

SuperTVS – P6SMB SERIES

1. 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
- Meets MSL level 1, per J-STD-020
- 600W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1µA above 10V
- Plastic package has underwriters laboratory flammability 94V-0
- High Temperature soldering: 260°C/10 seconds at terminals

2. Mechanical Data

- Case: JEDEC DO-214AA. Molded plastic over glass passivated junction
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Standard Packaging: 12mm tape
- Weight: 0.10g

3. Maximum Ratings and Characteristics

Ratings at 25° ambient temperature unless otherwise specified

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000us waveform (Note1,2)	P _{PPM}	600	W
Peak pulse current of at 10/1000us waveform (Note1)	I _{PPM}	See Table	A
Steady state power dissipation at TA=50°C	P _{M(AV)}	5.0	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (Note3)	I _{FSM}	100	A
Operating junction and Storage Temperature Range	T _J , T _{STG}	-65 to 150	°C
Typical thermal resistance junction to lead	R _{θJL}	20	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	100	°C/W

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25°C per Fig.2.
2. Mounted on 5.0mmx5.0mm copper pads to each terminal.

P6SMB SERIES

Rev-1.1

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

4. Electrical Characteristics (TA=25°C)

Part Number	Part Number	Marking		Reverse Stand off Voltage V _R	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T	Maximum Clamping Voltage V _C @ I _{PP}	Maximum Peak Pulse Current I _{PP}	Maximum Reverse Leakage I _R @ V _R	ROHS2.0
					MIN	MAX					
UNI	BI	UNI	BI	(V)	MIN	MAX	(mA)	(V)	(A)	(μA)	
P6SMB6.8A	P6SMB6.8CA	6V8A	6V8C	5.8	6.45	7.14	10	10.5	58.1	400	y
P6SMB7.5A	P6SMB7.5CA	7V5A	7V5C	6.4	7.13	7.88	10	11.1	54	400	y
P6SMB8.2A	P6SMB8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	50.4	200	y
P6SMB9.1A	P6SMB9.1CA	9V1A	9V1C	7.78	8.65	9.55	1	13.4	45.5	50	y
P6SMB10A	P6SMB10CA	10A	10C	8.55	9.5	10.5	1	14.5	42.1	20	y
P6SMB11A	P6SMB11CA	11A	11C	9.4	10.5	11.6	1	15.6	39.1	10	y
P6SMB12A	P6SMB12CA	12A	12C	10.2	11.4	12.6	1	16.7	36.5	5	y
P6SMB13A	P6SMB13CA	13A	13C	11.1	12.4	13.7	1	18.2	33.5	1	y
P6SMB15A	P6SMB15CA	15A	15C	12.8	14.3	15.8	1	21.2	28.8	1	y
P6SMB16A	P6SMB16CA	16A	16C	13.6	15.2	16.8	1	22.5	27.1	1	y
P6SMB18A	P6SMB18CA	18A	18C	15.3	17.1	18.9	1	25.5	24.2	1	y
P6SMB20A	P6SMB20CA	20A	20C	17.1	19	21	1	27.7	22	1	y
P6SMB22A	P6SMB22CA	22A	22C	18.8	20.9	23.1	1	30.6	19.9	1	y
P6SMB24A	P6SMB24CA	24A	24C	20.5	22.8	25.2	1	33.2	18.4	1	y
P6SMB27A	P6SMB27CA	27A	27C	23.1	25.7	28.4	1	37.5	16.3	1	y
P6SMB30A	P6SMB30CA	30A	30C	25.6	28.5	31.5	1	41.4	14.7	1	y
P6SMB33A	P6SMB33CA	33A	33C	28.2	31.4	34.7	1	45.7	13.3	1	y
P6SMB36A	P6SMB36CA	36A	36C	30.8	34.2	37.8	1	49.9	12.2	1	y
P6SMB39A	P6SMB39CA	39A	39C	33.3	37.1	41	1	53.9	11.3	1	y
P6SMB43A	P6SMB43CA	43A	43C	36.8	40.9	45.2	1	59.3	10.3	1	y
P6SMB47A	P6SMB47CA	47A	47C	40.2	44.7	49.4	1	64.8	9.4	1	y
P6SMB51A	P6SMB51CA	51A	51C	43.6	48.5	53.6	1	70.1	8.7	1	y
P6SMB56A	P6SMB56CA	56A	56C	47.8	53.2	58.8	1	77	7.9	1	y
P6SMB58A	P6SMB58CA	58A	58C	52.78	55.1	60.9	1	79.8	7.7	1	y
P6SMB62A	P6SMB62CA	62A	62C	53	58.9	65.1	1	85	7.2	1	y
P6SMB68A	P6SMB68CA	68A	68C	58.1	64.6	71.4	1	92	6.6	1	y
P6SMB75A	P6SMB75CA	75A	75C	64.1	71.3	78.8	1	103	5.9	1	y

