



**THE DATASHEET OF  
P4SMAJ180A\_R1\_00001**



## P4SMAJ5.0A ~ P4SMAJ220CA Series

### SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR POWER 400 Watt

**STAND-OFF VOLTAGE**

**5 to 220 Volt**

**SMA / DO-214AC**

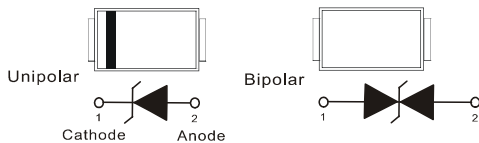
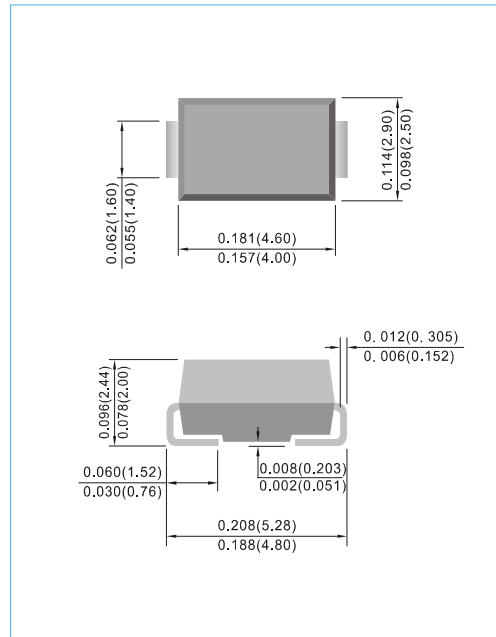
Unit : inch(mm)

#### FEATURES

- For surface mounted applications in order to optimize board space.
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals
- ESD IEC-61000-4-2 Air  $\pm$  30kV, Contact  $\pm$  30kV
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

#### MECHANICAL DATA

- Case : JEDEC DO-214AC, Molded plastic over passivated junction
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode end
- Standard Packaging : 12mm tape (EIA-481)
- Approx. Weight : 0.0679 grams



#### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use CA Suffix for types P4SMAJ5.0CA thru types P4SMAJ220CA  
Electrical characteristics apply in both directions.

#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on $T_A = 25^\circ\text{C}$ (Notes 1,2,5, Fig.1)	$P_{PP}$	400	Watts
Peak Forward Surge Current per Fig.5 (Notes 3)	$I_{FSM}$	40	Amps
Peak Pulse Current on $t_p=10/1000\mu\text{s}$ waveform (Notes 1) Fig.2	$I_{PPM}$	see Table 1	Amps
Typical Thermal Resistance Junction to Air (Notes 2)	$R_{\theta JA}$	70	$^\circ\text{C} / \text{W}$
ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact)	$V_{ESD}$	$\pm 30$ $\pm 30$	kV
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

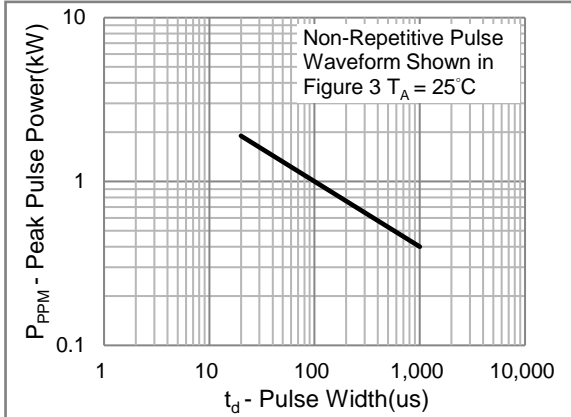
#### NOTES :

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^\circ\text{C}$  per Fig. 2.
2. Mounted on 5mm<sup>2</sup> copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minutes maximum.
4. Lead temperature at 75°C =  $T_L$ .
5. Peak pulse power waveform is 10/1000  $\mu\text{s}$ .
6. A transient suppressor is selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal to or greater than the DC or continuous peak operating voltage level.

