

## Transient Voltage Suppressors

TVS Diodes - 400W > P4SMA Series

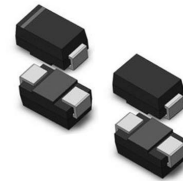


### Description

The P4SMA series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

### Features

- For surface mounted applications in order to optimize board space
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min
- Glass passivated junction
- Low inductance
- High Temperature soldering: 260°C/10 seconds at terminals



Package: DO-214AC / SMA

### Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

### Electrical Characteristics

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10x1000µs waveform (Fig.1)(Note 1), (Note 2)	PPPM	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	IFSM	50	A
Operating Junction and Storage Temperature Range	TJ, TSTG	-55 to 175	°C

#### Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25°C per Fig. 2.
2. Mounted on 5.0x5.0mm copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only.

Electrical Characteristics (TA=25°C)

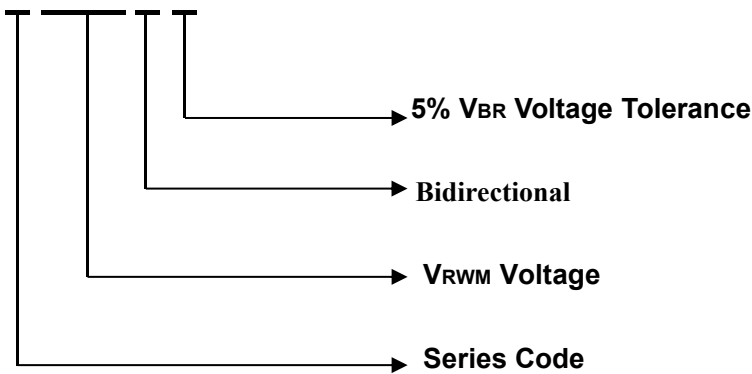
Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage V <sub>BR</sub> (Volts)@I <sub>T</sub>		Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RWM</sub>
Unidirectional	Bidirectional	UNI	BI	V <sub>RWM</sub> (V)	Min	Max	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (μA)
P4SMA6.8A	P4SMA6.8CA	6V8A	6V8C	5.8	6.45	7.14	10	10.5	38.1	1000
P4SMA7.5A	P4SMA7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	35.4	500
P4SMA8.2A	P4SMA8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	33.1	200
P4SMA9.1A	P4SMA9.1CA	9V1A	9V1C	7.78	8.65	9.55	1.0	13.4	29.9	50.0
P4SMA10A	P4SMA10CA	10A	10C	8.55	9.5	10.5	1.0	14.5	27.6	10.0
P4SMA11A	P4SMA11CA	11A	11C	9.40	10.5	11.6	1.0	15.6	25.6	5.0
P4SMA12A	P4SMA12CA	12A	12C	10.2	11.4	12.6	1.0	16.7	24.0	1.0
P4SMA13A	P4SMA13CA	13A	13C	11.1	12.4	13.7	1.0	18.2	22.0	1.0
P4SMA15A	P4SMA15CA	15A	15C	12.8	14.3	15.8	1.0	21.2	18.9	1.0
P4SMA16A	P4SMA16CA	16A	16C	13.6	15.2	16.8	1.0	22.5	17.8	1.0
P4SMA18A	P4SMA18CA	18A	18C	15.3	17.1	18.9	1.0	25.2	15.9	1.0
P4SMA20A	P4SMA20CA	20A	20C	17.1	19.0	21.0	1.0	27.7	14.4	1.0
P4SMA22A	P4SMA22CA	22A	22C	18.8	20.9	23.1	1.0	30.6	13.1	1.0
P4SMA24A	P4SMA24CA	24A	24C	20.5	22.8	25.2	1.0	33.2	12.0	1.0
P4SMA27A	P4SMA27CA	27A	27C	23.1	25.7	28.4	1.0	37.5	10.7	1.0
P4SMA30A	P4SMA30CA	30A	30C	25.6	28.5	31.5	1.0	41.4	9.7	1.0
P4SMA33A	P4SMA33CA	33A	33C	28.2	31.4	34.7	1.0	45.7	8.8	1.0
P4SMA36A	P4SMA36CA	36A	36C	30.8	34.2	37.8	1.0	49.9	8.0	1.0
P4SMA39A	P4SMA39CA	39A	39C	33.3	37.1	41.0	1.0	53.9	7.4	1.0
P4SMA43A	P4SMA43CA	43A	43C	36.8	40.9	45.2	1.0	59.3	6.7	1.0
P4SMA47A	P4SMA47CA	47A	47C	40.2	44.7	49.4	1.0	64.8	6.2	1.0
P4SMA51A	P4SMA51CA	51A	51C	43.6	48.5	53.6	1.0	70.1	5.7	1.0
P4SMA56A	P4SMA56CA	56A	56C	47.8	53.2	58.8	1.0	77.0	5.2	1.0
P4SMA62A	P4SMA62CA	62A	62C	53.0	58.9	65.1	1.0	85.0	4.7	1.0
P4SMA68A	P4SMA68CA	68A	68C	58.1	64.6	71.4	1.0	92.0	4.3	1.0
P4SMA75A	P4SMA75CA	75A	75C	64.1	71.3	78.8	1.0	104	3.9	1.0
P4SMA82A	P4SMA82CA	82A	82C	70.1	77.9	86.1	1.0	113	3.5	1.0
P4SMA91A	P4SMA91CA	91A	91C	77.8	86.5	95.5	1.0	125	3.2	1.0
P4SMA100A	P4SMA100CA	100A	100C	85.5	95.0	105	1.0	137	2.2	1.0
P4SMA110A	P4SMA110CA	110A	110C	94.0	105	116	1.0	152	2.0	1.0
P4SMA120A	P4SMA120CA	120A	120C	102	114	126	1.0	165	1.8	1.0
P4SMA130A	P4SMA130CA	130A	130C	111	124	137	1.0	179	1.7	1.0
P4SMA150A	P4SMA150CA	150A	150C	128	143	158	1.0	207	1.4	1.0
P4SMA160A	P4SMA160CA	160A	160C	136	152	168	1.0	219	1.4	1.0

