

## P4SMAxxC

VBR : 6.8 - 440 Volts

PPK : 400 Watts

### Features

- 400W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time : typically less than 1.0 ps from 0 volt to VBR(min.)
- Typical IR less than 1µA above 10V
- RoHS compliant package
- AEC-Q101 compliant available

### Applications

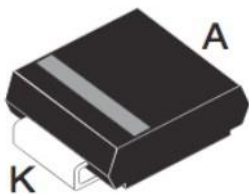
- For Bi-directional without "C"
- Electrical characteristics apply in both directions

### Mechanical Data

- Case : SMA Molded plastic
- Epoxy : UL94V-0 rate flame retardant
- Lead : Lead Formed for Surface Mount
- Polarity : Color band denotes cathode end
- Mounting position : Any
- Weight : 0.064 gram

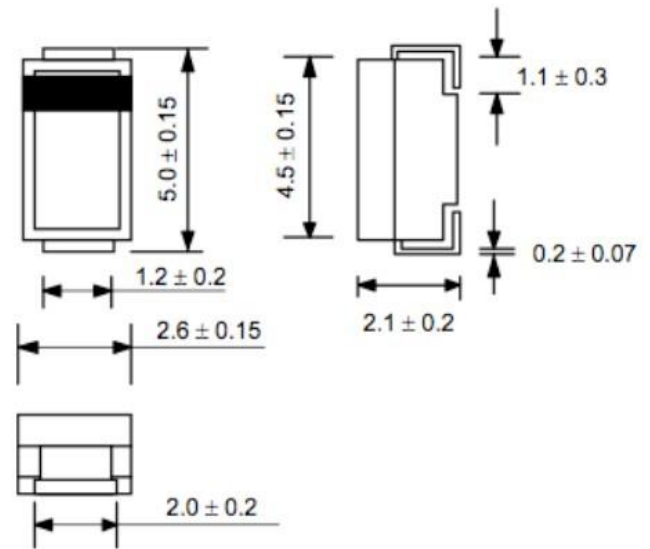
### Packing & Order Information

3,000/Reel



**RoHS**  
COMPLIANT

### SMA (DO-214AC)



Dimensions in millimeters

### Graphic symbol



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified.

Symbol	Parameter	Value	Unit
PPK	Peak Power Dissipation at Ta = 25°C, Tp=1ms (Note 1)	Minimum 400	W
PD	Steady State Power Dissipation at TL = 75 °C	1.0	W
IFSM	Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3) IFSM 100 Amps.	40	A

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TJ, TSTG	Operating and Storage Temperature Range	-55 to + 150	°C
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Notes:

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above  $T_a = 25\text{ }^\circ\text{C}$  per Fig. 1
- (2) Mounted on copper Lead area at  $5.0\text{ mm}^2$  ( 0.013 mm thick ).
- (3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.

