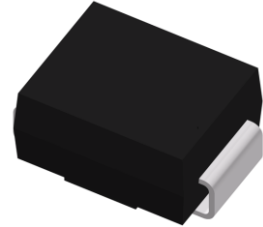
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31-Jan-11	31-Jan-11	31-Jan-11	31-Jan-11	
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## Voltage 5.0 to 170volts 600 watt Peak Power Pulse

### ■ Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition rate(duty cycle):0.01%
- Fast response time: typically less than 1.0pS from 0 volts to BV for bidirectional types
- Typical  $I_D$  less than 1uA above 10V
- High temperature soldering guaranteed: 260°C/10seconds at terminals
- Plastic package has Underwrites Laboratory Flammability Classification 94V-O



### ■ Mechanical Data

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

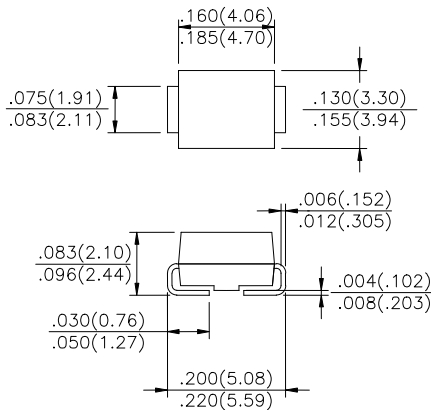
**Terminals :** Solder plated solderable per MIL-STD-750, Method 2026

**Polarity :** Color band denotes positive end (cathode) except bi-directional

**Standard Packaging:** 12mm tape (EIA STD EIA-481-1)

**Weight :** 0.003 ounce, 0.093 gram

### ■ Package Dimensions in inches(millimeters): SMB/DO-214AA



### ■ Maximum Ratings And Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 $\mu$ s (Note 1,2) Fig.1	$P_{PPM}$	Minimum 600	W
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (Note 2, 3)	$I_{FSM}$	100	A
Peak Pulse on Current 10/1000 $\mu$ s waveform (Note 1) Fig.3	$I_{ppm}$	See Table 1	A
Operating Junction and Storage temperature Range	$T_J, T_{STG}$	-55 ~ +150	°C

