

### Features

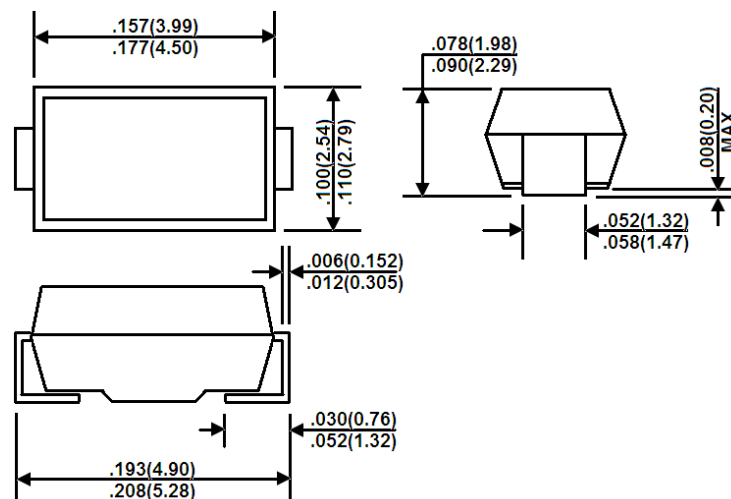
- \* For surface mounted application
- \* Low profile package
- \* Glass passivated junction
- \* Excellent clamping capability
- \* Fast response time: typically less than 1.0ps from 0 volts to BV min
- \* Typical IR less than 1μA above 10V
- \* High temperature soldering:  
260°C/10 seconds at terminals
- \* Plastic material used carries underwriters laboratory flammability classifications 94V-0



RoHS  
COMPLIANT

### Package Outline Dimensions in inches (millimeters)

#### SMA:



### Mechanical Data

- \* Case: Molded plastic
- \* Terminals: Matte tin plated leads, solderable per JESD22-B102
- \* Polarity: Indicated by cathode band
- \* Standard Packaging: 12mm tape per EIA STD RS-481

### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Type Number	Symbol	Value	Unit
Peak Power Dissipation at T <sub>A</sub> =25°C, T <sub>P</sub> =1ms(Note1)	P <sub>PK</sub>	400	Watts
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	40	Amps
Typical thermal resistance	R <sub>θJL</sub>	30	°C/W
	R <sub>θJA</sub>	120	
Operating and Storage Temperature Range	T <sub>J</sub> /T <sub>STG</sub>	-55 to +150	°C

Note:1、 Non-repetitive current pulse per Fig.3 and debated above T<sub>A</sub>=25°C per Fig.2.

#### Devices for Bipolar Applications

1. For bidirectional use C or CA suffix for types P4SMAJ6.8 thru types P4SMAJ550A.
2. Electrical characteristics apply in both directions.

