

## Description

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



## Features

- ◆ 400W peak pulsepower capability at 10 x 1000 $\mu$ s waveform, repetition rate (duty cycle): 0.01%
- ◆ Glass Passivated chip junction
- ◆ For surface mounted applications 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)
- ◆ AEC -Q101 qualified.

## 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.

## Maximum Ratings and Electrical Characteristics

(TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10x1000µs waveform (Fig.2)(Note 1) (Note 2)	P <sub>PPM</sub>	400	W
Power Dissipation on infinite heat sink at TA=50°C	P <sub>D</sub>	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only(Note 3)	I <sub>FSM</sub>	40	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V <sub>F</sub>	3.5V/5.0	V
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C
Typical Thermal Resistance Junction to Lead	R <sub>θJL</sub>	15	°C/W
Typical Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	75	°C/W

### Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25°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

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)
P4SMA6.8CA	P4SMA6.8A	5.80	6.45	7.14	10	1000	38.10	10.5
P4SMA7.5CA	P4SMA7.5A	6.40	7.13	7.88	10	500	35.40	11.3
P4SMA8.2CA	P4SMA8.2A	7.02	7.79	8.61	10	200	33.06	12.1
P4SMA9.1CA	P4SMA9.1A	7.78	8.65	9.50	1	50	29.85	13.4
P4SMA10CA	P4SMA10A	8.55	9.50	10.50	1	10	27.59	14.5
P4SMA11CA	P4SMA11A	9.40	10.50	11.60	1	1	25.64	15.6
P4SMA12CA	P4SMA12A	10.20	11.40	12.60	1	1	23.95	16.7
P4SMA13CA	P4SMA13A	11.10	12.40	13.70	1	1	21.98	18.2
P4SMA15CA	P4SMA15A	12.80	14.30	15.80	1	1	18.87	21.2
P4SMA16CA	P4SMA16A	13.60	15.20	16.80	1	1	17.78	22.5
P4SMA18CA	P4SMA18A	15.30	17.10	18.90	1	1	15.87	25.2
P4SMA20CA	P4SMA20A	17.10	19.00	21.00	1	1	14.44	27.7
P4SMA22CA	P4SMA22A	18.80	20.90	23.10	1	1	13.07	30.6
P4SMA24CA	P4SMA24A	20.50	22.80	25.20	1	1	12.05	33.2
P4SMA27CA	P4SMA27A	23.10	25.70	28.40	1	1	10.67	37.5
P4SMA30CA	P4SMA30A	25.60	28.50	31.50	1	1	9.66	41.4
P4SMA33CA	P4SMA33A	28.20	31.40	34.70	1	1	8.75	45.7
P4SMA36CA	P4SMA36A	30.80	34.20	37.80	1	1	8.02	49.9
P4SMA39CA	P4SMA39A	33.30	37.10	41.00	1	1	7.42	53.9
P4SMA43CA	P4SMA43A	36.80	40.90	45.20	1	1	6.75	59.3
P4SMA47CA	P4SMA47A	40.20	44.70	49.40	1	1	6.17	64.8
P4SMA51CA	P4SMA51A	43.60	48.5	53.60	1	1	5.71	70.1
P4SMA56CA	P4SMA56A	47.80	53.20	58.80	1	1	5.19	77.0
P4SMA62CA	P4SMA62A	53.00	58.90	65.10	1	1	4.71	85.0