<a href="#">P4SMA170A</a>	<a href="#">P4SMA170CA</a>	170A	170C	145	162	179	1.0	234	1.3	1.0
<a href="#">P4SMA180A</a>	<a href="#">P4SMA180CA</a>	180A	180C	154	171	189	1.0	246	1.2	1.0
<a href="#">P4SMA200A</a>	<a href="#">P4SMA200CA</a>	200A	200C	171	190	210	1.0	274	1.1	1.0
<a href="#">P4SMA220A</a>	<a href="#">P4SMA220CA</a>	220A	220C	185	209	231	1.0	328	0.90	1.0
<a href="#">P4SMA250A</a>	<a href="#">P4SMA250CA</a>	250A	250C	214	237	263	1.0	344	0.87	1.0
<a href="#">P4SMA300A</a>	<a href="#">P4SMA300CA</a>	300A	300C	256	285	315	1.0	414	0.73	1.0
<a href="#">P4SMA350A</a>	<a href="#">P4SMA350CA</a>	350A	350C	300	333	368	1.0	482	0.62	1.0
<a href="#">P4SMA400A</a>	<a href="#">P4SMA400CA</a>	400A	400C	342	380	420	1.0	548	0.55	1.0
<a href="#">P4SMA440A</a>	<a href="#">P4SMA440CA</a>	440A	440C	376	418	462	1.0	602	0.50	1.0
<a href="#">P4SMA480A</a>	<a href="#">P4SMA480CA</a>	480A	480C	408	456	504	1.0	658	0.46	1.0
<a href="#">P4SMA510A</a>	<a href="#">P4SMA510CA</a>	510A	510C	434	485	535	1.0	698	0.43	1.0
<a href="#">P4SMA540A</a>	<a href="#">P4SMA540CA</a>	540A	540C	459	513	567	1.0	740	0.41	1.0


Notes: For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.

### Description of Part Number

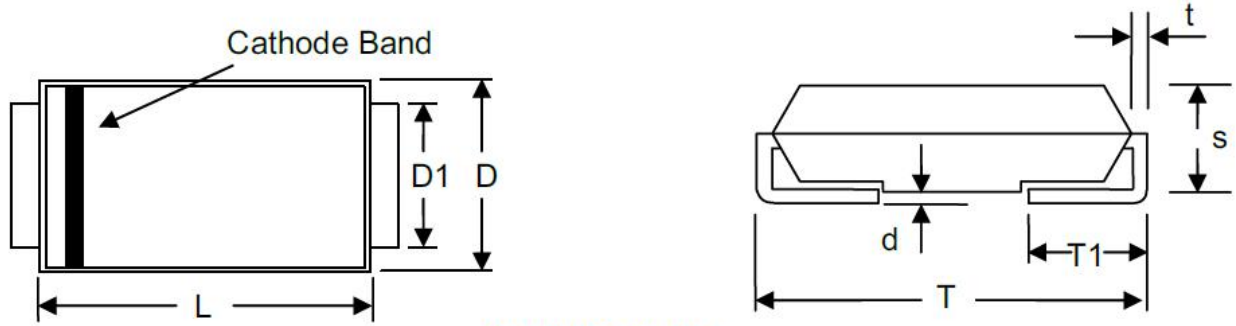
P4SMA XXX C A



### Packing Options

Package Type	Description	Packing Quantity	Industry Standard
 DO-214AC	Embossed Carrier Reel Pack	1800PCS / 2000PCS	EIA STD RS-481

Dimensions - DO-214AC



SMA/DO-214AC

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	3.99	4.50	0.157	0.177
D	2.54	2.79	0.100	0.110
D1	1.25	1.65	0.049	0.065
T	4.93	5.28	0.194	0.208
T1	0.78	1.52	0.030	0.060
d	-	0.203	-	0.008
s	1.98	2.29	0.078	0.090
t	0.152	0.305	0.006	0.012

