

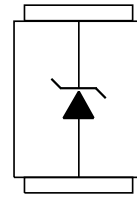
Description

The P6SMBJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

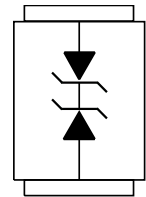
Feature

- 600W peak pulsepower capability at 10 x 1000µs waveform, repetition rate (duty cycle): 0.01%
- Glass Passivated chip junction
- For surface mounted application to optimize board space
- Low profile package
- Built-in strain relief
- Low incremental surge resistance
- Excellent clamping capability
- Plastic package has UL flammability classification 94V-O
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- Typical IR less than 5uA above 22V
- High temperature soldering: 260°C/40 seconds at terminals
- IEC-61000-4-2 ESD 15KV(Air),8KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2(IEC801-2)
- EFT protection of data lines in accordance with IEC61000-4-4(IEC801-4)

Unidirectional



Bi-directional



Applications

TVS devices are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation at TA=25°C by 10x1000µs waveform (Fig.2)(Note 1) (Note 2)	P _{PPM}	600	W
Power Dissipation on infinite heat sink at TA=50°C	P _D	6.5	W
Peak Forward Surrent,8.3ms Single Half Sine Wave Unidirectional only(Note 3)	I _{FSM}	300	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V _F	3.5V/5.0	V

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	°C/W

Notes:

- 1.Non-repetitive current pulse, per Fig.3and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
- 2.Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.
- 3.Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

Electrical characteristics per line@25°C (unless otherwise specified)

PART NUMBER		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE $V_{BR}(V)_{MAX}@I_T$		TEST CURRENT	REVERSE LEAKAGE @ V_{RWM}	PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE @ I_{pp}
BI- POLAR	UNI-POLAR	V_{RWM} (V)	V_{BR} MIN(V)	V_{BR} MAX(V)	I_T (mA)	I_R (μA)	I_{pp} (A)	V_c (V)
P6SMBJ6.8CA	P6SMBJ6.8A	5.80	6.45	7.14	10	1000	57.14	10.5
P6SMBJ7.5CA	P6SMBJ7.5A	6.40	7.13	7.88	10	500	53.10	11.3
P6SMBJ8.2CA	P6SMBJ8.2A	7.02	7.79	8.61	10	200	49.59	12.1
P6SMBJ9.1CA	P6SMBJ9.1A	7.78	8.65	9.50	1	50	44.78	13.4
P6SMBJ10CA	P6SMBJ10A	8.55	9.50	10.50	1	10	41.38	14.5
P6SMBJ11CA	P6SMBJ11A	9.40	10.50	11.60	1	1	38.4	15.6
P6SMBJ12CA	P6SMBJ12A	10.20	11.40	12.60	1	1	35.93	16.7
P6SMBJ13CA	P6SMBJ13A	11.10	12.40	13.70	1	1	32.97	18.2
P6SMBJ15CA	P6SMBJ15A	12.80	14.30	15.80	1	1	28.30	21.2
P6SMBJ16CA	P6SMBJ16A	13.60	15.20	16.80	1	1	26.67	22.5