Note:1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2

2. Mounted on 5.0mm<sup>2</sup> (0.13mm thick) land areas

3. Measured on 8.3mm single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum



## ■ Electrical Characteristics

Part No.		Item		Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage VBR(V) @IT		Test Current IT (mA)	Maximum Clamping Voltage @I <sub>PP</sub> VC(V)	Peak Pulse Current I <sub>PP</sub> (A)	Revers Leakage @VRWM IR(μA)	
		UNI-Directional	Bi-Directional				UNI	BI				VTWN(V)	Min
P6SMBJ5.0	P6SMBJ5.0C	KD	AD	5.0	6.40	7.55	10	9.6	62.5	800	1600		
P6SMBJ5.0A	P6SMBJ5.0CA	KE	AE	5.0	6.40	7.25	10	9.2	65.2	800	1600		
P6SMBJ6.0	P6SMBJ6.0C	KF	AF	6.0	6.67	8.45	10	11.4	52.6	800	1600		
P6SMBJ6.0A	P6SMBJ6.0CA	KG	AG	6.0	6.67	7.67	10	10.3	58.3	800	1600		
P6SMBJ6.5	P6SMBJ6.5C	KH	AH	6.5	7.22	9.14	10	12.3	48.7	500	1000		
P6SMBJ6.5A	P6SMBJ6.5CA	KK	AK	6.5	7.22	8.30	10	11.2	53.6	500	1000		
P6SMBJ7.0	P6SMBJ7.0C	KL	AL	7.0	7.78	9.86	10	13.3	45.1	200	400		
P6SMBJ7.0A	P6SMBJ7.0CA	KM	AM	7.0	7.78	8.95	10	12.0	50.0	200	400		
P6SMBJ7.5	P6SMBJ7.5C	KN	AN	7.5	8.33	10.67	1	14.3	42.0	100	200		
P6SMBJ7.5A	P6SMBJ7.5CA	KP	AP	7.5	8.33	9.58	1	12.9	46.5	100	200		
P6SMBJ8.0	P6SMBJ8.0C	KQ	AQ	8.0	8.89	11.30	1	15.0	40.0	50	100		
P6SMBJ8.0A	P6SMBJ8.0CA	KR	AR	8.0	8.89	10.23	1	13.6	44.1	50	100		
P6SMBJ8.5	P6SMBJ8.5C	KS	AS	8.5	9.44	11.92	1	15.9	37.7	10	20		
P6SMBJ8.5A	P6SMBJ8.5CA	KT	AT	8.5	9.44	10.82	1	14.4	41.7	10	20		
P6SMBJ9.0	P6SMBJ9.0C	KU	AU	9.0	10.0	12.60	1	16.9	35.5	5	10		
P6SMBJ9.0A	P6SMBJ9.0CA	KV	AV	9.0	10.0	11.50	1	15.4	39.0	5	10		
P6SMBJ10	P6SMBJ10C	KW	AW	10.0	11.1	14.10	1	18.8	31.9	5			
P6SMBJ10A	P6SMBJ10CA	KX	AX	10.0	11.1	12.80	1	17.0	35.3	5			
P6SMBJ11	P6SMBJ11C	KY	AY	11.0	12.2	15.40	1	20.1	29.9	5			
