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## SPECIFICATION FOR APPROVAL

CUSTOMER	立創電子
CERTIFIED MODEL/TYPE	P4SMA350
PART NO.	P4SMA350A (RoHS+HF)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Dec.05,2020
REV. NO.	
REV. DATE	

<b>FOR CUSTOMER APPROVAL</b>	<b>CHECKED BY</b>
	<i>Dan Zhang</i>
	<b>APPROVED BY</b>
	<i>Huaifang Zhang</i>





**REVISED RECORD SHEET**

REV. NO	REV. DATE	REVISED CONTENT



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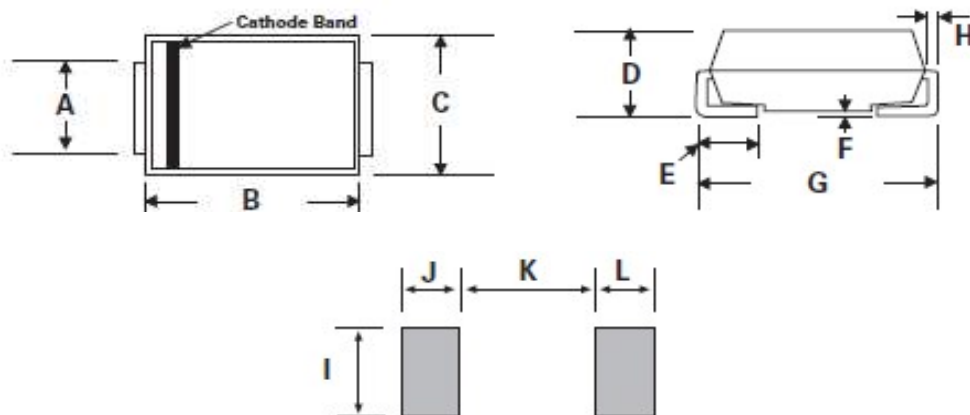


Part Number Code

**P4SMA**    **350**    **A**  
(1)            (2)            (3)

No.	Item	Digit	Specification
(1)	Product Type	P4SMA	Thinking Power TVS SMD Type
(2)	Central of Breakage Voltage (V <sub>BR</sub> )	350	350=350 V <sub>BR</sub>
(3)	Type Code	A	Uni-directional 5% V <sub>BR</sub> Voltage Tolerance

## Structure and Dimensions



\*The Cathode bend for Uni-directional product only.

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.25	1.65	0.049	0.065
B	3.99	4.6	0.157	0.181
C	2.4	2.8	0.094	0.11
D	1.9	2.3	0.074	0.09
E	0.76	1.52	0.03	0.06
F	-	0.203	-	0.008
G	4.8	5.28	0.188	0.208
H	0.152	0.305	0.006	0.012
I	1.8	-	0.07	-
J/L	2.1	-	0.082	-
K	-	2.3	-	0.09

Electrical CharacteristicsPeak power dissipation with a 10/1000 $\mu$ s waveform : 400W