### ELECTRICAL CHARACTERISTICS (Rating at $25\text{ }^\circ\text{C}$ ambient temperature unless otherwise specified)

Type No.	Breakdown Voltage @ $I_t$ ( Note 1 )		Working Peak Reverse Voltage VRWM	Maximum Reverse Leakage @ VRWM IR	Maximum Reverse Current IRSM	Maximum Clamping Voltage @ IRSM VRSM	Maximum Temperature Co-efficient of VBR (% / $^\circ\text{C}$ )	
	VBR (V)							$I_t$ (mA)
	Min	Max	(mA)	(V)	( $\mu\text{A}$ )	(A)	(V)	(% / $^\circ\text{C}$ )
P4SMA6.8C	6.12	7.48	10	5.50	1000	38.0	10.8	0.057
P4SMA6.8CA	6.45	7.14	10	5.80	1000	40.0	10.5	0.057
P4SMA7.5C	6.75	8.25	10	6.05	500	36.0	11.7	0.061
P4SMA7.5CA	7.13	7.88	10	6.40	500	37.0	11.3	0.061
P4SMA8.2C	7.38	9.02	10	6.63	200	33.0	12.5	0.065
P4SMA8.2CA	7.79	8.61	10	7.02	200	35.0	12.1	0.065
P4SMA9.1C	8.19	10.0	1.0	7.37	50	30.0	13.8	0.068
P4SMA9.1CA	8.65	9.55	1.0	7.78	50	31.0	13.4	0.068
P4SMA10C	9.00	11.0	1.0	8.10	10	28.0	15.0	0.073
P4SMA10CA	9.50	10.5	1.0	8.55	10	29.0	14.5	0.073
P4SMA11C	9.90	12.1	1.0	8.92	5.0	26.0	16.2	0.075
P4SMA11CA	10.5	11.6	1.0	9.40	5.0	27.0	15.6	0.075
P4SMA12C	10.8	13.2	1.0	9.72	5.0	24.0	17.3	0.078
P4SMA12CA	11.4	12.6	1.0	10.2	5.0	25.0	16.7	0.078
P4SMA13C	11.7	14.3	1.0	10.5	5.0	22.0	19.0	0.081
P4SMA13CA	12.4	13.7	1.0	11.1	5.0	23.0	18.2	0.081
P4SMA15C	13.5	16.5	1.0	12.1	5.0	19.0	22.0	0.084
P4SMA15CA	14.3	15.8	1.0	12.8	5.0	20.0	21.2	0.084
P4SMA16C	14.4	17.6	1.0	12.9	5.0	18.0	23.5	0.086
P4SMA16CA	15.2	16.8	1.0	13.6	5.0	19.0	22.5	0.086
P4SMA17C	15.3	18.7	1.0	13.7	5.0	17.0	25.0	0.087
P4SMA17CA	16.2	17.9	1.0	14.5	5.0	18.0	24.0	0.087
P4SMA18C	16.2	19.8	1.0	14.5	5.0	16.0	26.5	0.088
P4SMA18CA	17.1	18.9	1.0	15.3	5.0	17.0	25.5	0.088
P4SMA20C	18.0	22.0	1.0	16.2	5.0	14.0	29.1	0.090
P4SMA20CA	19.0	21.0	1.0	17.1	5.0	15.0	27.7	0.090

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Type No.	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage VRWM (V)	Maximum Reverse Leakage @ VRWM (µA)	Maximum Reverse Current IRSM (A)	Maximum Clamping Voltage @ IRSM VRSM (V)	Maximum Temperature Co-efficient of VBR (% / °C)	
	VBR (V)							It (mA)
	Min	Max						
P4SMA22C	19.8	24.2	1.0	17.8	5.0	13.0	31.9	0.092
P4SMA22CA	20.9	23.1	1.0	18.8	5.0	14.0	30.6	0.092
P4SMA24C	21.6	26.4	1.0	19.4	5.0	12.0	34.7	0.094
P4SMA24CA	22.8	25.2	1.0	20.5	5.0	13.0	33.2	0.094
P4SMA27C	24.3	29.7	1.0	21.8	5.0	11.0	39.1	0.096
P4SMA27CA	25.7	28.4	1.0	23.1	5.0	11.2	37.5	0.096
P4SMA30C	27.0	33.0	1.0	24.3	5.0	10.0	43.5	0.097
P4SMA30CA	28.5	31.5	1.0	25.6	5.0	10.0	41.4	0.097
P4SMA33C	29.7	36.6	1.0	26.8	5.0	9.0	47.7	0.098
P4SMA33CA	31.4	34.7	1.0	28.2	5.0	9.0	45.7	0.098
P4SMA36C	32.4	39.6	1.0	29.1	5.0	8.0	52.0	0.099
P4SMA36CA	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099
P4SMA39C	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100
P4SMA39CA	37.1	41.0	1.0	33.3	5.0	7.8	53.9	0.100
P4SMA43C	38.7	47.3	1.0	34.8	5.0	6.8	61.9	0.101
P4SMA43CA	40.9	45.2	1.0	36.8	5.0	7.1	59.3	0.101
P4SMA47C	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101
P4SMA47CA	44.7	49.4	1.0	40.2	5.0	6.5	64.8	0.101
P4SMA51C	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102
P4SMA51CA	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102
P4SMA56C	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103
P4SMA56CA	53.2	58.8	1.0	47.8	5.0	5.5	77.0	0.103
P4SMA62C	55.8	68.2	1.0	50.2	5.0	4.7	89.0	0.104
P4SMA62CA	58.9	65.1	1.0	53.0	5.0	5.0	85.0	0.104
P4SMA68C	61.2	74.8	1.0	55.1	5.0	4.3	98.0	0.104
P4SMA68CA	64.6	71.4	1.0	58.1	5.0	4.6	92.0	0.104
P4SMA75C	67.5	82.5	1.0	60.7	5.0	3.9	108	0.105
P4SMA75CA	71.3	78.8	1.0	64.1	5.0	4.1	103	0.105
P4SMA82C	73.8	90.2	1.0	66.4	5.0	3.6	118	0.105