## Electrical Characteristics

PART NUMBER		VOLTAGE STAND-OFF REVERSE	N VOLTAGE BREAKDOWN	VBR(V)MAX. @IT	CURRENT TEST	REVERSE LEAKAGE	PEAK @VRWM PULSE	MAXIMUM CURRENT	VOLTAGE CLAMPING
BI-POLAR	UNI-POLAR	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	IR ( $\mu$ A)	Ipp (A)	Vc (v)	
P4SMA68CA	P4SMA68A	58.10	64.60	71.40	1	5	4.35	92.0	
P4SMA75CA	P4SMA75A	64.10	71.30	78.80	1	5	3.88	103.0	
P4SMA82CA	P4SMA82A	70.10	77.90	86.10	1	5	3.54	113.0	
P4SMA91CA	P4SMA91A	77.80	86.50	95.50	1	5	3.20	125.0	
P4SMA100CA	P4SMA100A	84.00	95.00	105.00	1	5	2.92	137.0	
P4SMA110CA	P4SMA110A	94.00	105.00	116.00	1	5	2.63	152.0	
P4SMA120CA	P4SMA120A	102.00	114.00	126.00	1	5	2.63	152.0	
P4SMA130CA	P4SMA130A	111.00	124.00	137.00	1	5	2.23	179.0	
P4SMA150CA	P4SMA150A	128.00	143.00	158.00	1	5	1.93	207.0	
P4SMA160CA	P4SMA160A	136.00	152.00	168.00	1	5	1.83	219.0	
P4SMA170CA	P4SMA170A	145.00	162.00	179.00	1	5	1.71	234.0	
P4SMA180CA	P4SMA180A	154.00	171.00	189.00	1	5	1.63	246.0	
P4SMA200CA	P4SMA200A	171.00	190.00	210.00	1	5	1.46	274.0	
P4SMA220CA	P4SMA220A	185.00	209.00	231.00	1	5	1.22	328.0	
P4SMA250CA	P4SMA250A	214.00	237.00	263.00	1	5	1.16	344.0	
P4SMA300CA	P4SMA300A	256.00	285.00	315.00	1	5	0.97	414.0	
P4SMA350CA	P4SMA350A	300.00	332.00	368.00	1	5	0.83	482.0	
P4SMA400CA	P4SMA400A	342.00	380.00	420.00	1	5	0.73	548.0	
P4SMA440CA	P4SMA440A	376.00	418.00	462.00	1	5	0.66	602.0	
P4SMA480CA	P4SMA480A	408.00	456.00	504.00	1	5	0.61	658.0	
P4SMA510CA	P4SMA510A	434.00	485.00	535.00	1	5	0.57	698.0	
P4SMA530CA	P4SMA530A	450.00	503.50	556.5	1	5	0.55	725.0	
P4SMA540CA	P4SMA540A	459.00	513.00	567.00	1	5	0.54	740.0	
P4SMA550CA	P4SMA550A	467.00	522.5	577.50	1	5	0.53	760.0	

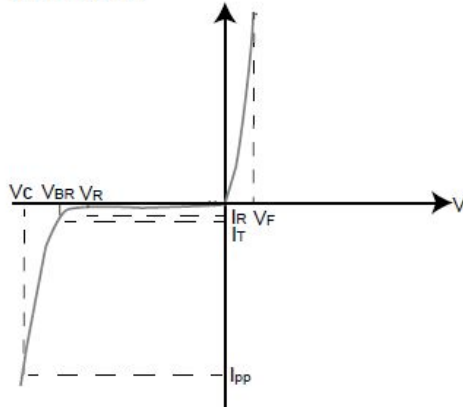
## Notes:

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

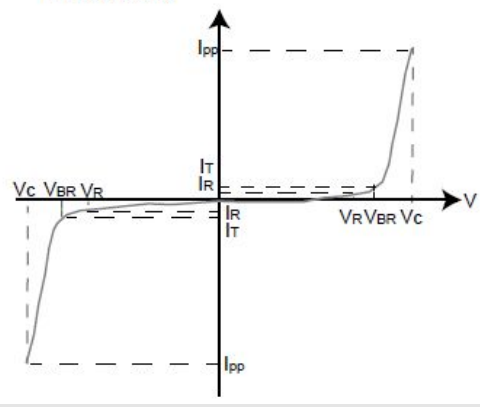
For parts without A ( $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than A parts

## I-V Curve Characteristics

Uni-directional



Bi-directional



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

Figure 1 - Peak Pulse Power Rating Curve

Figure 2 - Pulse Derating Curve

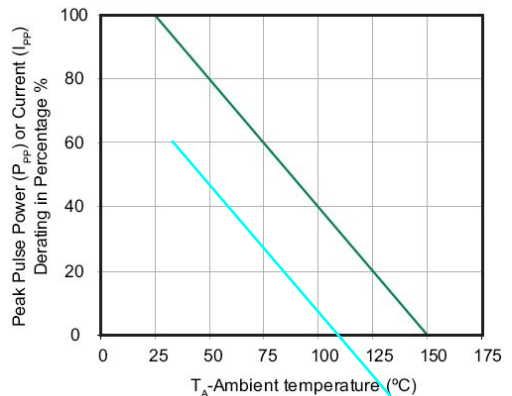
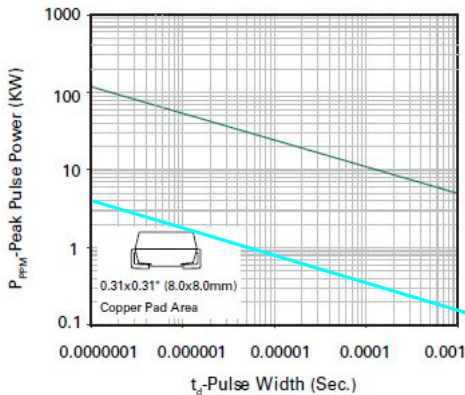