Surface Mount-600W Transient Voltage Suppression Diodes P6SMBJ Series

PART NUMBER		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE VBR(V)MAX.@I T		TEST CURRENT	REVERSE LEAKAGE @VRWM	PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE @Ipp
BI- POLAR	UNI-POLAR	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	IR (μA)	Ipp (A)	Vc (V)
P6SMBJ18CA	P6SMBJ18A	15.30	17.10	18.90	1	1	23.81	25.2
P6SMBJ20CA	P6SMBJ20A	17.10	19.00	21.00	1	1	21.66	27.7
P6SMBJ22CA	P6SMBJ22A	18.80	20.90	23.10	1	1	19.61	30.6
P6SMBJ24CA	P6SMBJ24A	20.50	22.80	25.20	1	1	18.07	33.2
P6SMBJ27CA	P6SMBJ27A	23.10	25.70	28.40	1	1	16.00	37.5
P6SMBJ30CA	P6SMBJ30A	25.60	28.50	31.50	1	1	14.49	41.4
P6SMBJ33CA	P6SMBJ33A	28.20	31.40	34.70	1	1	13.13	45.7
P6SMBJ36CA	P6SMBJ36A	30.80	34.20	37.80	1	1	12.02	49.9
P6SMBJ39CA	P6SMBJ39A	33.30	37.10	41.00	1	1	11.13	53.9
P6SMBJ43CA	P6SMBJ43A	36.80	40.90	45.20	1	1	10.12	59.3
P6SMBJ47CA	P6SMBJ47A	40.20	44.70	49.40	1	1	9.26	64.8
P6SMBJ51CA	P6SMBJ51A	43.60	48.5	53.60	1	1	8.56	70.1
P6SMBJ56CA	P6SMBJ56A	47.80	53.20	58.80	1	1	7.79	77.0
P6SMBJ62CA	P6SMBJ62A	53.00	58.90	65.10	1	1	7.06	85.0
P6SMBJ68CA	P6SMBJ68A	58.10	64.60	71.40	1	1	6.52	92.0
P6SMBJ75CA	P6SMBJ75A	64.10	71.30	78.80	1	1	5.83	103.0
P6SMBJ82CA	P6SMBJ82A	70.10	77.90	86.10	1	1	5.31	113.0
P6SMBJ91CA	P6SMBJ91A	77.80	86.50	95.50	1	1	4.80	125.0
P6SMBJ100CA	P6SMBJ100A	84.00	95.00	105.00	1	1	4.38	137.0
P6SMBJ110CA	P6SMBJ110A	94.00	105.00	116.00	1	1	3.95	152.0
P6SMBJ120CA	P6SMBJ120A	102.00	114.00	126.00	1	1	3.95	152.0
P6SMBJ130CA	P6SMBJ130A	111.00	124.00	137.00	1	1	3.35	179.0
P6SMBJ150CA	P6SMBJ150A	128.00	143.00	158.00	1	1	2.90	207.0
P6SMBJ160CA	P6SMBJ160A	136.00	152.00	168.00	1	1	2.74	219.0
P6SMBJ170CA	P6SMBJ170A	145.00	162.00	179.00	1	1	2.56	234.0
P6SMBJ180CA	P6SMBJ180A	154.00	171.00	189.00	1	1	2.44	246.0
P6SMBJ200CA	P6SMBJ200A	171.00	190.00	210.00	1	1	2.19	274.0

PART NUMBER		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE VBR(V)MAX.@I T		TEST CURRENT	REVERSE LEAKAGE @VRWM	PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE @Ipp
BI- POLAR	UNI-POLAR	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	IR (μ A)	Ipp (A)	Vc (V)
P6SMBJ220CA	P6SMBJ220A	185.00	209.00	231.00	1	1	1.83	328.0
P6SMBJ250CA	P6SMBJ250A	214.00	237.00	263.00	1	1	1.74	344.0
P6SMBJ300CA	P6SMBJ300A	256.00	285.00	315.00	1	1	1.45	414.0
P6SMBJ350CA	P6SMBJ350A	300.00	332.00	368.00	1	1	1.24	482.0
P6SMBJ400CA	P6SMBJ400A	342.00	380.00	420.00	1	1	1.09	548.0
P6SMBJ440CA	P6SMBJ440A	376.00	418.00	462.00	1	1	1.00	602.0
P6SMBJ480CA	P6SMBJ480A	408.00	456.00	504.00	1	1	0.91	658.0
P6SMBJ530CA	P6SMBJ530A	450.00	503.50	556.50	1	1	0.83	725.0
P6SMBJ540CA	P6SMBJ540A	459.00	513.00	567.00	1	1	0.81	740.0
P6SMBJ550CA	P6SMBJ550A	467.00	522.50	577.50	1	1	0.79	760.0

Notes:

For bidirectional type having V_{RWM} of 20 volts and less, the I_R limit is double.

For parts without A (VBR is $\pm 10\%$ and VC is 5% higher than A parts).