### Ratings and Characteristic Curves

FIG. 1 PEAK PULSE POWER RATING CURVE

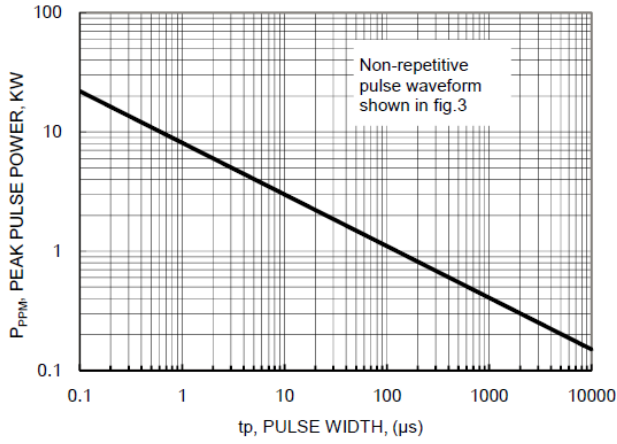


FIG.2 PULSE DERATING CURVE

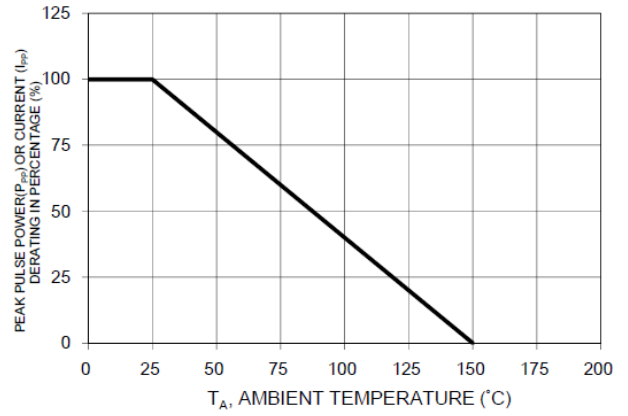


FIG. 3 CLAMPING POWER PULSE WAVEFORM

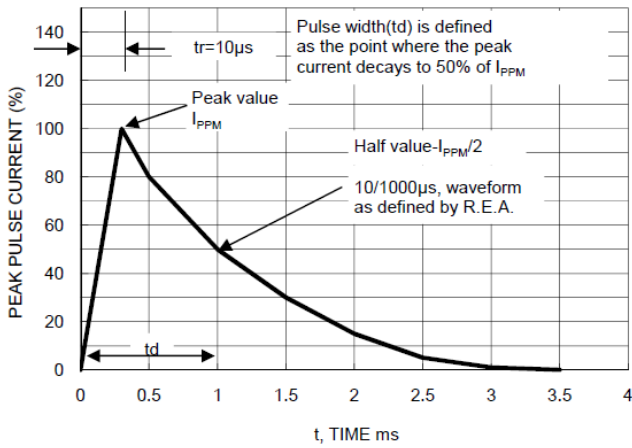


FIG. 4 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

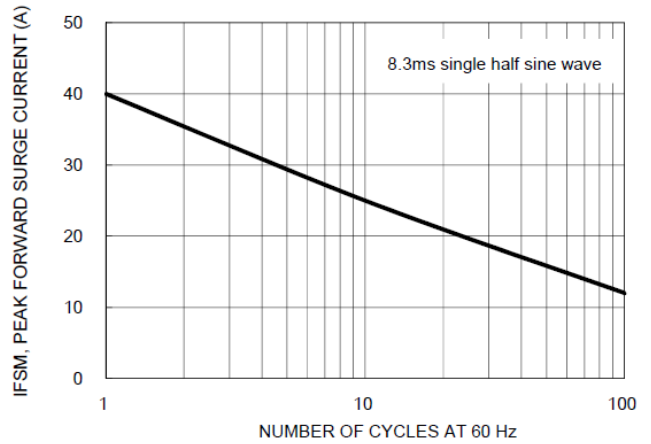
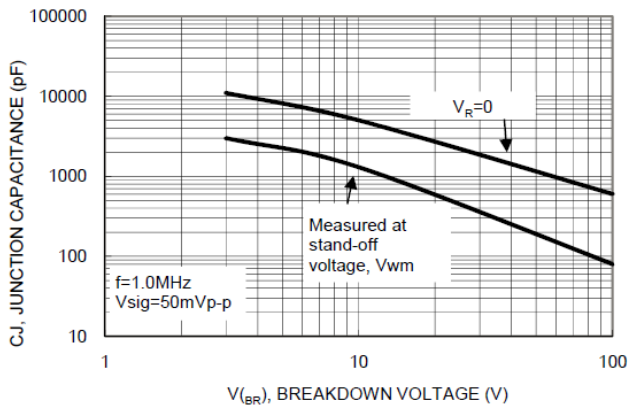


