

SMD Transient Voltage Suppressor Diodes

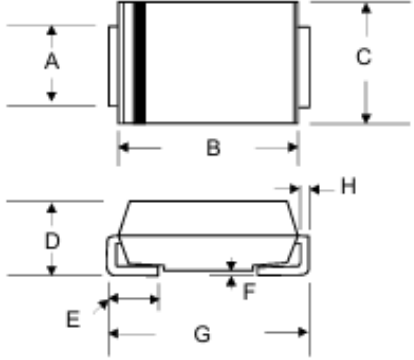
Primary characteristics		
Parameter	Value	Unit
V_R breakdown voltage	6.8 to 550	V
Peak power	600	W

Features

- Glass passivated chip
- High accuracy, 5% tolerance
- Uni- and Bidirectional unit
- Low clamping voltage
- Low leakage current
- Meets MSL level 1
- Very fast response time
- JESD22-A114-B ESD Voltage: HBM 15kV
- JEDEC EIA/JESD22-C101F ESD Voltage: CDM 500V
- JEDEC EIA/JESD22-A115 ESD Voltage: MM 400V
- ESDM-immunity acc. IEC 61000-4-2 ± 30 kV contact ± 30 kV air
- Base P/N-HM AEC-Q101 qualified
- Case DO-214AA/SMB (plastic package). RoHS compliant.
- Molding compound flammability rating: UL 94 V-0
- High temperature soldering at terminals guaranteed: 260°C/10 sec

Features

- Computers
- Telecom systems
- Industrial equipment
- Consumer electronics
- Other VCC bus and I/O interfaces

Case dimensions								
								
SMB								
Unit mm	A	B	C	D	E	F	G	H
MIN	1.91	4.06	3.30	1.99	0.76	-	5.00	0.15
MAX	2.20	4.75	3.94	2.61	1.52	0.203	5.59	0.31

Maximum ratings and electrical characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)			
Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000 μs waveform ¹⁾	P_{PPM}	600	W
Peak forward surge current ²⁾	I_{FSM}	100	A
Peak pulse current on 10/1000 μs waveform ¹⁾	I_{PPM}	see Characteristics table	A
Operating junction temperature and storage temperature range	T_j, T_{stg}	-55 ~ +150	$^\circ\text{C}$
Notes:			
1) Non-repetitive current pulse per fig.5 and derated above $T_a=25^\circ\text{C}$ per fig.1.			
2) Measured on 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minute.			