Figure 3 - Pulse Waveform

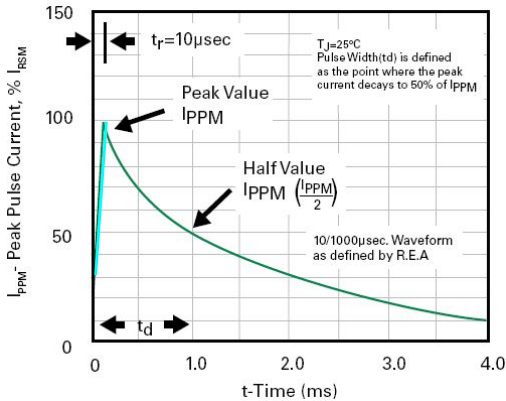
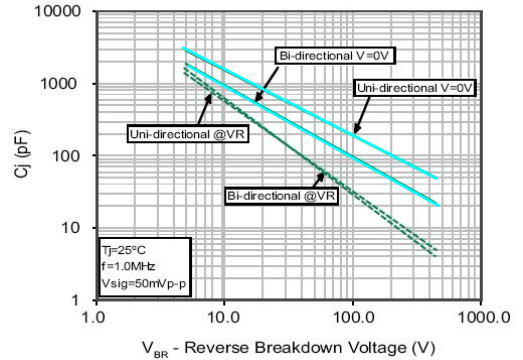


Figure 4 - Typical Junction Capacitance



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

Figure 5 - Steady State Power Dissipation Derating Curve

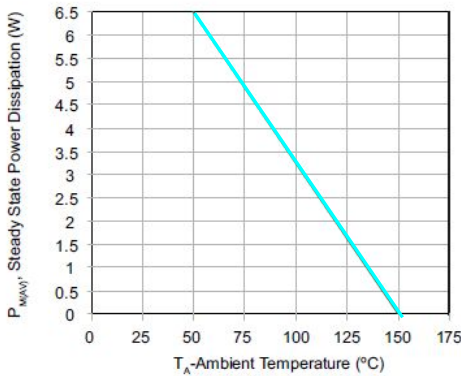
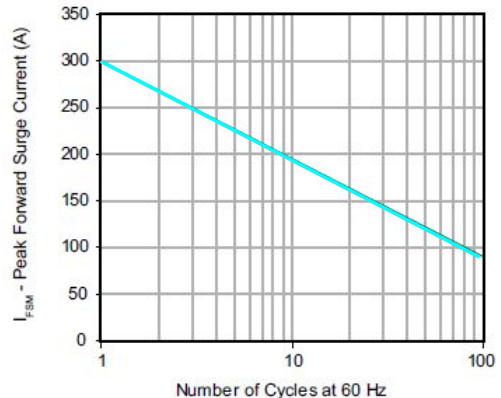


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



## Part Numbering System

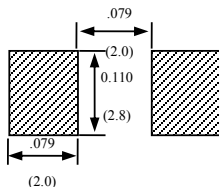
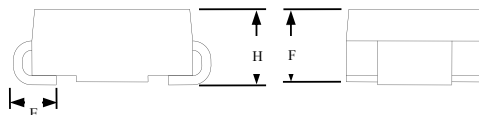
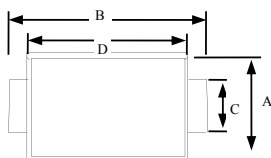
**P4SMA XXX C A**

(1) (2) (3) (4)


- (1) SERIES.
- (2)  $V_R$  VOLTAGE.
- (3) BI-DIRECTIONAL.
- (4) 5% VOLTAGE TOLERANCE.

### Product Dimensions

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.098	0.114	2.50	2.90
B	0.188	0.208	4.80	5.28
C	0.055	0.062	1.40	1.60
D	0.157	0.181	4.00	4.60
E	0.030	0.060	0.76	1.52
F	0.078	0.096	2.00	2.44
H	0.080	0.104	2.051	2.643



### Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
DO-214AC(SMA) 	Embossed Carrier Reel Pack	3000PCS	EIA-481-D

Shanghai Leiditech Electronic Co.,Ltd  
 Email: sale1@leiditech.com  
 Tel : +86- 021 50828806  
 Fax : +86- 021 50477059