FIG. 5 TYPICAL JUNCTION CAPACITANCE





# P4SMA6.8A THRU P4SMA550A

## Surface Mount Transient Voltage Suppressors Diodes

**Electrical Characteristics** @T<sub>A</sub>=25°C unless otherwise noted

Type Number		Stand-Off Voltage V <sub>R</sub> (V)	Breakdown Voltage VBR (V) (Note 1)		Test Current I <sub>T</sub> (mA)	Maximum Reverse Leakage @ V <sub>R</sub> I <sub>R</sub> (uA)	Maximum Peak Pulse Current I <sub>PPM</sub> (A) (Note 2)	Maximum Clamping Voltage @ I <sub>PPM</sub> V <sub>c</sub> (V)	Marking Code
			Min	Max					
(Uni)	(Bi)								
P4SMA6.8	P4SMA6.8C	5.50	6.12	7.48	10	1000	38.0	10.8	6V8/6V8C
P4SMA6.8A	P4SMA6.8CA	5.80	6.46	7.14	10	1000	40.0	10.5	6V8A/6V8CA
P4SMA7.5	P4SMA7.5C	6.05	6.75	8.25	10	500	35.0	11.7	7V5/7V5C
P4SMA7.5A	P4SMA7.5CA	6.40	7.13	7.88	10	500	37.0	11.3	7V5A/7V5CA
P4SMA8.2	P4SMA8.2C	6.63	7.38	9.02	10	200	33.0	12.5	8V2/8V2C
P4SMA8.2A	P4SMA8.2CA	7.02	7.79	8.61	10	200	34.0	12.1	8V2A/8V2CA
P4SMA9.1	P4SMA9.1C	7.37	8.19	10.00	1.0	50	30.0	13.8	9V1/9V1C
P4SMA9.1A	P4SMA9.1CA	7.78	8.65	9.55	1.0	50	31.0	13.4	9V1A/9V1CA
P4SMA10	P4SMA10C	8.10	9.00	11.00	1.0	10	28.0	15.0	10/10C
P4SMA10A	P4SMA10CA	8.55	9.50	10.5	1.0	10	29.0	14.5	10A/10CA
P4SMA11	P4SMA11C	8.92	9.90	12.1	1.0	1	26.0	16.2	11/11C
P4SMA11A	P4SMA11CA	9.40	10.5	11.6	1.0	1	27.0	15.6	11A/11CA
P4SMA12	P4SMA12C	9.72	10.8	13.2	1.0	1	24.0	17.3	12/12C
P4SMA12A	P4SMA12CA	10.2	11.4	12.6	1.0	1	25.0	16.7	12A/12CA
P4SMA13	P4SMA13C	10.5	11.7	14.3	1.0	1	22.0	19.0	13/13C
P4SMA13A	P4SMA13CA	11.1	12.4	13.7	1.0	1	23.0	18.2	13A/13CA
P4SMA15	P4SMA15C	12.1	13.5	16.5	1.0	1	19.0	22.0	15/15C
P4SMA15A	P4SMA15CA	12.8	14.3	15.8	1.0	1	20.0	21.2	15A/15CA
P4SMA16	P4SMA16C	12.9	14.4	17.6	1.0	1	17.8	23.5	16/16C
P4SMA16A	P4SMA16CA	13.6	15.2	16.8	1.0	1	18.6	22.5	16A/16CA