Part Number	Part Number	Marking		Reverse Stand off Voltage V_R	Breakdown Voltage V_{BR} (Volts) @ I_R		Test Current I_R (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μ A)	ROHS2.0
					MIN	MAX					
UNI	BI	UNI	BI	(V)							
P6SMB82A	P6SMB82CA	82A	82C	70.1	77.9	86.1	1	113	5.4	1	y
P6SMB91A	P6SMB91CA	91A	91C	77.8	86.5	95.5	1	125	4.9	1	y
P6SMB100A	P6SMB100CA	100A	100C	85.5	95	105	1	137	4.5	1	y
P6SMB110A	P6SMB110CA	110A	110C	94	105	116	1	152	4	1	y
P6SMB120A	P6SMB120CA	120A	120C	102	114	126	1	165	3.7	1	y
P6SMB130A	P6SMB130CA	130A	130C	111	124	137	1	179	3.4	1	y
P6SMB150A	P6SMB150CA	150A	150C	128	143	158	1	207	2.9	1	y
P6SMB160A	P6SMB160CA	160A	160C	136	152	168	1	219	2.8	1	y
P6SMB170A	P6SMB170CA	170A	170C	145	162	179	1	234	2.6	1	y
P6SMB180A	P6SMB180CA	180A	180C	154	171	189	1	246	2.5	1	y
P6SMB200A	P6SMB200CA	200A	200C	171	190	210	1	274	2.2	1	y
P6SMB220A	P6SMB220CA	220A	220C	185	209	231	1	328	1.9	1	y
P6SMB250A	P6SMB250CA	250A	250C	214	237	263	1	344	1.8	1	y
P6SMB300A	P6SMB300CA	300A	300C	256	285	315	1	414	1.5	1	y
P6SMB350A	P6SMB350CA	350A	350C	300	332	368	1	482	1.3	1	y
P6SMB400A	P6SMB400CA	400A	400C	342	380	420	1	548	1.1	1	y
P6SMB440A	P6SMB440CA	440A	440C	376	418	462	1	602	1	1	y
P6SMB480A	P6SMB480CA	480A	480C	408	456	504	1	658	0.9	1	y
P6SMB510A	P6SMB510CA	510A	510C	434	485	535	1	698	0.9	1	y
P6SMB530A	P6SMB530CA	530A	530C	451	503.5	556.5	1	725	0.8	1	y
P6SMB540A	P6SMB540CA	540A	540C	460	513	567	1	740	0.8	1	y
P6SMB550A	P6SMB550CA	550A	550C	468	522.5	577.5	1	760	0.8	1	y

For bidirectional type having VR of 10 volts and less, the IR limit is double.

