

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

PART NUMBER	DEVICE MARKING CODE		BREAKDOWN VOLTAGE $V_{BR}$ AT $I_T$ <sup>(1)</sup> (V)		TEST CURRENT $I_T$ (mA)	STAND-OFF VOLTAGE $V_{WM}$ (V)	MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ <sup>(4)</sup> ( $\mu\text{A}$ )	MAXIMUM PEAK PULSE CURRENT $I_{PPM}$ <sup>(2)</sup> (A)	MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ $V_C$ (V)	MAXIMUM TEMPERATURE COEFFICIENT OF $V_{BR}$ ( $\%/^\circ\text{C}$ )
	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	35.4	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	29.9	13.4	0.068
(+)P4SMA10A	10A	10C	9.5	10.5	1.0	8.55	10	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	0.91	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:  $t_p \leq 50\text{ ms}$
- (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 bidirectional types with  $V_R$  of 10 V and less, the  $I_D$  limit is doubled
- (5)  $V_F = 3.5\text{ V}$  at  $I_F = 25\text{ A}$  (unidirectional only)
- (+) Underwriters Laboratory Recognition for the classification of protectors (QVQG2) under the UL standard for safety 497B and file number E136766 for both unidirectional and bidirectional device

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

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to ambient air <sup>(1)</sup>	$R_{\theta JA}$	120	°C/W
Typical thermal resistance, junction to lead	$R_{\theta JL}$	30	

**Note**

<sup>(1)</sup> Mounted on minimum recommended pad layout

**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	VOLTAGE RANGE (V)		PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
		UNI -	BI -			
P4SMA6.8A-E3/61	0.064	6.8 to 220	6.8 to 220	61	1800	7" diameter plastic tape and reel
P4SMA6.8A-M3/61	0.064	6.8 to 540	6.8 to 220	61	1800	7" diameter plastic tape and reel
P4SMA6.8A-E3/5A	0.064	6.8 to 220	6.8 to 220	5A	7500	13" diameter plastic tape and reel
P4SMA6.8A-M3/5A	0.064	6.8 to 540	6.8 to 220	5A	7500	13" diameter plastic tape and reel
P4SMA6.8AHE3_A/H <sup>(1)</sup>	0.064	6.8 to 220	6.8 to 220	H	1800	7" diameter plastic tape and reel
P4SMA6.8AHM3_A/H <sup>(1)</sup>						
P4SMA6.8AHE3_A/I <sup>(1)</sup>	0.064	6.8 to 220	6.8 to 220	I	7500	13" diameter plastic tape and reel
P4SMA6.8AHM3_A/I <sup>(1)</sup>						
P4SMA250AHM3_B/H <sup>(2)</sup>	0.064	250 to 540	-	H	1800	7" diameter plastic tape and reel
P4SMA250AHM3_B/I <sup>(2)</sup>	0.064	250 to 540	-	I	7500	13" diameter plastic tape and reel

**Notes**

<sup>(1)</sup> \_A is available for P4SMA6.8(C)A to P4SMA220(C)A, AEC-Q101 qualified

<sup>(2)</sup> \_B is available for P4SMA250A to P4SMA540A, AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