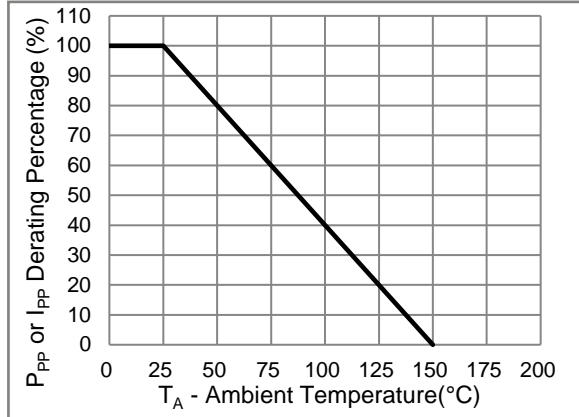
# P4SMAJ5.0A ~ P4SMAJ220CA Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000µs	Peak Pulse Current 10/1000µs	Marking Code	
			V <sub>BR</sub> @ I <sub>T</sub>			I <sub>R</sub> @ V <sub>RWM</sub>					
			V <sub>RWM</sub> (Note 6)	Min.		Max.	I <sub>T</sub>				
UNI	BI	V	V	V	mA	µA	µA	V	A	UNI	BI
P4SMAJ5.0A	P4SMAJ5.0CA	5	6.4	7	10	800	1600	9.2	43.5	HE	TE
P4SMAJ6.0A	P4SMAJ6.0CA	6	6.67	7.37	10	800	1600	10.3	38.8	HG	TG
P4SMAJ6.5A	P4SMAJ6.5CA	6.5	7.22	7.98	10	500	1000	11.2	35.7	HK	TK
P4SMAJ7.0A	P4SMAJ7.0CA	7	7.78	8.6	10	200	400	12	33.3	HM	TM
P4SMAJ7.5A	P4SMAJ7.5CA	7.5	8.33	9.21	1	100	200	12.9	31	HP	TP
P4SMAJ8.0A	P4SMAJ8.0CA	8	8.89	9.83	1	50	100	13.6	29.4	HR	TR
P4SMAJ8.5A	P4SMAJ8.5CA	8.50	9.44	10.4	1	10	20	14.4	27.7	HT	TT
P4SMAJ9.0A	P4SMAJ9.0CA	9	10	11.1	1	5	5	15.4	26	HV	TV
P4SMAJ10A	P4SMAJ10CA	10	11.1	12.3	1	5	5	17	23.5	HX	TX
P4SMAJ11A	P4SMAJ11CA	11	12.2	13.5	1	1	1	18.2	22	HZ	TZ
P4SMAJ12A	P4SMAJ12CA	12	13.3	14.7	1	1	1	19.9	20.1	IE	UE
P4SMAJ13A	P4SMAJ13CA	13	14.4	15.9	1	1	1	21.5	18.6	IG	UG
P4SMAJ14A	P4SMAJ14CA	14	15.6	17.2	1	1	1	23.2	17.2	IK	UK
P4SMAJ15A	P4SMAJ15CA	15	16.7	18.5	1	1	1	24.4	16.4	IM	UM
P4SMAJ16A	P4SMAJ16CA	16	17.8	19.7	1	1	1	26	15.3	IP	UP
P4SMAJ17A	P4SMAJ17CA	17	18.9	20.9	1	1	1	27.6	14.5	IR	UR
P4SMAJ18A	P4SMAJ18CA	18	20	22.1	1	1	1	29.2	13.7	IT	UT
P4SMAJ20A	P4SMAJ20CA	20	22.2	24.5	1	1	1	32.4	12.3	IV	UV
P4SMAJ22A	P4SMAJ22CA	22	24.4	26.9	1	1	1	35.5	11.2	IX	UX
P4SMAJ24A	P4SMAJ24CA	24	26.7	29.5	1	1	1	38.9	10.3	IZ	UZ
P4SMAJ26A	P4SMAJ26CA	26	28.9	31.9	1	1	1	42.1	9.5	JE	VE
P4SMAJ28A	P4SMAJ28CA	28	31.1	34.4	1	1	1	45.4	8.8	JG	VG
P4SMAJ30A	P4SMAJ30CA	30	33.3	36.8	1	1	1	48.4	8.3	JK	VK
P4SMAJ33A	P4SMAJ33CA	33	36.7	40.6	1	1	1	53.3	7.5	JM	VM
P4SMAJ36A	P4SMAJ36CA	36	40	44.2	1	1	1	58.1	6.9	JP	VP
P4SMAJ40A	P4SMAJ40CA	40	44.4	49.1	1	1	1	64.5	6.2	JR	VR
P4SMAJ43A	P4SMAJ43CA	43	47.8	52.8	1	1	1	69.4	5.7	JT	VT
P4SMAJ45A	P4SMAJ45CA	45	50	55.3	1	1	1	72.7	5.5	JV	VV
P4SMAJ48A	P4SMAJ48CA	48	53.3	58.9	1	1	1	77.4	5.2	JX	VX
P4SMAJ51A	P4SMAJ51CA	51	56.7	62.7	1	1	1	82.4	4.9	JZ	VZ
P4SMAJ54A	P4SMAJ54CA	54	60	66.3	1	1	1	87.1	4.6	RE	WE
P4SMAJ58A	P4SMAJ58CA	58	64.4	71.2	1	1	1	93.6	4.3	RG	WG
P4SMAJ60A	P4SMAJ60CA	60	66.7	73.7	1	1	1	96.8	4.1	RK	WK
P4SMAJ64A	P4SMAJ64CA	64	71.1	78.6	1	1	1	103	3.9	RM	WM
P4SMAJ70A	P4SMAJ70CA	70	77.8	86	1	1	1	113	3.5	RP	WP
P4SMAJ75A	P4SMAJ75CA	75	83.3	92.1	1	1	1	121	3.3	RR	WR
P4SMAJ78A	P4SMAJ78CA	78	86.7	95.8	1	1	1	126	3.2	RT	WT
P4SMAJ85A	P4SMAJ85CA	85	94.4	104	1	1	1	137	2.9	RV	WV
P4SMAJ90A	P4SMAJ90CA	90	100	111	1	1	1	146	2.7	RX	WX
P4SMAJ100A	P4SMAJ100CA	100	111	123	1	1	1	162	2.5	RZ	WZ
P4SMAJ110A	P4SMAJ110CA	110	122	135	1	1	1	177	2.3	SE	XE
P4SMAJ120A	P4SMAJ120CA	120	133	147	1	1	1	193	2	SG	XG
P4SMAJ130A	P4SMAJ130CA	130	144	159	1	1	1	209	1.9	SK	XK
P4SMAJ150A	P4SMAJ150CA	150	167	185	1	1	1	243	1.6	SM	XM
P4SMAJ160A	P4SMAJ160CA	160	178	197	1	1	1	259	1.5	SP	XP
P4SMAJ170A	P4SMAJ170CA	170	189	209	1	1	1	275	1.4	SR	XR
P4SMAJ180A	P4SMAJ180CA	180	198	222	1	1	1	292	1.3	ST	YT
P4SMAJ190A	P4SMAJ190CA	190	209	243.2	1	1	1	308	1.3	SV	YV
P4SMAJ200A	P4SMAJ200CA	200	220	247	1	1	1	324	1.2	SX	YX
P4SMAJ210A	P4SMAJ210CA	210	231	268.8	1	1	1	340	1.2	SZ	YZ
P4SMAJ220A	P4SMAJ220CA	220	242	272	1	1	1	356	1.1	GE	ZE

