

**P4SMA SERIES**

**VOLTAGE-6.8 TO 540 Volts**  
**400 Watt Peak Pulse Power**

**Features**

- For surface mounted applications in order to optimize board space
- Glass passivated junction
- Built-in strain relief
- Excellent clamping capability
- Low profile package
- Low inductance
- Excellent clamping capability
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1μA above 10V
- High temperature soldering guaranteed: 250°C/10 seconds at terminals

**Mechanical Data**

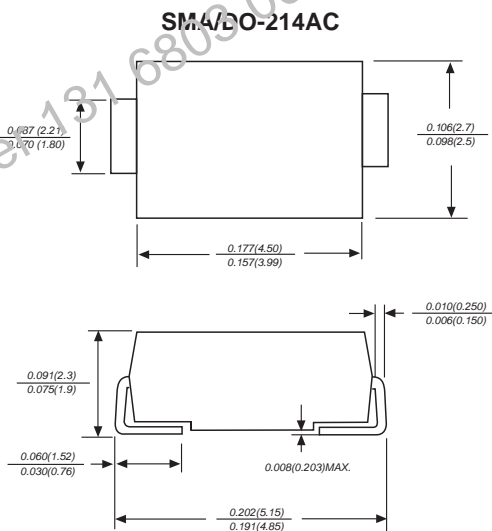
Case: JEDEC DO-214AC Molded plastic

Terminal : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: Color band denoted positive end (cathode) except Bipolar

Standard Packaging: 12mm tape(EIA STD RS-481)

Weight: 0.002 ounces, 0.061 grams

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use CA Suffix for types P4SMA6.8CA thru types P4SMA540CA Electrical characteristics apply in both directions.

**MAXIMUM RATINGS AND CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation at TA = 25 °C, TP = 1ms (Note 1)	P <sub>PPM</sub>	Minimum 400	Watts
Peak Pulse Current of on 10/1000 μs waveform (Note 1)	I <sub>PPM</sub>	SEE TABLE 1	Amps
Steady State Power Dissipation at TL = 75°C Lead lengths .375", 9.5mm (Note 2)	P <sub>M(AV)</sub>	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note 3)	I <sub>FSM</sub>	40	Amps
Operatings and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 +150	°C

**NOTES:**

1. Non-repetitive current pulse, per Fig.3 and derated above Ta=25 °C per Fig.2.
2. Mounted on 5.0mm<sup>2</sup> (0.03mm thick) Copper Pads to each termina
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