Characteristics table ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Part number	Part number	Marking		Stand-off voltage VWM	Breakdown voltage ¹⁾ @I _T		Test current	Maximum clamping voltage @I _{PP}	Maximum peak pulse current ²⁾ I _{PPM}	Maximum reverse leakage ³⁾ @V _R	Maximum temperature coefficient of V _{BR}
(UNI)	(BI)				V _{BR}						
					MIN	MAX					
		UNI	BI	V	V	V	mA	V	A	μA	%/°C
P6SMB6.8A	P6SMB6.8CA	6V8A	6V8C	5.80	6.45	7.14	10	10.5	57.1	1000	0.057
P6SMB7.5A	P6SMB7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	53.1	500	0.061
P6SMB8.2A	P6SMB8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	49.6	200	0.065
P6SMB9.1A	P6SMB9.1CA	9V1A	9V1C	7.78	8.65	9.55	1.0	13.4	44.8	50	0.068
P6SMB10A	P6SMB10CA	10A	10C	8.55	9.50	10.5	1.0	14.5	41.4	10	0.073
P6SMB11A	P6SMB11CA	11A	11C	9.40	10.5	11.6	1.0	15.6	38.5	5.0	0.075
P6SMB12A	P6SMB12CA	12A	12C	10.2	11.4	12.6	1.0	16.7	35.9	5.0	0.078
P6SMB13A	P6SMB13CA	13A	13C	11.1	12.4	13.7	1.0	18.2	33.0	5.0	0.081
P6SMB15A	P6SMB15CA	15A	15C	12.8	14.3	15.8	1.0	21.2	28.3	1.0	0.084
P6SMB16A	P6SMB16CA	16A	16C	13.6	15.2	16.8	1.0	22.5	26.7	1.0	0.086
P6SMB18A	P6SMB18CA	18A	18C	15.3	17.1	18.9	1.0	25.5	23.8	1.0	0.088
P6SMB20A	P6SMB20CA	20A	20C	17.1	19.0	21.0	1.0	27.7	21.7	1.0	0.090
P6SMB22A	P6SMB22CA	22A	22C	18.8	20.9	23.1	1.0	30.6	19.6	1.0	0.092
P6SMB24A	P6SMB24CA	24A	24C	20.5	22.8	25.2	1.0	33.2	18.1	1.0	0.094
P6SMB27A	P6SMB27CA	27A	27C	23.1	25.7	28.4	1.0	37.5	16.0	1.0	0.096
P6SMB30A	P6SMB30CA	30A	30C	25.6	28.5	31.5	1.0	41.4	14.5	1.0	0.097
P6SMB33A	P6SMB33CA	33A	33C	28.2	31.4	34.7	1.0	45.7	13.1	1.0	0.098
P6SMB36A	P6SMB36CA	36A	36C	30.8	34.2	37.8	1.0	49.9	12.0	1.0	0.099
P6SMB39A	P6SMB39CA	39A	39C	33.3	37.1	41.0	1.0	53.9	11.1	1.0	0.100
P6SMB43A	P6SMB43CA	43A	43C	36.8	40.9	45.2	1.0	59.3	10.1	1.0	0.101
P6SMB47A	P6SMB47CA	47A	47C	40.2	44.7	49.4	1.0	64.8	9.3	1.0	0.101
P6SMB51A	P6SMB51CA	51A	51C	43.6	48.5	53.6	1.0	70.1	8.6	1.0	0.102
P6SMB56A	P6SMB56CA	56A	56C	47.8	53.2	58.8	1.0	77.0	7.8	1.0	0.103
P6SMB62A	P6SMB62CA	62A	62C	53.0	58.9	65.1	1.0	85.0	7.1	1.0	0.104
P6SMB68A	P6SMB68CA	68A	68C	58.1	64.6	71.4	1.0	92.0	6.5	1.0	0.104
P6SMB75A	P6SMB75CA	75A	75C	64.1	71.3	78.8	1.0	103	5.8	1.0	0.105
P6SMB82A	P6SMB82CA	82A	82C	70.1	77.9	86.1	1.0	113	5.3	1.0	0.105
P6SMB91A	P6SMB91CA	91A	91C	77.8	86.5	95.5	1.0	125	4.8	1.0	0.106
P6SMB100A	P6SMB100CA	100A	100C	85.5	95.0	105	1.0	137	4.4	1.0	0.106
P6SMB110A	P6SMB110CA	110A	110C	94.0	105	116	1.0	152	3.9	1.0	0.107
P6SMB120A	P6SMB120CA	120A	120C	102	114	126	1.0	165	3.6	1.0	0.107
P6SMB130A	P6SMB130CA	130A	130C	111	124	137	1.0	179	3.4	1.0	0.107
P6SMB150A	P6SMB150CA	150A	150C	128	143	158	1.0	207	2.9	1.0	0.108
P6SMB160A	P6SMB160CA	160A	160C	136	152	168	1.0	219	2.7	1.0	0.108
P6SMB170A	P6SMB170CA	170A	170C	145	162	179	1.0	234	2.6	1.0	0.108
P6SMB180A	P6SMB180CA	180A	180C	154	171	189	1.0	246	2.4	1.0	0.108
P6SMB200A	P6SMB200CA	200A	200C	171	190	210	1.0	274	2.2	1.0	0.108
P6SMB220A	P6SMB220CA	220A	220C	185	209	231	1.0	328	1.9	1.0	0.108
P6SMB250A	P6SMB250CA	250A	250C	214	237	263	1.0	344	1.8	1.0	0.108
P6SMB300A	P6SMB300CA	300A	300C	256	285	315	1.0	414	1.5	1.0	0.108
P6SMB350A	P6SMB350CA	350A	350C	300	332	368	1.0	482	1.3	1.0	0.108
P6SMB400A	P6SMB400CA	400A	400C	342	380	420	1.0	548	1.1	1.0	0.108
P6SMB440A	P6SMB440CA	440A	440C	376	418	462	1.0	602	1.0	1.0	0.108
P6SMB480A	P6SMB480CA	480A	480C	408	456	504	1.0	658	0.9	1.0	0.108
P6SMB510A	P6SMB510CA	510A	510C	434	485	535	1.0	698	0.9	1.0	0.108
P6SMB530A	P6SMB530CA	530A	530C	451	503.5	556.5	1.0	725	0.8	1.0	0.108
P6SMB540A	P6SMB540CA	540A	540C	460	513.0	567.0	1.0	740	0.8	1.0	0.108
P6SMB550A	P6SMB550CA	550A	550C	468	522.5	577.5	1.0	760	0.8	1.0	0.108