Operating junction and storage temperature range : -55~+150 °C

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM ( V )	Min( V )					Max( V )	IT( mA )
P4SMA6.8A	P4SMA6.8CA	5.8	6.46	7.14	10	10.5	38.1	1000	6V8A.	6V8C.
P4SMA7.5A	P4SMA7.5CA	6.4	7.13	7.88	10	11.3	35.4	500	7V5A.	7V5C.
P4SMA8.2A	P4SMA8.2CA	7	7.79	8.61	10	12.1	33.06	200	8V2A.	8V2C.
P4SMA9.1A	P4SMA9.1CA	7.78	8.65	9.56	1	13.4	29.85	50	9V1A.	9V1C.
P4SMA10A	P4SMA10CA	8.55	9.5	10.5	1	14.5	27.59	10	10A.	10C.
P4SMA11A	P4SMA11CA	9.4	10.45	11.55	1	15.6	25.64	5	11A.	11C.
P4SMA12A	P4SMA12CA	10.2	11.4	12.6	1	16.7	23.95	5	12A.	12C.
P4SMA13A	P4SMA13CA	11.1	12.35	13.65	1	18.2	21.98	1	13A.	13C.
P4SMA15A	P4SMA15CA	12.8	14.25	15.75	1	21.2	18.87	1	15A.	15C.
P4SMA16A	P4SMA16CA	13.6	15.2	16.8	1	22.5	17.78	1	16A.	16C.
P4SMA18A	P4SMA18CA	15.3	17.1	18.9	1	25.5	15.87	1	18A.	18C.
P4SMA20A	P4SMA20CA	17.1	19	21	1	27.7	14.44	1	20A.	20C.
P4SMA22A	P4SMA22CA	18.8	20.9	23.1	1	30.6	13.07	1	22A.	22C.
P4SMA24A	P4SMA24CA	20.5	22.8	25.2	1	33.2	12.05	1	24A.	24C.
P4SMA27A	P4SMA27CA	23.1	25.65	28.35	1	37.5	10.67	1	27A.	27C..
P4SMA30A	P4SMA30CA	25.6	28.5	31.5	1	41.4	9.66	1	30A.	30C..
P4SMA33A	P4SMA33CA	28.2	31.35	34.65	1	45.7	8.75	1	33A.	33C..
P4SMA36A	P4SMA36CA	30.8	34.2	37.8	1	49.9	8.02	1	36A.	36C..
P4SMA39A	P4SMA39CA	33.3	37.05	40.95	1	53.9	7.42	1	39A.	39C.
P4SMA43A	P4SMA43CA	36.8	40.85	45.15	1	59.3	6.75	1	43A.	43C.
P4SMA47A	P4SMA47CA	40.2	44.65	49.35	1	64.8	6.17	1	47A.	47C.
P4SMA51A	P4SMA51CA	43.6	48.45	53.55	1	70.1	5.71	1	51A.	51C.
P4SMA56A	P4SMA56CA	47.8	53.2	58.8	1	77	5.19	1	56A.	56C.
P4SMA62A	P4SMA62CA	53	58.9	65.1	1	85	4.71	1	62A.	62C.
P4SMA68A	P4SMA68CA	58.1	64.6	71.4	1	92	4.35	1	68A.	68C.
P4SMA75A	P4SMA75CA	64.1	71.25	78.75	1	103	3.88	1	75A.	75C.
P4SMA82A	P4SMA82CA	70.1	77.9	86.1	1	113	3.54	1	82A.	82C.
P4SMA91A	P4SMA91CA	77.8	86.45	95.55	1	125	3.2	1	91A.	91C.
P4SMA100A	P4SMA100CA	85.5	95	105	1	137	2.92	1	100A.	100C.
P4SMA110A	P4SMA110CA	94	104.5	115.5	1	152	2.63	1	110A.	110C.
P4SMA120A	P4SMA120CA	102	114	126	1	165	2.42	1	120A.	120C.
P4SMA130A	P4SMA130CA	111	123.5	136.5	1	179	2.23	1	130A.	130C.
P4SMA150A	P4SMA150CA	128	142.5	157.5	1	207	1.93	1	150A.	150C.