## P4SMA SERIES

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

PART NUMBER	DEVICE MARKING CODE		BREAKDOWN VOLTAGE $V_{BR}$ AT $I_T$ (1)		TEST CURRENT $I_T$ (mA)	STAND-OFF VOLTAGE $V_{WM}$ (V)	MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ (4) ( $\mu\text{A}$ )	MAXIMUM PEAK PULSE CURRENT $I_{PPM}$ (2) (A)	MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ $V_C$ (V)	MAXIMUM TEMPERATURE OF $V_{BR}$ (%/°C)
	UNI	BI	MIN.	MAX.						
P4SMA6.8A	6V8A	6V8C	6.45	7.14	10	5.80	1000	38.1	10.5	0.057
P4SMA7.5A	7V5A	7V5C	7.13	7.88	10	6.40	500	35.1	11.3	0.061
P4SMA8.2A	8V2A	8V2C	7.79	8.61	10	7.02	200	33.1	12.1	0.065
P4SMA9.1A	9V1A	9V1C	8.65	9.55	1.0	7.78	50.0	29.9	13.4	0.068
P4SMA10A	10A	10C	9.5	10.5	1.0	8.55	10.0	27.6	14.5	0.073
P4SMA11A	11A	11C	10.5	11.6	1.0	9.40	5.0	25.6	15.6	0.075
P4SMA12A	12A	12C	11.4	12.6	1.0	10.2	1.0	24.0	16.7	0.078
P4SMA13A	13A	13C	12.4	13.7	1.0	11.1	1.0	22.0	18.2	0.081
P4SMA15A	15A	15C	14.3	15.8	1.0	12.8	1.0	18.9	21.2	0.084
P4SMA16A	16A	16C	15.2	16.8	1.0	13.6	1.0	17.8	22.5	0.086
P4SMA18A	18A	18C	17.1	18.9	1.0	15.3	1.0	15.9	25.2	0.089
P4SMA20A	20A	20C	19.0	21.0	1.0	17.1	1.0	14.4	27.7	0.090
P4SMA22A	22A	22C	20.9	23.1	1.0	18.8	1.0	13.1	30.6	0.092
P4SMA24A	24A	24C	22.8	25.2	1.0	20.5	1.0	12.0	33.2	0.090
P4SMA27A	27A	27C	25.7	28.4	1.0	23.1	1.0	10.7	37.5	0.096
P4SMA30A	30A	30C	28.5	31.5	1.0	25.6	1.0	9.7	41.4	0.097
P4SMA33A	33A	33C	31.4	34.7	1.0	28.2	1.0	8.8	45.7	0.098
P4SMA36A	36A	36C	34.2	37.8	1.0	30.8	1.0	8.0	49.9	0.099
P4SMA39A	39A	39C	37.1	41.0	1.0	33.3	1.0	7.4	53.9	0.100
P4SMA43A	43A	43C	40.9	45.2	1.0	36.8	1.0	6.7	59.3	0.101
P4SMA47A	47A	47C	44.7	49.4	1.0	40.2	1.0	6.2	64.8	0.101
P4SMA51A	51A	51C	48.5	53.6	1.0	43.6	1.0	5.7	70.1	0.102
P4SMA56A	56A	56C	53.2	58.8	1.0	47.8	1.0	5.2	77.0	0.103
P4SMA62A	62A	62C	58.9	65.1	1.0	53.0	1.0	4.7	85.0	0.104
P4SMA68A	68A	68C	64.6	71.4	1.0	58.1	1.0	4.3	92.0	0.104
P4SMA75A	75A	75C	71.3	78.8	1.0	64.1	1.0	3.9	104	0.105
P4SMA82A	82A	82C	77.9	86.1	1.0	70.1	1.0	3.5	113	0.105
P4SMA91A	91A	91C	86.5	95.5	1.0	77.8	1.0	3.2	125	0.106
P4SMA100A	100A	100C	95.0	105	1.0	85.5	1.0	2.2	137	0.106
P4SMA110A	110A	110C	105	116	1.0	94.0	1.0	2.0	152	0.107
P4SMA120A	120A	120C	114	126	1.0	102	1.0	1.8	165	0.107
P4SMA130A	130A	130C	124	137	1.0	111	1.0	1.7	179	0.107
P4SMA150A	150A	150C	143	158	1.0	128	1.0	1.4	207	0.106
P4SMA160A	160A	160C	152	168	1.0	136	1.0	1.4	219	0.108
P4SMA170A	170A	170C	162	179	1.0	145	1.0	1.3	234	0.108
P4SMA180A	180A	180C	171	189	1.0	154	1.0	1.2	246	0.108
P4SMA200A	200A	200C	190	210	1.0	171	1.0	1.1	274	0.108
P4SMA220A	220A	220C	209	231	1.0	185	1.0	0.90	328	0.108
P4SMA250A	250A	-	237	263	1.0	214	1.0	0.87	344	0.110
P4SMA300A	300A	-	285	315	1.0	256	1.0	0.73	414	0.110
P4SMA350A	350A	-	333	368	1.0	300	1.0	0.62	482	0.110
P4SMA400A	400A	-	380	420	1.0	342	1.0	0.55	548	0.110
P4SMA440A	440A	-	418	462	1.0	376	1.0	0.50	602	0.110
P4SMA480A	480A	-	456	504	1.0	408	1.0	0.46	658	0.110
P4SMA510A	510A	-	485	535	1.0	434	1.0	0.43	698	0.110
P4SMA540A	540A	-	513	567	1.0	459	1.0	0.41	740	0.110

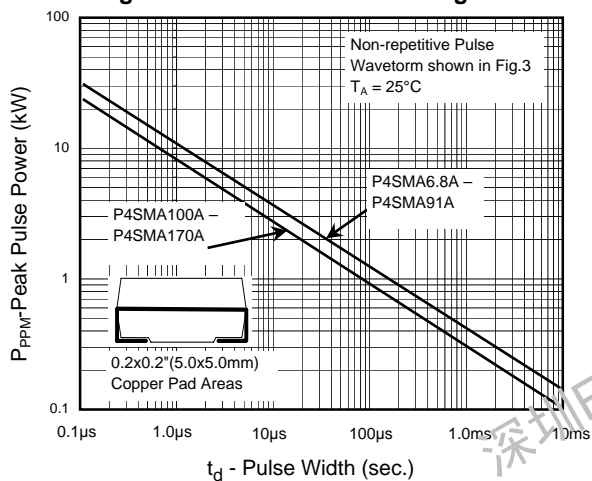
**Notes:**

- (1) Pulse test:  $t_p \leq 50$  ms
- (2) Surge current waveform per Fig. 3 and derate per Fig. 2
- (3) All terms and symbols are consistent with ANSI/IEEE CA62.35
- (4) For bi-directional types with  $V_R$  10 V and less, the  $I_D$  limit is doubled
- (5)  $V_F = 3.5$  V at  $I_F = 25$  A (uni-directional only)