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Type No.	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage VRWM	Maximum Reverse Leakage @ VRWM IR	Maximum Reverse Current IRSM	Maximum Clamping Voltage @ IRSM VRSM	Maximum Temperature Co-efficient of VBR (% / °C)	
	VBR (V)							It (mA)
	Min	Max	(V)	( $\mu$ A)	(A)	(V)	(% / °C)	
P4SMA82CA	77.9	86.1	1.0	70.1	5.0	3.7	113	0.105
P4SMA91C	81.9	100	1.0	73.7	5.0	3.2	131	0.106
P4SMA91CA	86.5	95.5	1.0	77.8	5.0	3.4	125	0.106
P4SMA100C	90.0	110	1.0	81.0	5.0	2.9	144	0.106
P4SMA100CA	95.0	105	1.0	85.5	5.0	3.1	137	0.106
P4SMA110C	99.0	121	1.0	89.2	5.0	2.7	158	0.107
P4SMA110CA	105	116	1.0	91.0	5.0	2.8	152	0.107
P4SMA120C	108	132	1.0	97.2	5.0	2.4	173	0.107
P4SMA120CA	114	126	1.0	102	5.0	2.5	165	0.107
P4SMA130C	117	143	1.0	105	5.0	2.2	187	0.107
P4SMA130CA	124	137	1.0	111	5.0	2.3	179	0.107
P4SMA150C	135	165	1.0	121	5.0	2.0	215	0.108
P4SMA150CA	143	158	1.0	128	5.0	2.0	207	0.108
P4SMA160C	144	176	1.0	130	5.0	1.8	230	0.108
P4SMA160CA	152	168	1.0	136	5.0	1.9	219	0.108
P4SMA170C	153	187	1.0	138	5.0	1.7	244	0.108
P4SMA170CA	162	179	1.0	145	5.0	1.8	234	0.108
P4SMA180C	162	198	1.0	146	5.0	1.6	258	0.108
P4SMA180CA	171	189	1.0	154	5.0	1.7	246	0.108
P4SMA200C	180	220	1.0	162	5.0	1.5	287	0.108
P4SMA200CA	190	210	1.0	171	5.0	1.53	274	0.108
P4SMA220C	198	242	1.0	175	5.0	1.16	344	0.108
P4SMA220CA	209	231	1.0	185	5.0	1.22	328	0.108
P4SMA250C	225	275	1.0	202	5.0	1.11	360	0.110
P4SMA250CA	237	263	1.0	214	5.0	1.16	344	0.110
P4SMA300C	270	330	1.0	243	5.0	0.93	430	0.110
P4SMA300CA	285	315	1.0	256	5.0	0.97	414	0.110
P4SMA350C	315	385	1.0	284	5.0	0.79	504	0.110
P4SMA350CA	332	368	1.0	300	5.0	0.83	482	0.110

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Type No.	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR	
	VBR (V)							It
	Min	Max	(mA)	(V)	( $\mu$ A)	(A)	(V)	(% / °C)
P4SMA400C	360	440	1.0	324	5.0	0.70	574	0.110
P4SMA400CA	380	420	1.0	342	5.0	0.73	548	0.110
P4SMA440C	396	484	1.0	356	5.0	0.95	631	0.110
P4SMA440CA	418	462	1.0	376	5.0	1.00	602	0.110

Note:

(1) "P4SMA" will be omitted in marking on the diode.