5. Ratings and Characteristic Curves (TA =25°C unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

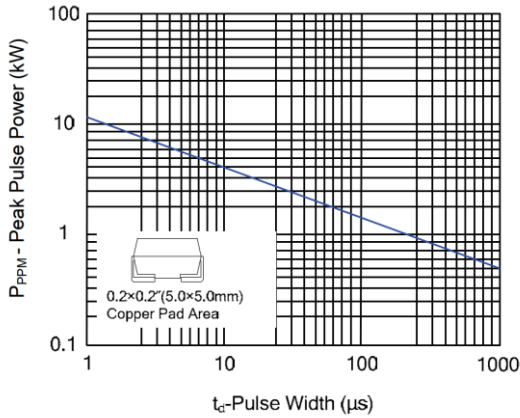


Figure 2 Pulse Derating Curve

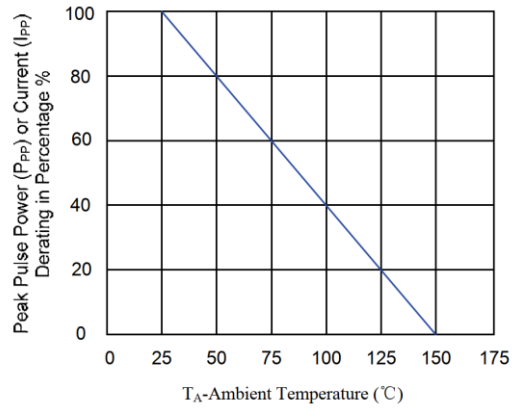


Figure 3 Pulse Waveform

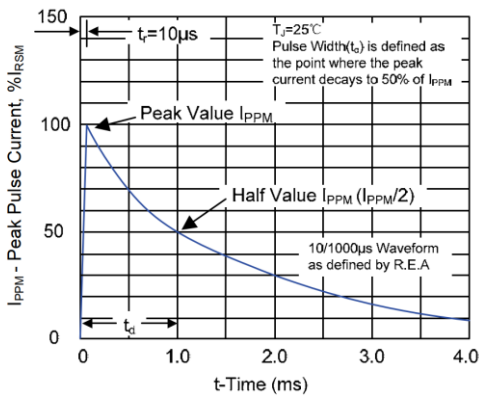


Figure 4 Typical Junction Capacitance

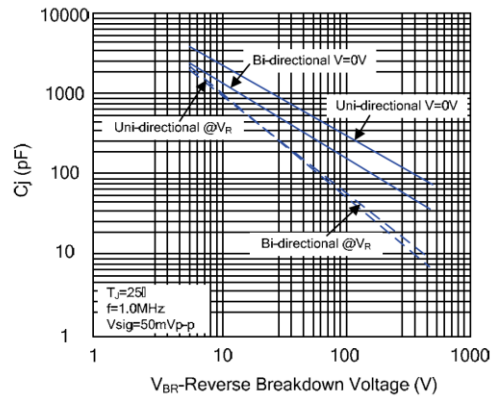


Figure 5 Steady State Power Dissipation Derating Curve

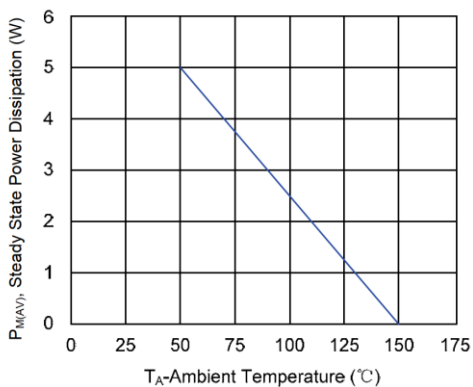
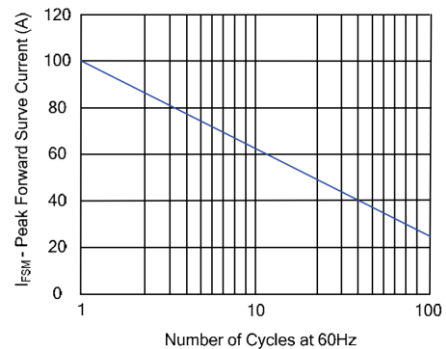