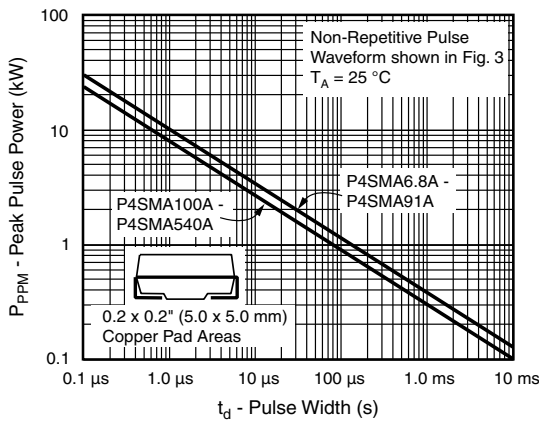


Fig. 1 - Peak Pulse Power Rating Curve

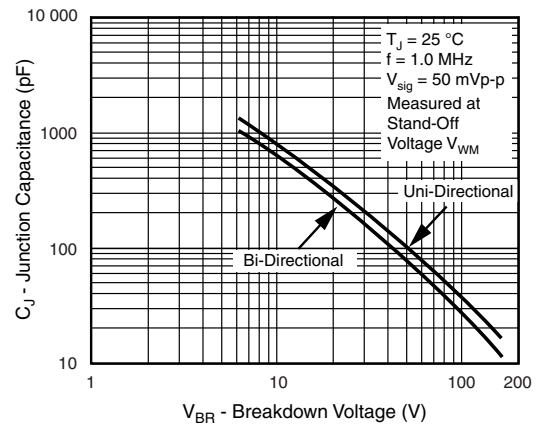


Fig. 4 - Typical Junction Capacitance

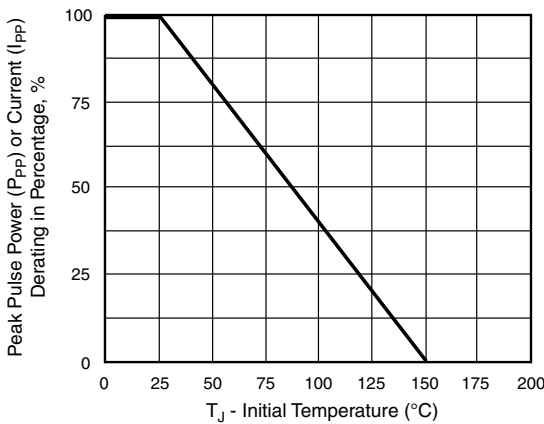


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

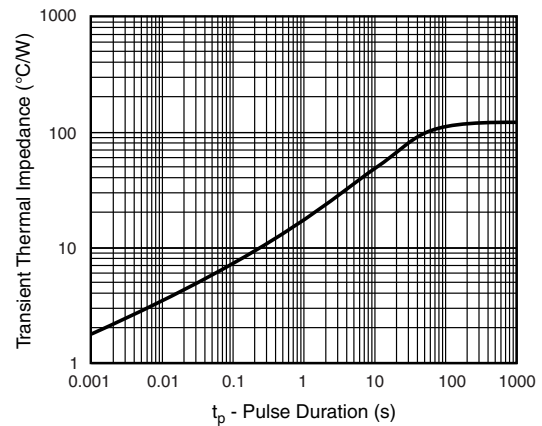


Fig. 5 - Typical Transient Thermal Impedance

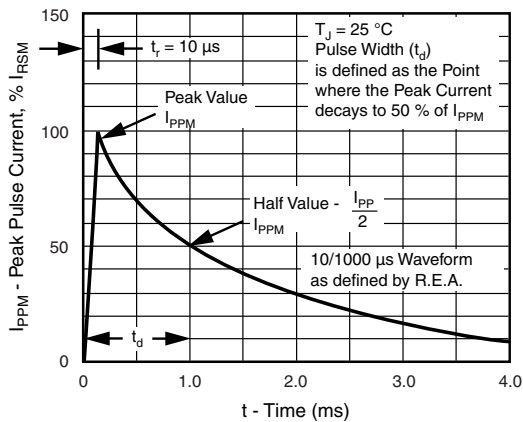


Fig. 3 - Pulse Waveform

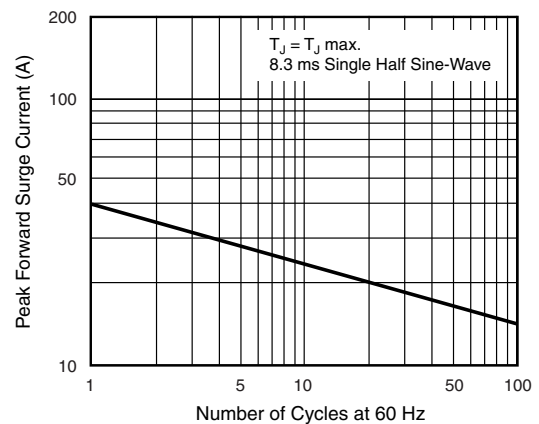
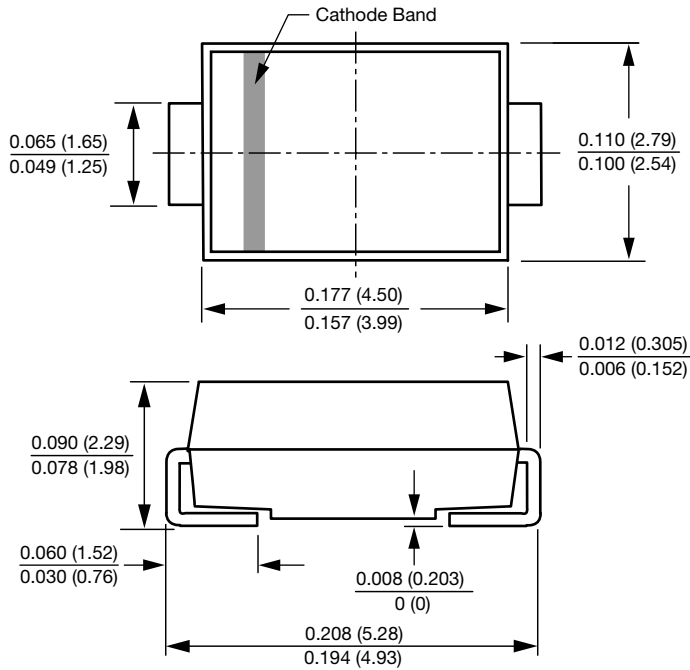


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only

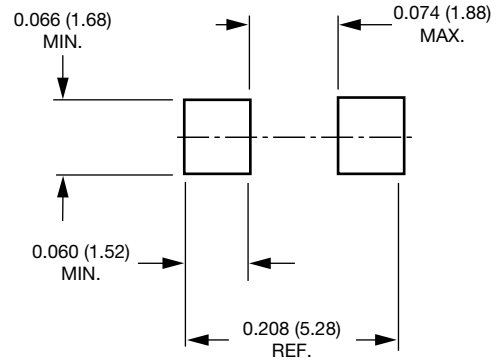


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### SMA (DO-214AC)



#### Mounting Pad Layout





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