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### ■ RATING AND CHARACTERISTIC CURVES ( P4SMA SERIES )

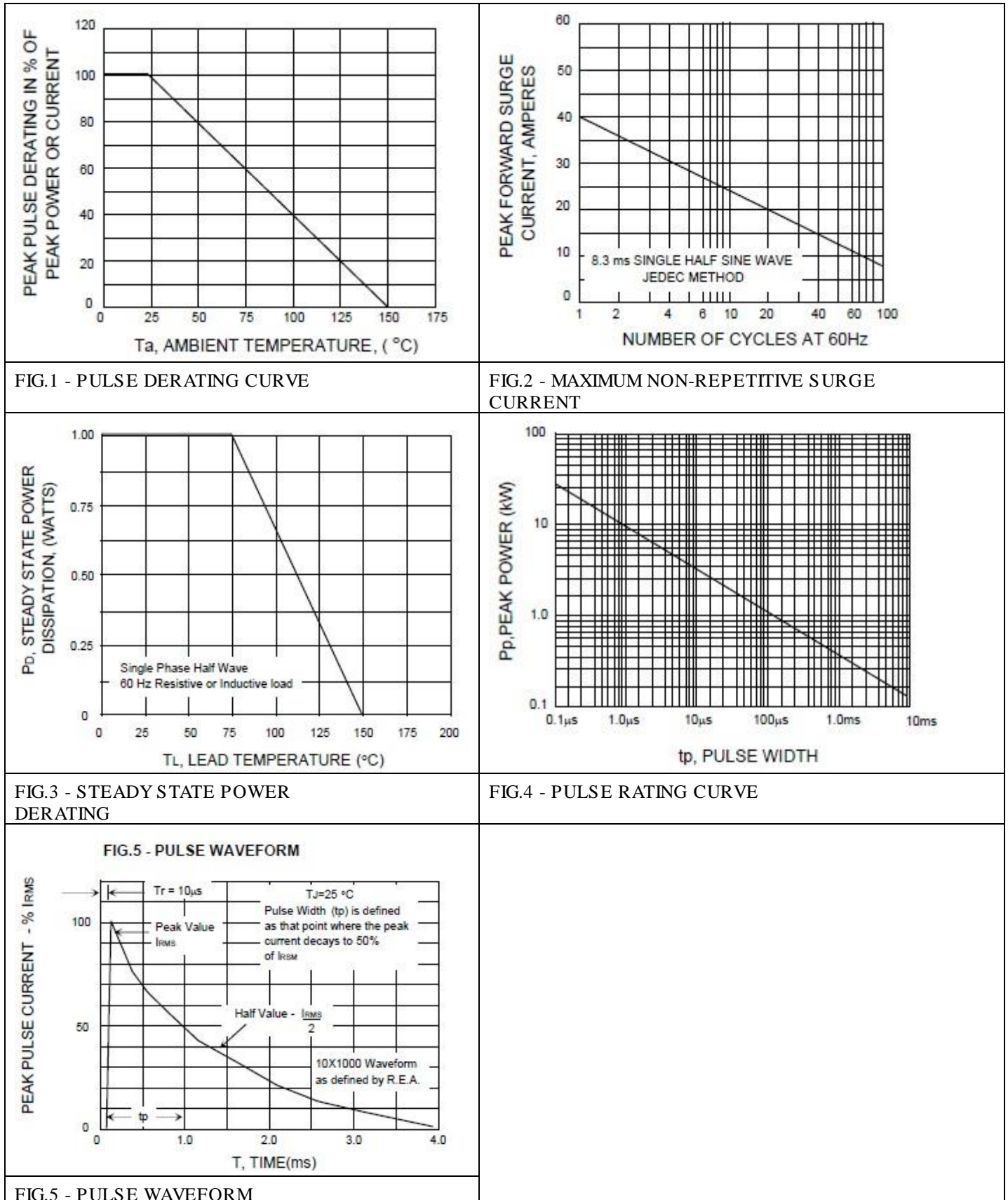


FIG.5 - PULSE WAVEFORM

## P4SMAxxC

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