P4SMA18	P4SMA18C	14.5	16.2	19.8	1.0	1	16.0	26.5	18/18C
P4SMA18A	P4SMA18CA	15.3	17.1	18.9	1.0	1	16.5	25.5	18A/18CA
P4SMA20	P4SMA20C	16.2	18.0	22.0	1.0	1	14.0	29.1	20/20C
P4SMA20A	P4SMA20CA	17.1	19.0	21.0	1.0	1	15.0	27.7	20A/20CA
P4SMA22	P4SMA22C	17.8	19.8	24.2	1.0	1	13.0	31.9	22/22C
P4SMA22A	P4SMA22CA	18.8	20.9	23.1	1.0	1	13.7	30.6	22A/22CA
P4SMA24	P4SMA24C	19.4	21.6	26.4	1.0	1	12.0	34.7	24/24C
P4SMA24A	P4SMA24CA	20.5	22.8	25.2	1.0	1	12.6	33.2	24A/24CA
P4SMA27	P4SMA27C	21.8	24.3	29.7	1.0	1	10.7	39.1	27/27C
P4SMA27A	P4SMA27CA	23.1	25.7	28.4	1.0	1	11.0	37.5	27A/27CA
P4SMA30	P4SMA30C	24.3	27.0	33.0	1.0	1	9.6	43.5	30/30C
P4SMA30A	P4SMA30CA	25.6	28.5	31.5	1.0	1	10.0	41.4	30A/30CA
P4SMA33	P4SMA33C	26.8	29.7	36.3	1.0	1	8.8	47.7	33/33C
P4SMA33A	P4SMA33CA	28.2	31.4	34.7	1.0	1	9.0	45.7	33A/33CA
P4SMA36	P4SMA36C	29.1	32.4	39.6	1.0	1	8.0	52.0	36/36C
P4SMA36A	P4SMA36CA	30.8	34.2	37.8	1.0	1	8.4	49.9	36A/36CA
P4SMA39	P4SMA39C	31.6	35.1	42.9	1.0	1	7.4	56.4	39/39C
P4SMA39A	P4SMA39CA	33.3	37.1	41.0	1.0	1	7.7	53.9	39A/39CA
P4SMA43	P4SMA43C	34.8	38.7	47.3	1.0	1	6.7	61.9	43/43C
P4SMA43A	P4SMA43CA	36.8	40.9	45.2	1.0	1	7.0	59.3	43A/43CA
P4SMA47	P4SMA47C	38.1	42.3	51.7	1.0	1	6.2	67.8	47/47C
P4SMA47A	P4SMA47CA	40.2	44.7	49.4	1.0	1	6.4	64.8	47A/47CA
P4SMA51	P4SMA51C	41.3	45.9	56.1	1.0	1	5.7	73.5	51/51C
P4SMA51A	P4SMA51CA	43.6	48.5	53.6	1.0	1	6.0	70.1	51A/51CA
P4SMA56	P4SMA56C	45.4	50.4	61.6	1.0	1	5.2	80.5	56/56C
P4SMA56A	P4SMA56CA	47.8	53.2	58.8	1.0	1	5.4	77.0	56A/56CA
P4SMA62	P4SMA62C	50.2	55.8	68.2	1.0	1	4.7	89.0	62/62C
P4SMA62A	P4SMA62CA	53.0	58.9	65.1	1.0	1	5.0	85.0	62A/62CA
P4SMA68	P4SMA68C	55.1	61.2	74.8	1.0	1	4.2	98.0	68/68C
P4SMA68A	P4SMA68CA	58.1	64.6	71.4	1.0	1	4.5	92.0	68A/68CA