Notes:

- 1) V_(BR) measured after I_T applied for 300μs, I_T=square wave pulse or equivalent
- 2) Surge current waveform per fig.3 and derate per fig.2.
- 3) For bidirectional types with V_{WM} of 10V and less, the I_D limit is doubled
- 4) All terms and symbols are consistent with ANSI/IEEE C62.35

Typical characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Fig.1. Peak pulse power rating

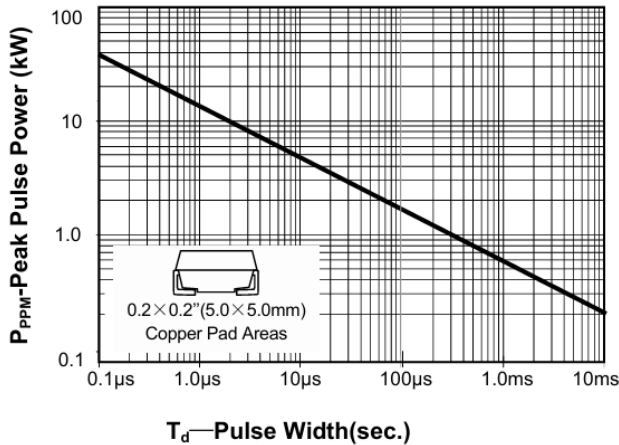


Fig.2. Pulse derating curve

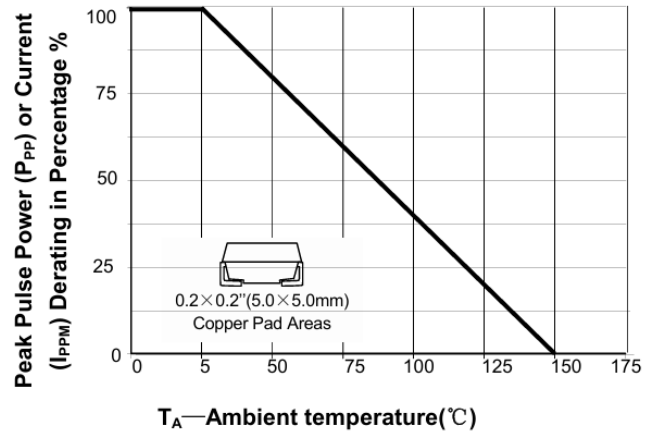


Fig.3. Pulse waveform

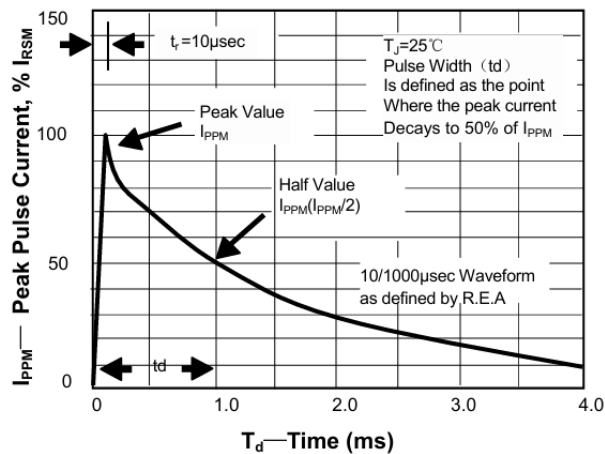


Fig.4. Typical junction capacitance unidirectional

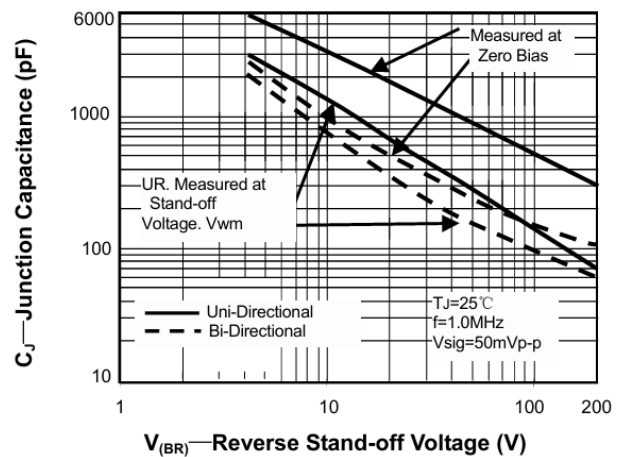