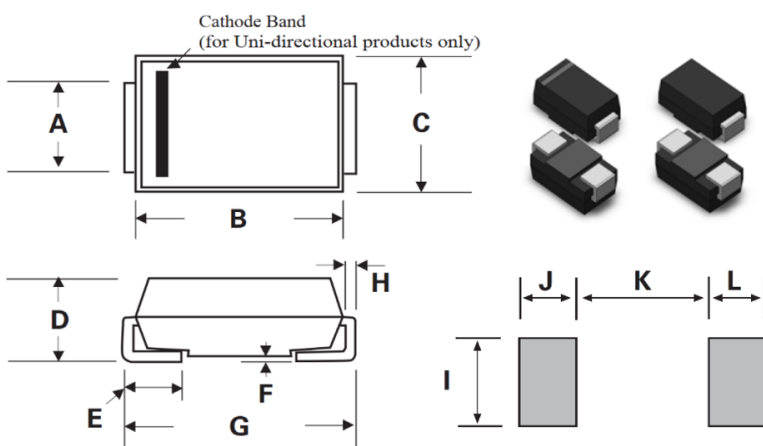
Figure 6 Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



6. Packaging

	Symbol	Dimension	
	W	12.0±0.20	
	P0	4.0±0.10	
	P1	8.00±0.10	
	P2	2.0±0.10	
	D0	φ1.55±0.10	
	D1	φ1.5±0.10	
	E	1.75±0.10	
	F	5.50±0.10	
	A0	3.86±0.15	
	B0	5.65±0.10	
	K0	2.75±0.15	
	T	0.25±0.05	
	Quantity: 500PCS		
		D2	φ178.0±2.0
		D3	φ50.0min.
		D4	φ13.0±0.5
		W1	16.0±2.0
		Quantity: 3000PCS	

7. Dimension (SMB/DO-214AA)



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.077	0.086	1.95	2.2
B	0.16	0.18	4.06	4.57
C	0.13	0.155	3.3	3.94
D	0.084	0.096	2.13	2.44
E	0.03	0.06	0.76	1.52
F	-	0.008	-	0.203
G	0.205	0.22	5.21	5.59
H	0.006	0.012	0.152	0.305
I	0.089	-	2.26	-
J	0.085	-	2.16	-
K	-	0.107	-	2.74
L	0.085	-	2.16	-

DISCLAIMER

ELECSUPER SUPERTVS PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with ElecSuper products. You are solely responsible for

- (1) selecting the appropriate ElecSuper products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. ElecSuper grants you permission to use these resources only for development of an application that uses the ElecSuper products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other ElecSuper intellectual property right or to any third party intellectual property right. ElecSuper disclaims responsibility for, and you will fully indemnify ElecSuper and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. ElecSuper's products are provided subject to ElecSuper's Terms of Sale or other applicable terms available either on www.elecsuper.com or provided in conjunction with such ElecSuper products. ElecSuper's provision of these resources does not expand or otherwise alter ElecSuper's applicable warranties or warranty disclaimers for ElecSuper product.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [ESD Suppressors / TVS Diodes](#) category:

Click to view products by [ElecSuper](#) manufacturer:

Other Similar products are found below :

[60KS200C](#) [D18V0L1B2LP-7B](#) [D5V0F4U5P5-7](#) [NTE4902](#) [P4KE27CA](#) [P6KE11CA](#) [P6KE8.2A](#) [SA60CA](#) [SA64CA](#) [SMBJ12CATR](#)
[SMBJ33CATR](#) [SMBJ6.5A](#) [SMBJ8.0A](#) [ESD101-B1-02ELS E6327](#) [ESD112-B1-02EL E6327](#) [ESD7451N2T5G](#) [19180-510](#) [CPDT-5V0USP-](#)
[HF](#) [3.0SMCJ33CA-F](#) [3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [JANTX1N6126A](#) [D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [SCM1293A-04SO](#)
[ESD200-B1-CSP0201 E6327](#) [SM12-7](#) [CEN955 W/DATA](#) [VESD12A1A-HD1-GS08](#) [CPDQC5V0-HF](#) [D1213A-01LP4-7B](#) [ESD101-B1-02EL](#)
[E6327](#) [AOZ8808DI-03](#) [5KP15A](#) [5KP48A](#) [5KP90A](#) [ESD3V3D7-TP](#) [15KPA36A-LF](#) [P4KE56CA](#) [P4KE68A](#) [P4KE91CATR](#) [P6KE120A](#)
[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)