# P4SMA6.8A THRU P4SMA550A

## Surface Mount Transient Voltage Suppressors Diodes

**Electrical Characteristics** @T<sub>A</sub>=25°C unless otherwise noted

Type Number		Stand-Off Voltage V <sub>R</sub> (V)	Breakdown Voltage V <sub>BR</sub> (V) (Note 1)		Test Current I <sub>T</sub> (mA)	Maximum Reverse Leakage @ V <sub>R</sub> I <sub>R</sub> (uA)	Maximum Peak Pulse Current I <sub>PPM</sub> (A) (Note 2)	Maximum Clamping Voltage @ I <sub>PPM</sub> V <sub>c</sub> (V)	Marking Code
			Min	Max					
(Uni)	(Bi)								
P4SMA75	P4SMA75C	60.7	67.5	82.5	1.0	1	3.8	108	75/75C
P4SMA75A	P4SMA75CA	64.1	71.3	78.8	1.0	1	4.0	103	75A/75CA
P4SMA82	P4SMA82C	66.4	73.8	90.2	1.0	1	3.5	118	82/82C
P4SMA82A	P4SMA82CA	70.1	77.9	86.1	1.0	1	3.7	113	82A/82CA
P4SMA91	P4SMA91C	73.7	81.9	100	1.0	1	3.2	131	91/91C
P4SMA91A	P4SMA91CA	77.8	86.5	95.5	1.0	1	3.3	125	91A/91CA
P4SMA100	P4SMA100C	81.0	90	110	1.0	1	2.9	144	100/100C
P4SMA100A	P4SMA100CA	85.5	95	105	1.0	1	3.0	137	100A/100CA
P4SMA110	P4SMA110C	89.2	99	121	1.0	1	2.6	158	110/110C
P4SMA110A	P4SMA110CA	94.0	105	116	1.0	1	2.7	152	110A/110CA
P4SMA120	P4SMA120C	97.2	108	132	1.0	1	2.4	173	120/120C
P4SMA120A	P4SMA120CA	102.0	114	126	1.0	1	2.5	165	120A/120CA
P4SMA130	P4SMA130C	105.0	117	143	1.0	1	2.2	187	130/130C
P4SMA130A	P4SMA130CA	111.0	124	137	1.0	1	2.3	179	130A/130CA
P4SMA150	P4SMA150C	121.0	135	165	1.0	1	1.9	215	150/150C
P4SMA150A	P4SMA150CA	128.0	143	158	1.0	1	2.0	207	150A/150CA
P4SMA160	P4SMA160C	130.0	144	176	1.0	1	1.8	230	160/160C
P4SMA160A	P4SMA160CA	136.0	152	168	1.0	1	1.9	219	160A/160CA
P4SMA170	P4SMA170C	138.0	153	187	1.0	1	1.7	244	170/170C
P4SMA170A	P4SMA170CA	145.0	162	179	1.0	1	1.8	234	170A/170CA
P4SMA180	P4SMA180C	146.0	162	198	1.0	1	1.6	258	180/180C
P4SMA180A	P4SMA180CA	154.0	171	189	1.0	1	1.7	246	180A/180CA
P4SMA200	P4SMA200C	162.0	180	220	1.0	1	1.4	287	200/200C
P4SMA200A	P4SMA200CA	171.0	190	210	1.0	1	1.5	274	200A/200CA
P4SMA220	P4SMA220C	175.0	198	242	1.0	1	1.2	344	220/220C
P4SMA220A	P4SMA220CA	185.0	209	231	1.0	1	1.3	328	220A/220CA
P4SMA250	P4SMA250C	202.0	225	275	1.0	1	1.1	360	250/250C
P4SMA250A	P4SMA250CA	214.0	237	263	1.0	1	1.2	344	250A/250CA
P4SMA300	P4SMA300C	243.0	270	330	1.0	1	0.93	430	300/300C
P4SMA300A	P4SMA300CA	256.0	285	315	1.0	1	1.0	414	300A/300CA
P4SMA350	P4SMA350C	284.0	315	385	1.0	1	0.79	504	350/350C
P4SMA350A	P4SMA350CA	300.0	332	368	1.0	1	0.9	482	350A/350CA
P4SMA400	P4SMA400C	324.0	360	440	1.0	1	0.7	574	400/400C
P4SMA400A	P4SMA400CA	342.0	380	420	1.0	1	0.8	548	400A/400CA
P4SMA440	P4SMA440C	356.0	396	484	1.0	1	0.63	631	440/440C
P4SMA440A	P4SMA440CA	376.0	418	462	1.0	1	0.7	602	440A/440CA
P4SMA480	P4SMA480C	389.0	432	528	1.0	1	0.58	686	480/480C
P4SMA480A	P4SMA480CA	408.0	456	504	1.0	1	0.6	658	480A/480CA
P4SMA550	P4SMA550C	446.0	495	605	1.0	1	0.5	793	550/550C
P4SMA550A	P4SMA550CA	467.5	523	578	1.0	1	0.5	760	550A/550CA

**Notes:**

1. VBR measure after IT applied for 300μs, IT=square wave pulse or equivalent.
2. Surge current waveform per Figure. 3 and derate per Figure. 2.
3. For bipolar types having VWM of 10 volts and under, the ID limit is doubled.
4. For bidirectional use C or CA suffix for types PS4MA6.8 through P4SMA550A.



**P4SMA6.8A THRU P4SMA550A**  
*Surface Mount Transient Voltage Suppressors Diodes*

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**Ordering Information**

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Part No.	Package	Packing
P4SMA Series	SMB	3K/Reel