Typical Characteristics

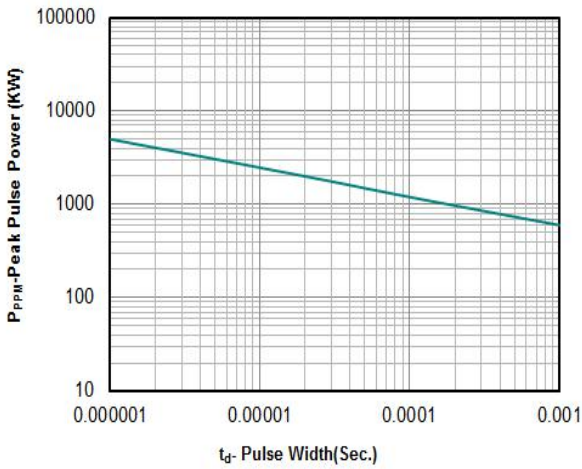


Fig 1. Peak Pulse Power Rating Curve

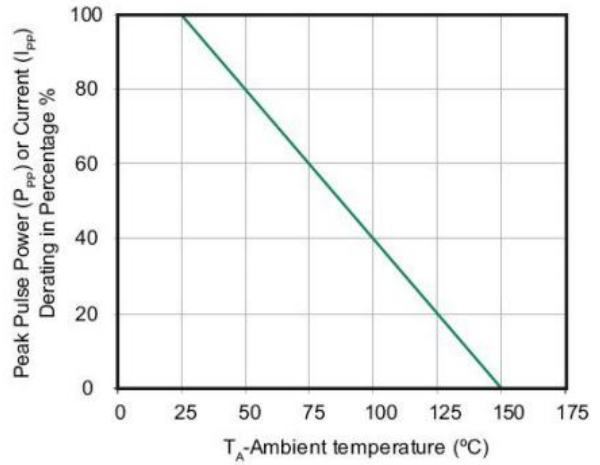


Fig 2. Pulse Derating Curve

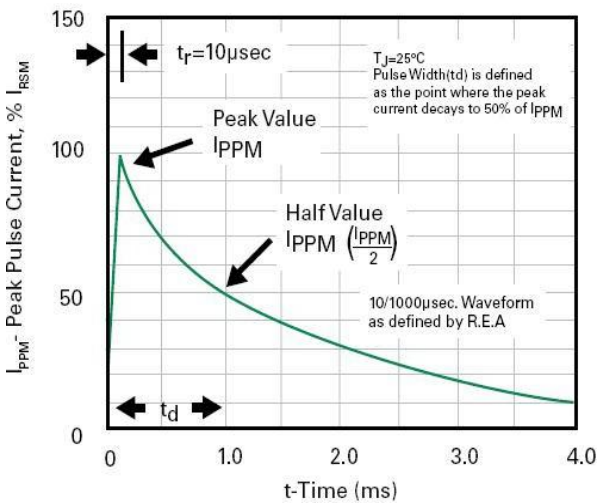


Fig 3. Pulse Waveform

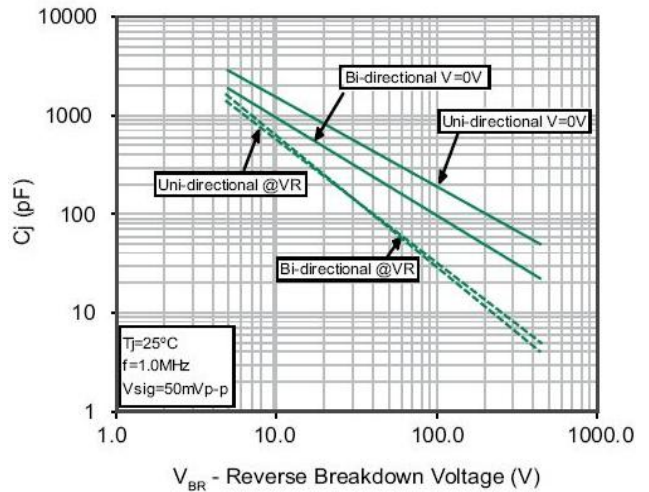


Fig 4. Typical Junction Capacitance

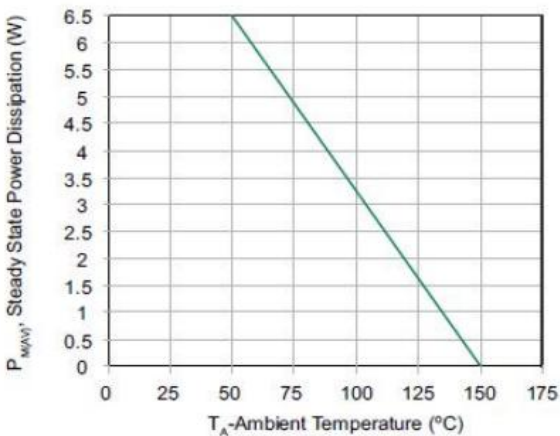


Fig 5. Steady State Power Dissipation Derating Curve

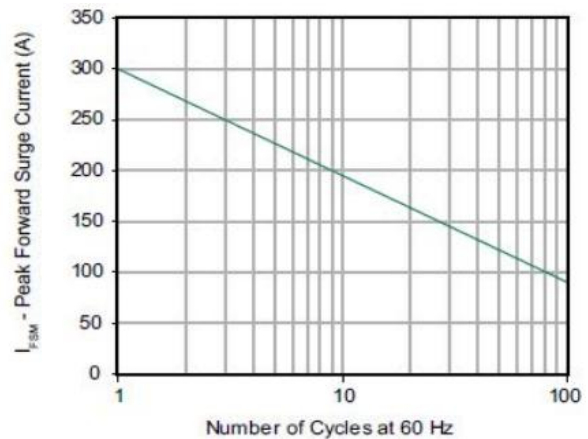
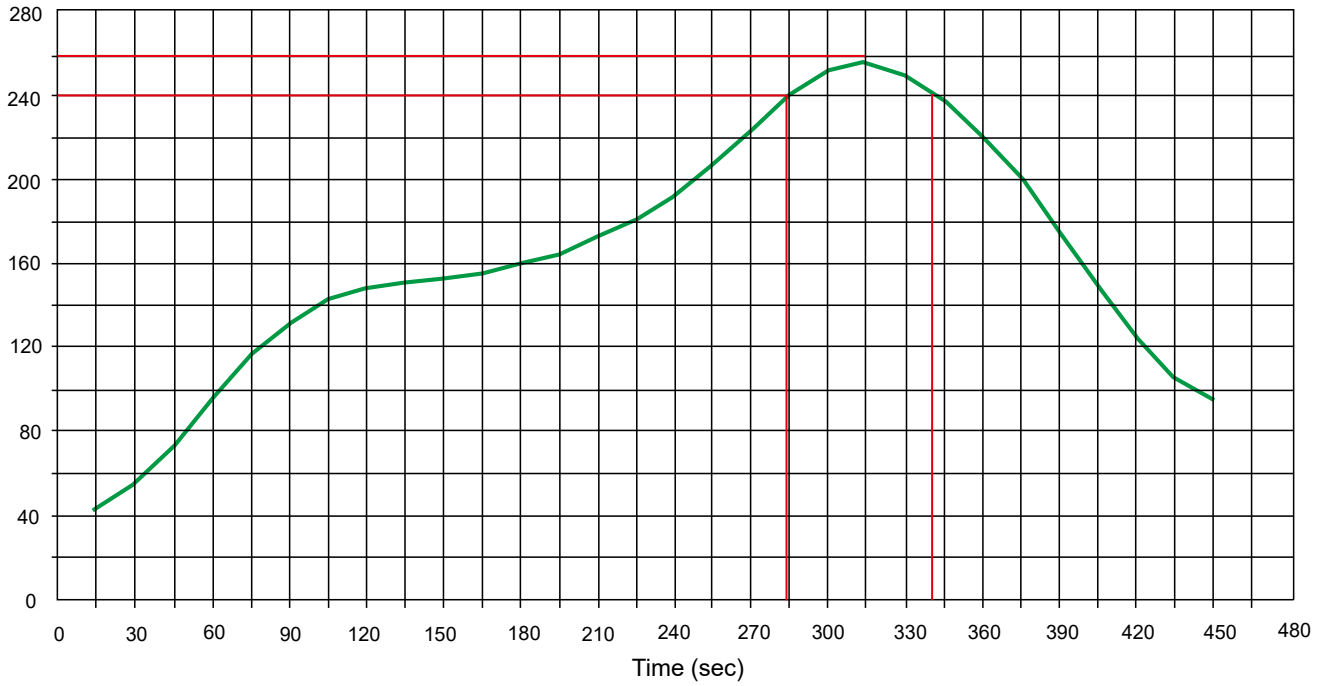