P6SMBJ11A	P6SMBJ11CA	KZ	AZ	11.0	12.2	14.00	1	18.2	33.0	5			
P6SMBJ12	P6SMBJ12C	LD	BD	12.0	13.3	16.90	1	22.0	27.3	5			
P6SMBJ12A	P6SMBJ12CA	LE	BE	12.0	13.3	15.30	1	19.9	30.2	5			
P6SMBJ13	P6SMBJ13C	LF	Before	13.0	14.4	18.20	1	23.8	25.2	5			
P6SMBJ13A	P6SMBJ13CA	LG	BG	13.0	14.4	16.50	1	21.5	27.9	5			
P6SMBJ14	P6SMBJ14C	LH	BH	14.0	15.6	19.80	1	25.8	23.3	5			
P6SMBJ14A	P6SMBJ14CA	LK	BK	14.0	15.6	17.90	1	23.2	25.8	5			
P6SMBJ15	P6SMBJ15C	LL	BL	15.0	16.7	21.10	1	26.9	22.3	5			
P6SMBJ15A	P6SMBJ15CA	LM	BM	15.0	16.7	19.20	1	24.4	24.0	5			
P6SMB16	P6SMB16C	LN	BN	16.0	17.8	22.60	1	28.8	20.8	5			
P6SMBJ16A	P6SMBJ16CA	LP	BP	16.0	17.8	20.50	1	26.0	23.1	5			
P6SMBJ17	P6SMBJ17C	LQ	BQ	17.0	18.9	23.90	1	30.5	19.7	5			
P6SMBJ17A	P6SMBJ17CA	LR	BR	17.0	18.9	21.70	1	27.6	21.7	5			
P6SMBJ18	P6SMBJ18C	LS	BS	18.0	20.0	25.30	1	32.2	18.6	5			
P6SMBJ18A	P6SMBJ18CA	LT	BT	18.0	20.0	23.30	1	29.2	20.5	5			
P6SMBJ20	P6SMBJ20C	LU	BU	20.0	22.2	28.10	1	35.8	16.7	5			
P6SMBJ20A	P6SMBJ20CA	LV	BV	20.0	22.2	25.50	1	32.4	18.5	5			
P6SMBJ22	P6SMBJ22C	LW	BW	22.0	24.4	30.90	1	39.4	15.2	5			
P6SMBJ22A	P6SMBJ22CA	LX	BX	22.0	24.4	28.00	1	35.5	16.9	5			
P6SMBJ24	P6SMBJ24C	LY	BY	24.0	26.7	33.80	1	43.0	14.0	5			
P6SMBJ24A	P6SMBJ24CA	LZ	BZ	24.0	26.7	30.70	1	38.9	15.4	5			
P6SMBJ26	P6SMBJ26C	MD	CD	26.0	28.9	36.60	1	46.6	12.4	5			
P6SMBJ26A	P6SMBJ26CA	ME	CE	26.0	28.9	33.20	1	42.1	12.0	5			
P6SMBJ28	P6SMBJ28C	MF	CF	28.0	31.1	39.40	1	50.0	13.2	5			
P6SMBJ28A	P6SMBJ28CA	MG	CG	28.0	31.1	35.80	1	45.4	11.2	5			
P6SMBJ30	P6SMBJ30C	MH	CH	30.0	33.3	42.20	1	53.5	12.4	5			
P6SMBJ30A	P6SMBJ30CA	MK	CK	30.0	33.3	38.30	1	48.4	10.2	5			
P6SMBJ33	P6SMBJ33C	ML	CL	33.0	36.7	46.50	1	59.0	11.3	5			
P6SMBJ33A	P6SMBJ33CA	MM	CM	33.0	36.7	42.20	1	53.3	9.3	5			