Fig.5. Typical transient thermal impedance

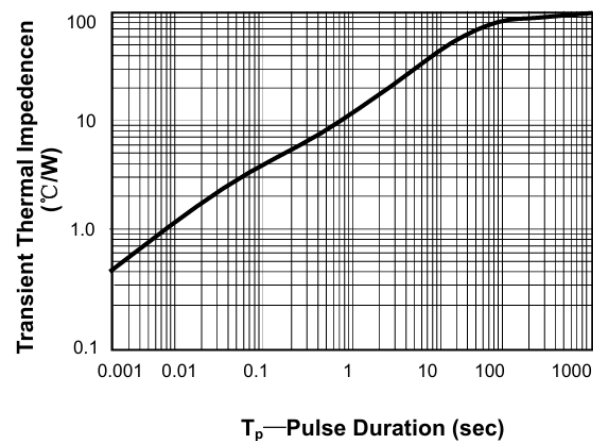
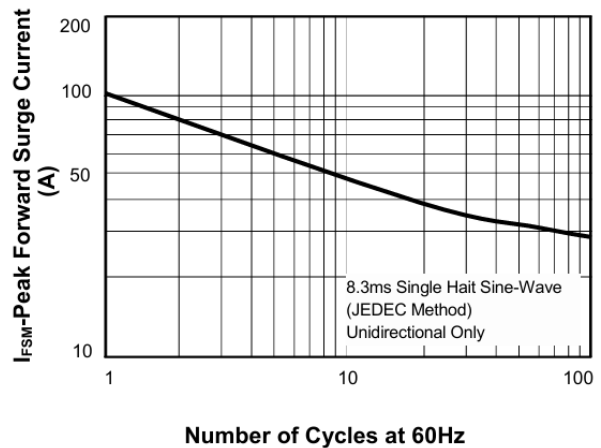
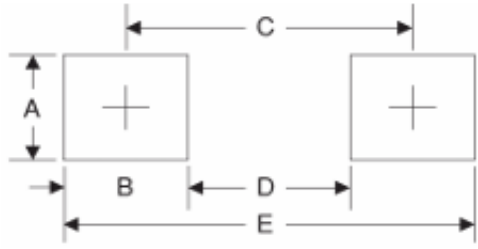
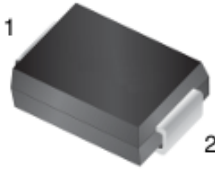
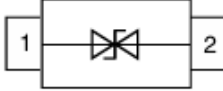
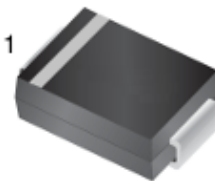
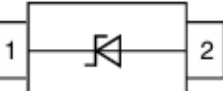


Fig.6. Peak forward surge current vs. Number of cycles



Suggested soldering pad layout						Simplified SMB and symbol	
						 	
Unit	A	B	C	D	E	 	
mm	2.30	2.00	4.10	2.10	6.10	1 – Cathode 2 – Anode	

Ordering information		
Part number	Package	Shipping quantity
P6SMB6.8A(CA) ~ P6SMB550A(CA)	SMB	3 000 pcs / 13" reel

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