Electrical Characteristics

Peak power dissipation with a 10/1000µs waveform : 400W

Operating junction and storage temperature range : -55~+150 °C

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage	Breakage Voltage VBR @ IT		Test Current	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current	Maximum Reverse Leakage IR @VRWM	Marking Code	
			VRWM ( V )	Min( V )					Max( V )	IT( mA )
P4SMA160A	P4SMA160CA	136	152	168	1	219	1.83	1	160A.	160C.
P4SMA170A	P4SMA170CA	145	161.5	178.5	1	234	1.71	1	170A.	170C.
P4SMA180A	P4SMA180CA	154	171	189	1	246	1.63	1	180A.	180C.
P4SMA200A	P4SMA200CA	171	190	210	1	274	1.46	1	200A.	200C.
P4SMA220A	P4SMA220CA	185	209	231	1	328	1.22	1	220A.	220C.
P4SMA250A	P4SMA250CA	214	237.5	262.5	1	344	1.16	1	250A.	250C.
P4SMA300A	P4SMA300CA	256	285	315	1	414	0.97	1	300A.	300C.
P4SMA350A	P4SMA350CA	299.3	332.5	367.5	1	482	0.83	1	350A.	350C.
P4SMA380A	P4SMA380CA	324.9	361	399	1	524.4	0.76	1	380A.	380C.
P4SMA400A	P4SMA400CA	342	380	420	1	552	0.72	1	400A.	400C.
P4SMA440A	P4SMA440CA	376.2	418	462	1	607.2	0.66	1	440A.	440C.
P4SMA500A	P4SMA500CA	427.5	475	525	1	690	0.58	1	500A.	500C.
P4SMA520A	P4SMA520CA	444.6	494	546	1	717.6	0.56	1	520A.	520C.
P4SMA550A	P4SMA550CA	470.3	522.5	577.5	1	759	0.53	1	550A.	550C.
P4SMA600A	P4SMA600CA	513	570	630	1	828	0.48	1	600A.	600C.

Reliability

Item	Standard	Test conditions / Methods	Specifications
HTRB (High Temp. Reverse Bias Test)	MIL-STD-750D METHOD 1038.3 Method 103	Test Temp. : 150°C Duration 168 hrs with rated VRWM	Electrical properties meet Specifications
PCT (Pressure Cooker Test)	MIL-STD-19500 EAPPENDIX C	Test Temp. : 121 °C Pressure:1.2Kg Duration: 96 hrs	Electrical properties meet Specifications
TCT	MIL-STD-750D METHOD 1051.5	Test Temp. : -55°C ~+150°C 20 cycles	Electrical properties meet Specifications
Forward Surge	MIL-STD-750D METHOD 4066.3	Sine half wave 8.3mS 1 shot IFSM:20A forSMF 40A for SMA/ P4SMA & SMAF 100A for SMB/P6SMB 200A for SMC/1.5SMC For Uni-directional product only.	Electrical properties meet Specifications
Soldering Heat	MIL-STD-750D METHOD 2031.2	Test Temp. : 260°C Duration:10 sec 1cycle	Electrical properties meet Specifications