## ■ Electrical Characteristics

Part No.		Item		Marking Code	Reverse Stand-Off Voltage	Breakdown Voltage VBR(V) @IT		Test Current IT (mA)	Maximum Clamping Voltage @I <sub>PP</sub> VC(V)	Peak Pulse Current I <sub>PP</sub> (A)	Reveres Leakage @VRWM IR(uA)	
		UNI-Directional	Bi-Directional			UNI	BI				VTWN(V)	Min
P6SMBJ36	P6SMBJ36C	MN	CN		36.0	40.0	50.70	1	64.3	10.3	5	
P6SMBJ36A	P6SMBJ36CA	MP	CP		36.0	40.0	46.00	1	58.1	8.4	5	
P6SMBJ40	P6SMBJ40C	MQ	CQ		40.0	44.4	56.30	1	71.4	9.3	5	
P6SMBJ40A	P6SMBJ40CA	MR	CR		40.0	44.4	51.10	1	64.5	9.3	5	
P6SMBJ43	P6SMBJ43C	MS	CS		43.0	47.8	60.50	1	76.7	7.8	5	
P6SMBJ43A	P6SMBJ43CA	MT	CT		43.0	47.8	54.90	1	69.4	8.6	5	
P6SMBJ45	P6SMBJ45C	MU	CU		45.0	50.0	63.30	1	80.3	7.5	5	
P6SMBJ45A	P6SMBJ45CA	MV	CV		45.0	50.0	57.50	1	72.7	8.3	5	
P6SMBJ48	P6SMBJ48C	MW	CW		48.0	53.3	67.50	1	85.5	7.0	5	
P6SMBJ48A	P6SMBJ48CA	MX	CX		48.0	53.3	61.30	1	77.4	7.7	5	
P6SMBJ51	P6SMBJ51C	MY	CY		51.0	56.7	71.80	1	91.1	6.6	5	
P6SMBJ51A	P6SMBJ51CA	MZ	CZ		51.0	56.7	65.20	1	82.4	7.3	5	
P6SMBJ54	P6SMBJ54C	ND	DD		54.0	60.0	76.00	1	96.3	6.2	5	
P6SMBJ54A	P6SMBJ54CA	NE	DE		54.0	60.0	69.00	1	87.1	6.9	5	
P6SMBJ58	P6SMBJ58C	NF	DF		58.0	64.4	81.60	1	103.0	5.8	5	
P6SMBJ58A	P6SMBJ58CA	NG	DG		58.0	64.4	74.10	1	93.6	6.4	5	
P6SMBJ60	P6SMBJ60C	NH	DH		60.0	66.7	84.50	1	107.0	5.6	5	
P6SMBJ60A	P6SMBJ60CA	NK	DK		60.0	66.7	76.70	1	96.8	6.2	5	
P6SMBJ64	P6SMBJ64C	NL	DL		64.0	77.1	90.1	1	114.0	5.3	5	
P6SMBJ64A	P6SMBJ64CA	NM	DM		64.0	77.1	81.8	1	103.0	5.8	5	
P6SMBJ70	P6SMBJ70C	NN	DN		70.0	77.8	98.6	1	125.0	4.8	5	
P6SMBJ70A	P6SMBJ70CA	NP	DP		70.0	77.8	89.5	1	113.0	5.3	5	
P6SMBJ75	P6SMBJ75C	NQ	DQ		75.0	83.3	105.7	1	134.0	4.5	5	
P6SMBJ75A	P6SMBJ75CA	NR	DR		75.0	83.3	95.8	1	121.0	4.9	5	
P6SMBJ78	P6SMBJ78C	NS	DS		78.0	86.7	109.8	1	139.0	4.3	5	
P6SMBJ78A	P6SMBJ78CA	NT	DT		78.0	86.7	99.7	1	126.0	4.7	5	
P6SMBJ85	P6SMBJ85C	NU	DU		85.0	94.4	119.2	1	151.0	3.9	5	
P6SMBJ85A	P6SMBJ85CA	NV	DV		85.0	94.4	108.2	1	137.0	4.4	5	
P6SMBJ90	P6SMBJ90C	NW	DW		90.0	100.0	126.5	1	160.0	3.8	5	
P6SMBJ90A	P6SMBJ90CA	NX	DX		90.0	100.0	115.5	1	146.0	4.1	5	
P6SMBJ100	P6SMBJ100C	NY	DY		100.0	111.0	141.0	1	179.0	3.4	5	
P6SMBJ100A	P6SMBJ100CA	NZ	DZ		100.0	111.0	128.00	1	162.0	3.7	5	
P6SMBJ110	P6SMBJ110C	PD	ED		110.0	122.0	154.5	1	196.0	3.0	5	
P6SMBJ110A	P6SMBJ110CA	PE	EE		110.0	122.0	140.5	1	177.0	3.4	5	
P6SMBJ120	P6SMBJ120C	PF	EF		120.0	133.0	169.0	1	214.0	2.8	5	
P6SMBJ120A	P6SMBJ120CA	PG	EG		120.0	133.0	153.0	1	193.0	3.1	5	
P6SMBJ130	P6SMBJ130C	PH	EH		130.0	144.0	182.5	1	231.0	2.6	5	
P6SMBJ130A	P6SMBJ130CA	PK	EK		130.0	144.0	165.5	1	209.0	2.9	5	
P6SMBJ150	P6SMBJ150C	PL	EL		150.0	167.0	211.5	1	268.0	2.2	5	
P6SMBJ15A	P6SMBJ150CA	PM	EM		150.0	167.0	192.5	1	243.0	2.5	5	
P6SMBJ160	P6SMBJ160C	PN	EN		160.0	178.0	226.0	1	287.0	2.1	5	
P6SMBJ160A	P6SMBJ160CA	PP	EP		160.0	178.0	205.0	1	259.0	2.3	5	
P6SMBJ170	P6SMBJ170C	PQ	EQ		170.0	189.0	239.5	1	304.0	2.0	5	
P6SMBJ170A	P6SMBJ170CA	PR	ER		170.0	189.0	217.5	1	275.0	2.2	5	