Ratings and Characteristics Curve

Figure 1 - Peak Pulse Power Rating Curve

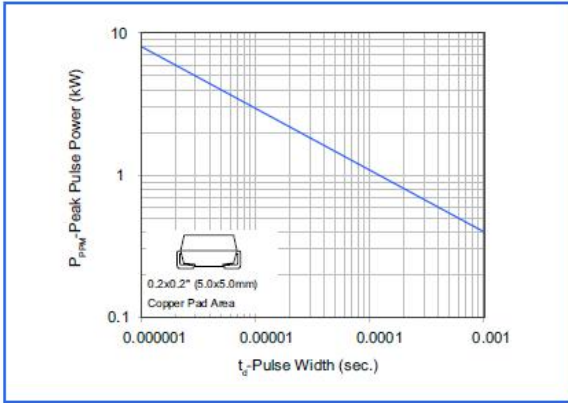


Figure 2 - Pulse Derating Curve

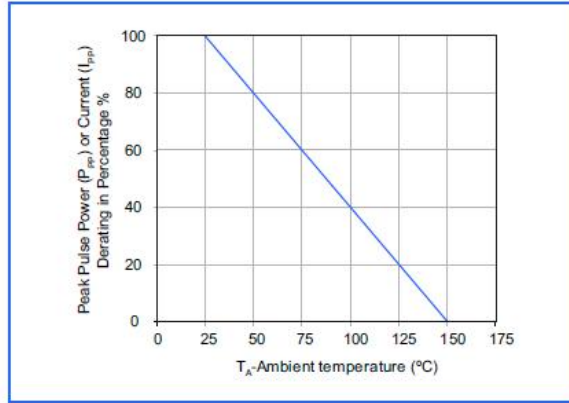


Figure 3 - Pulse Waveform

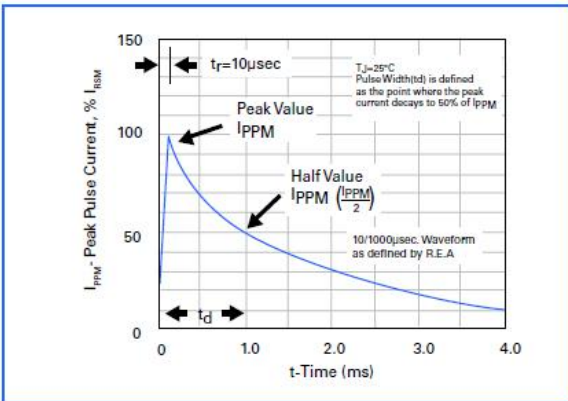


Figure 4 - Typical Junction Capacitance

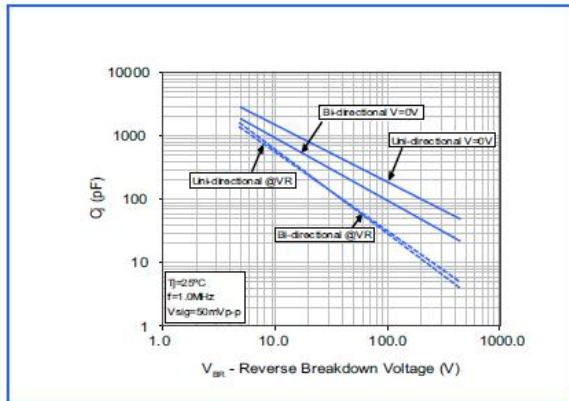


Figure 5 - Steady State Power Dissipation Derating Curve

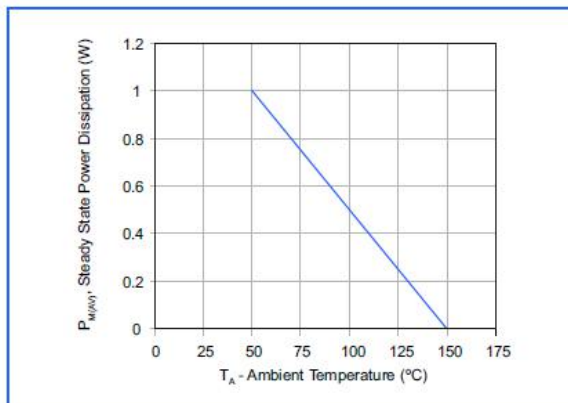
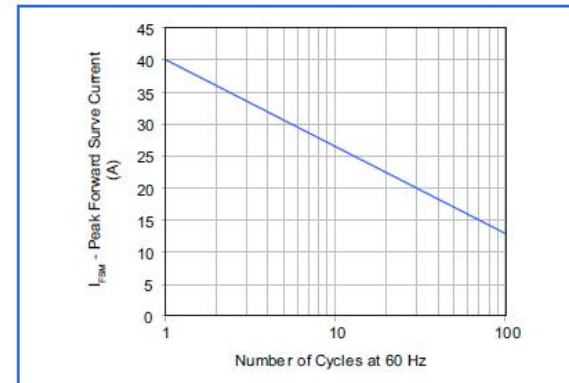


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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