## Soldering Recommendation

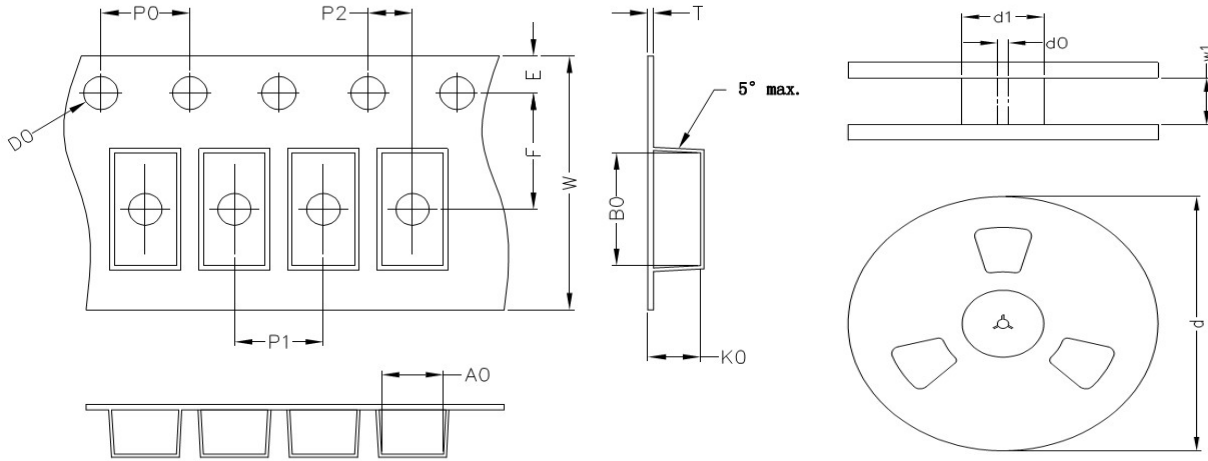
### ■ IR-reflow soldering profile



Reflow Condition	Lead-free assembly
<b>Preheat</b> -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	150°C 200°C 60 – 180 seconds
<b>Average ramp up rate</b> -Temperature Liquidus (TL) to peak	3°C/second max
<b>Ts(max) to TL</b> -Ramp-up Rate	3°C/second max.
<b>Reflow</b> -Temperature Liquidus (TL) -Time (tl)	217°C 60 – 150 seconds
<b>Peak Temperature (TP)</b>	260°C
<b>Time within 5°C of actual peak Temperature(tp)</b>	20 – 40 seconds
<b>Ramp-down Rate</b>	6°C/second max.
<b>Time 25°C to peak Temperature(TP)</b>	8 minutes max.
<b>Do not exceed</b>	260°C

**Packaging**

■ **Taping Specification**



(Unit : mm)

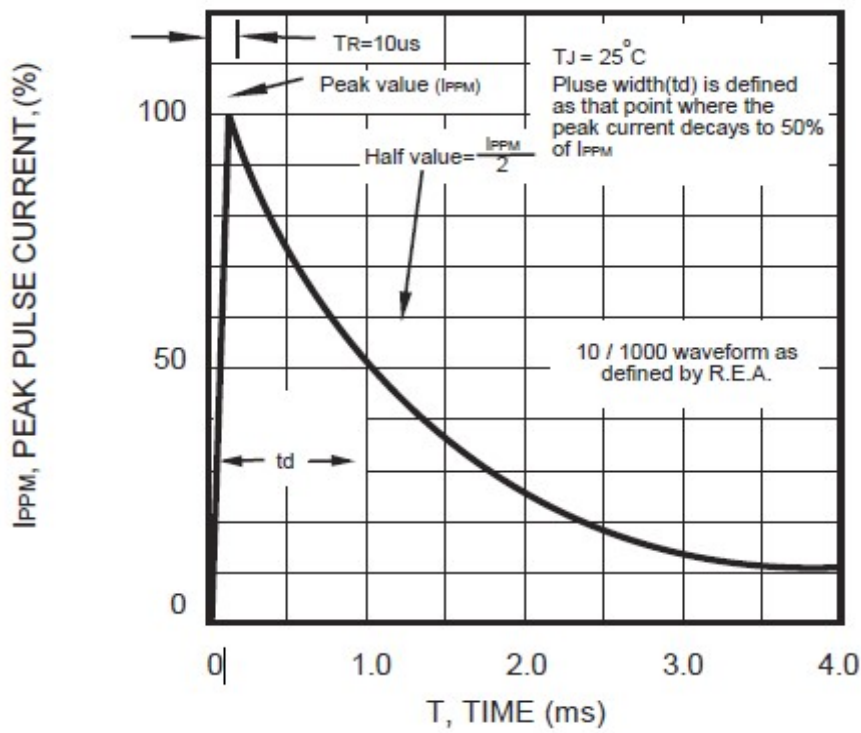
Index	A0	B0	K0	D0	E	F	P0	P1	P2	T	W	d(13")	d1	d0	w1
P4SMA	2.8	5.33	2.36	1.55	1.75	5.5	4	4	2	0.22±0.05	12	330	75	13.5	13.5

Notes: The tolerance of carrier tape and top cover is ±0.1mm, the tolerance of reel is ±2mm