## Rating and Characteristic Curve

Fig. 1 - PEAK PULSE POWER RATING CURVE

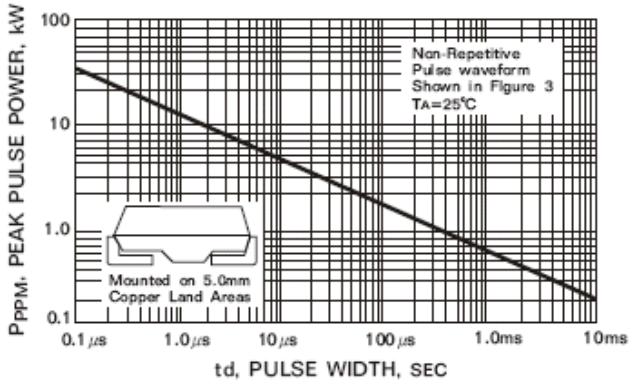


Fig. 3 - PULSE WAVEFORM

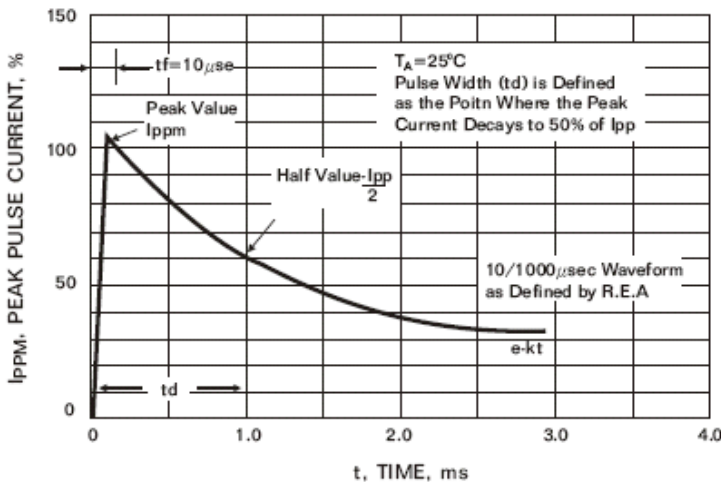


Fig. 5 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

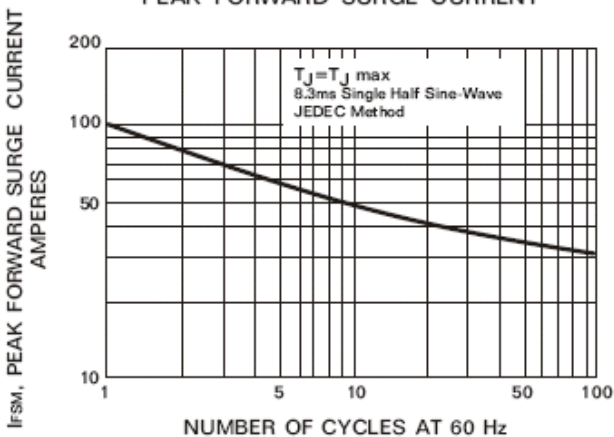


Fig. 2 - PULSE DERATING CURVE

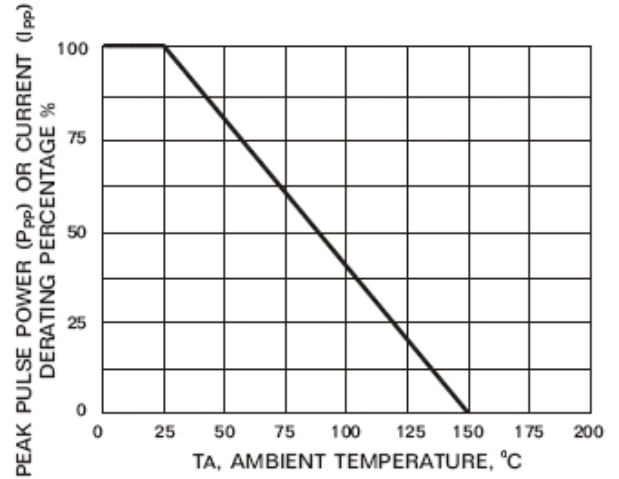


Fig. 4 - TYPICAL JUNCTION CAPACITANCE