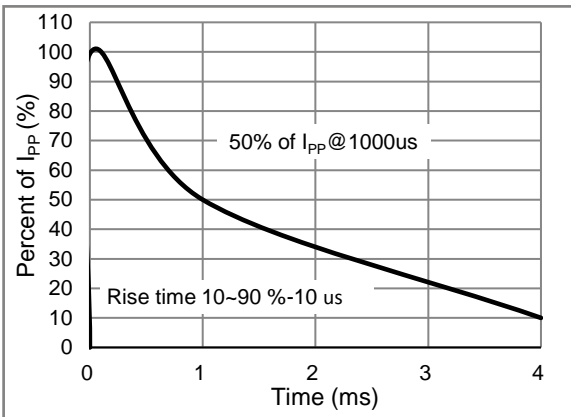
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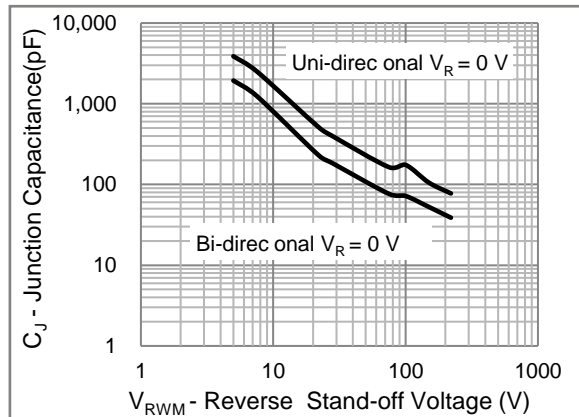
**Fig.1 Peak Pulse Power Rating**



**Fig.2 Derating Curve**



**Fig.3 Pulse Waveform**



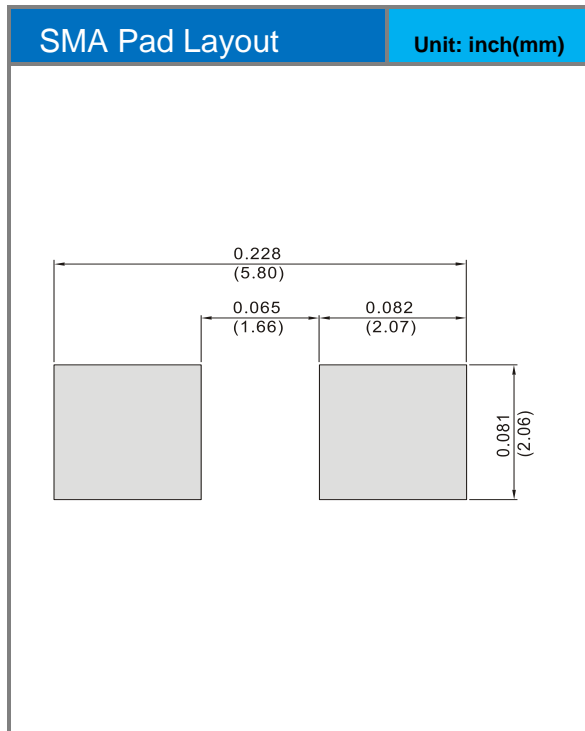
**Fig.4 Typical Capacitance**

## P4SMAJ5.0A ~ P4SMAJ220CA Series

### Product and Packing Information

Part No.	Package Type	Packing Type	Marking
P4SMAJxxxCA	SMA	7.5K pcs / 13" reel	See Table

### Mounting Pad Layout



## **P4SMAJ5.0A ~ P4SMAJ220CA Series**



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