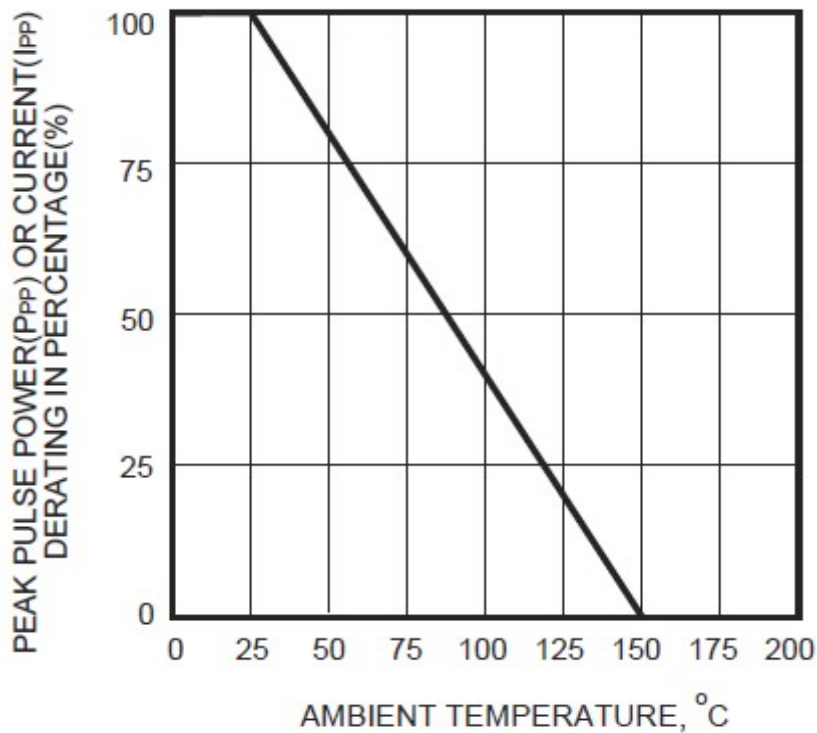
■ **Quantity**

Series Type	Reel size	Quantity (pcs/reel)
P4SMA	13"	5,000

Pulse Waveform

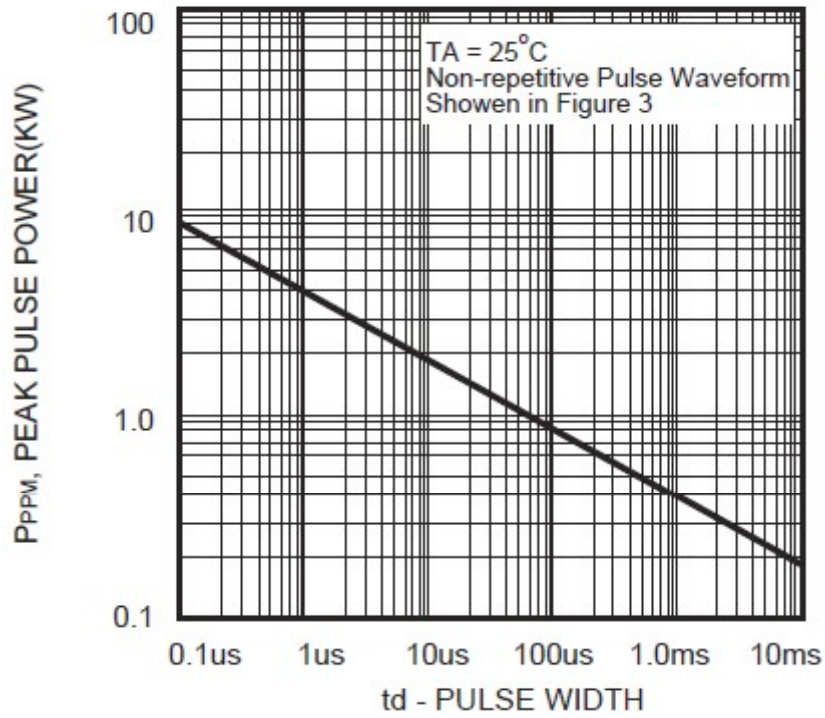


Pulse Derating Curve



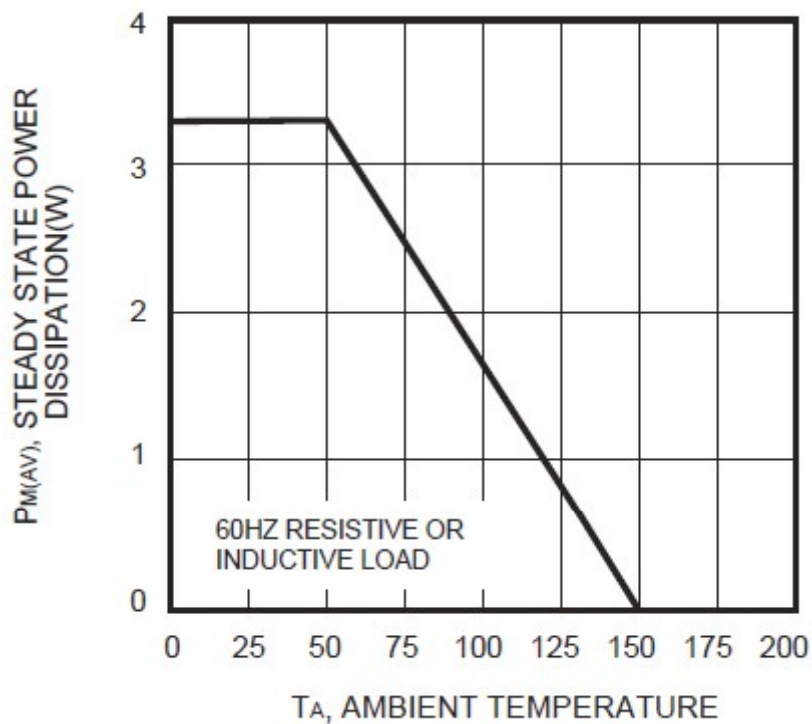
Peak Pulse Power Rating Curve

P4SMA series



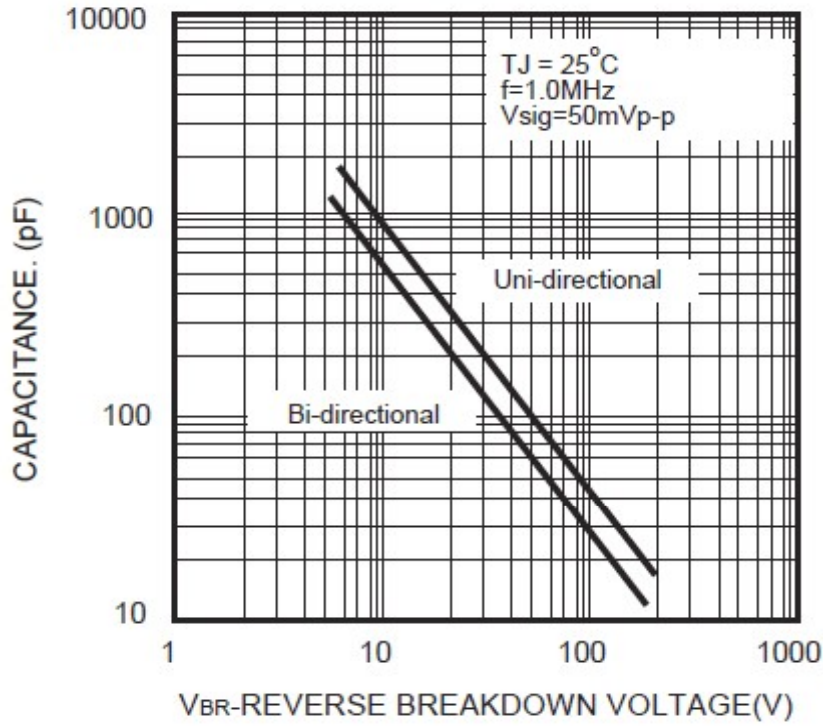
### Steady State Power Derating Curve

P4SMA series



Typical Junction Capacitance

P4SMA series



### RoHS Compliant Declaration

We hereby declare that the components delivered to your company are compliant with RoHS directive 2015/863/EU.

### Warehouse Storage Conditions of Products

(I) Storage Conditions :

- 1.Storage Temperature :  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- 2.Relative Humidity :  $\leq 75\%RH$
- 3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year

## Safety Approvals



\* UL 497B recognized (File # E229991)

## Certificates

- (1) IATF 16949 certificate
- (2) ISO 9001 certificate

## Test Report

- (1) RoHS test report
- (2) Halogen-free test report