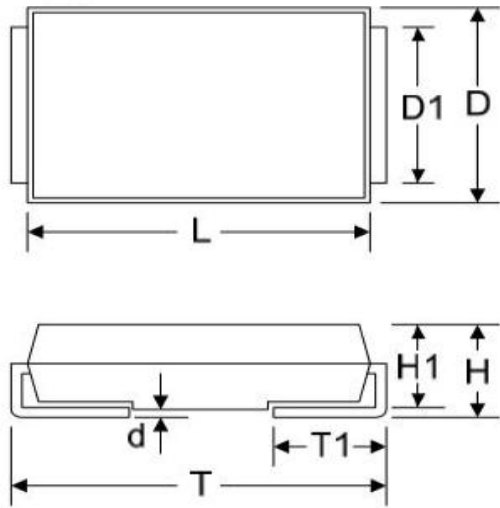
Fig 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

Solder Reflow Recommendation

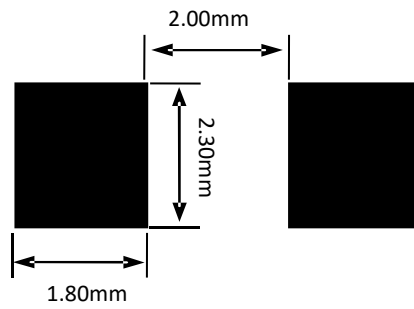
Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Product dimension(SMB)




Dimension	Millimeters	
	MIN	MAX
D	3.40	3.94
D1	1.90	2.10
L	4.22	4.70
T	5.21	5.59
T1	0.90	1.42
d	0.00	0.23
H	1.95	2.60
H1	2.00	2.34



Ordering information

Device	Package	Shipping
P6SMBJ Series	SMB (Pb-Free)	3000 / Tape & Reel


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