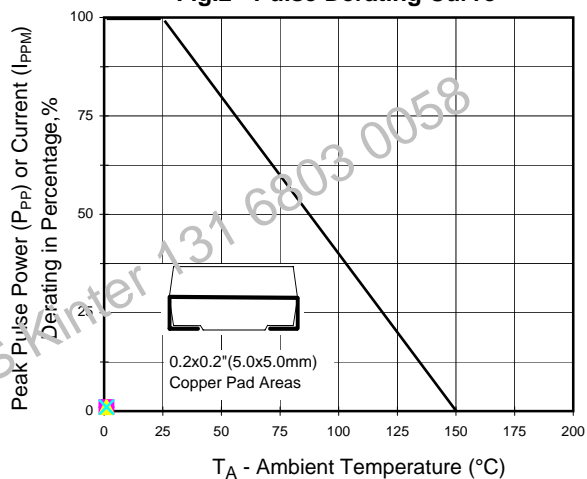
## P4SMA SERIES

### RATING AND CHARACTERISTIC CURVES P4SMA SERIES

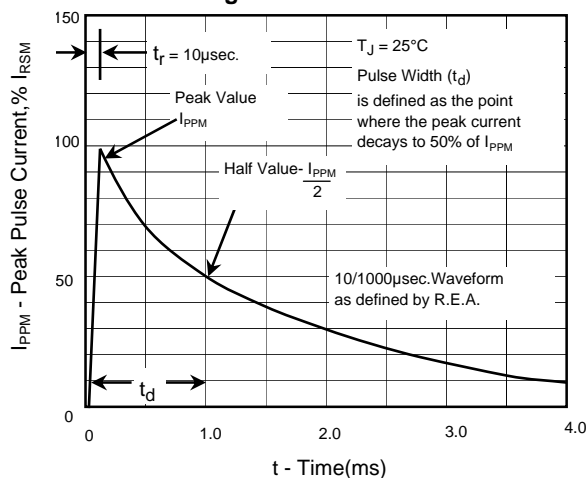
**Fig. 1 - Peak Pulse Power Rating Curve**



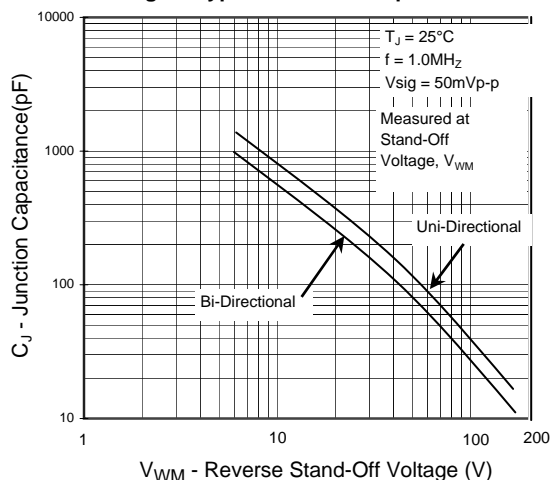
**Fig.2 - Pulse Derating Curve**



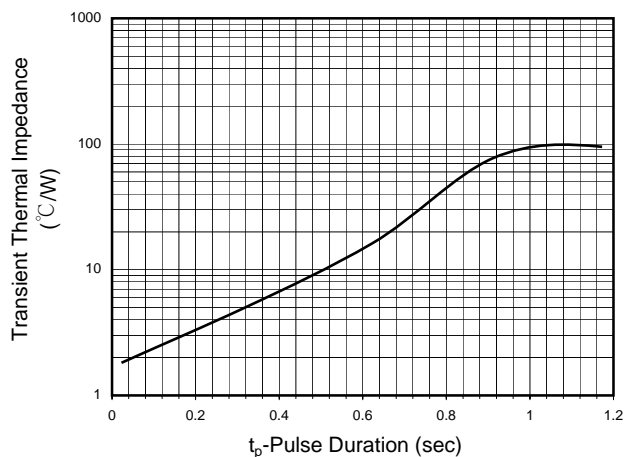
**Fig.3 - Pulse Waveform**



**Fig.4 - Typical Junction Capacitance**



**Fig. 5 - Typ. Transient Thermal Impedance**



**Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only**

