



DATA SHEET

P4SMAJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

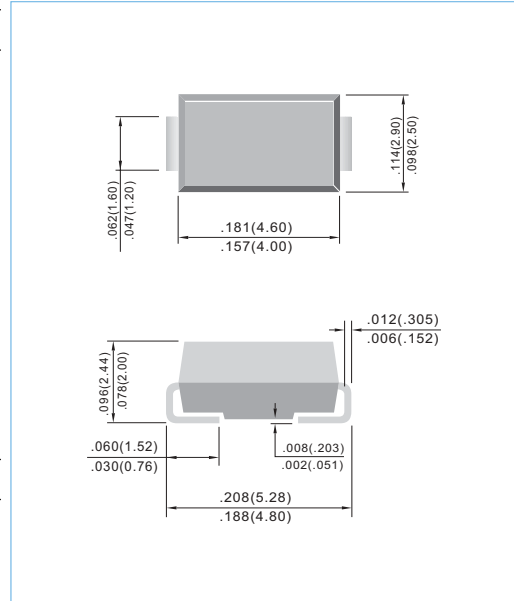
VOLTAGE	5.0 to 220 Volts	PEAK PULSE POWER	400 Watts	SMA/DO-214AC	Unit: inch (mm)
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FEATURES

- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals
- Both normal and Pb free product are available :
 - Normal : 80~95% Sn, 5~20% Pb
 - Pb free: 98.5% Sn above

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 positive end (cathode)
 Standard Packaging: 12mm tape (EIA-481)
 Weight: 0.002 ounce, 0.064 gram



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P4SMAJ5.0 thru types P4SMAJ220.
 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 TA = 25 °C (Notes 1,2,5, Fig 1)	P _{PPM}	400	Watts
Peak Forward Surge Current per Fig 5 (Note 3)	I _{FSM}	40	Amps
Peak Pulse Current on 10/1000s waveform (Note 1) Fig 2	I _{PPM}	see Table 1	Amps
Steady State Power Dissipation (NOTE 4)	P _{M(AV)}	1.0	Watts
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25 °C per Fig. 2.
2. Mounted on 5.0mm² 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 = TL.
5. Peak pulse power waveform is 10/1000uS.



Part Number	Part Number	Marking Code		V _{RWM}	V _{BR} @ I _r			I _c @ V _{RWM}		V _c @ I _p	
					Min.	Max.	I _r	UNI-	BI-	V	A
					V	V	mA	uA	uA		
UNI-	BI-	UNI-	BI-	V	V	mA	uA	uA	V	A	
400W Transient Voltage Suppressor											
P4SMAJ5.0	P4SMAJ5.0C	HD	TD	5.0	6.40	7.55	10	800	1600	9.6	41.6
P4SMAJ5.0A	P4SMAJ5.0CA	HE	TE	5.0	6.40	7.25	10	800	1600	9.2	43.5
P4SMAJ6.0	P4SMAJ6.0C	HF	TF	6.0	6.67	8.45	10	800	1600	11.4	35.1
P4SMAJ6.0A	P4SMAJ6.0CA	HG	TG	6.0	6.67	7.67	10	800	1600	10.3	38.8
P4SMAJ6.5	P4SMAJ6.5C	HH	TH	6.5	7.22	9.14	10	500	1000	12.3	32.5
P4SMAJ6.5A	P4SMAJ6.5CA	HK	TK	6.5	7.22	8.30	10	500	1000	11.2	35.7
P4SMAJ7.0	P4SMAJ7.0C	HL	TL	7.0	7.78	9.86	10	200	400	13.3	30.1
P4SMAJ7.0A	P4SMAJ7.0CA	HM	TM	7.0	7.78	8.95	10	200	400	12.0	33.3
P4SMAJ7.5	P4SMAJ7.5C	HN	TN	7.5	8.33	10.67	1.0	100	200	14.3	28.0
P4SMAJ7.5A	P4SMAJ7.5CA	HP	TP	7.5	8.33	9.58	1.0	100	200	12.9	31.0
P4SMAJ8.0	P4SMAJ8.0C	HQ	TQ	8.0	8.89	11.30	1.0	50	100	15.0	26.5
P4SMAJ8.0A	P4SMAJ8.0CA	HR	TR	8.0	8.89	10.23	1.0	50	100	13.6	29.4
P4SMAJ8.5	P4SMAJ8.5C	HS	TS	8.5	9.44	11.92	1.0	10	20	15.9	25.1
P4SMAJ8.5A	P4SMAJ8.5CA	HT	TT	8.5	9.44	10.82	1.0	10	20	14.4	27.7
P4SMAJ9.0	P4SMAJ9.0C	HU	TU	9.0	10.0	12.6	1.0	5	5	16.9	23.6
P4SMAJ9.0A	P4SMAJ9.0CA	HV	TV	9.0	10.0	11.5	1.0	5	5	15.4	26.0
P4SMAJ10	P4SMAJ10C	HW	TW	10	11.1	14.1	1.0	1	1	18.8	21.2
P4SMAJ10A	P4SMAJ10CA	HX	TX	10	11.1	12.8	1.0	1	1	17.0	23.5
P4SMAJ11	P4SMAJ11C	HY	TY	11	12.2	15.4	1.0	1	1	20.1	20.0
P4SMAJ11A	P4SMAJ11CA	HZ	TZ	11	12.2	14.0	1.0	1	1	18.2	22.0
P4SMAJ12	P4SMAJ12C	D	UD	12	13.3	16.9	1.0	1	1	22.0	18.1
P4SMAJ12A	P4SMAJ12CA	E	UE	12	13.3	15.3	1.0	1	1	19.9	20.1
P4SMAJ13	P4SMAJ13C	F	UF	13	14.4	18.2	1.0	1	1	23.8	16.8
P4SMAJ13A	P4SMAJ13CA	G	UG	13	14.4	16.5	1.0	1	1	21.5	18.6
P4SMAJ14	P4SMAJ14C	H	UH	14	15.6	19.8	1.0	1	1	25.8	15.5
P4SMAJ14A	P4SMAJ14CA	K	UK	14	15.6	17.9	1.0	1	1	23.2	17.2
P4SMAJ15	P4SMAJ15C	L	UL	15	16.7	21.1	1.0	1	1	26.9	14.8
P4SMAJ15A	P4SMAJ15CA	M	UM	15	16.7	19.2	1.0	1	1	24.4	16.4
P4SMAJ16	P4SMAJ16C	N	UN	16	17.8	22.6	1.0	1	1	28.8	13.8
P4SMAJ16A	P4SMAJ16CA	P	UP	16	17.8	20.5	1.0	1	1	26.0	15.3
P4SMAJ17	P4SMAJ17C	Q	UQ	17	18.9	23.9	1.0	1	1	30.5	13.1
P4SMAJ17A	P4SMAJ17CA	R	UR	17	18.9	21.7	1.0	1	1	27.6	14.5
P4SMAJ18	P4SMAJ18C	S	US	18	20.0	25.3	1.0	1	1	32.2	12.4
P4SMAJ18A	P4SMAJ18CA	T	UT	18	20.0	23.3	1.0	1	1	29.2	13.7
P4SMAJ20	P4SMAJ20C	U	UU	20	22.2	28.1	1.0	1	1	35.8	11.1
P4SMAJ20A	P4SMAJ20CA	V	UV	20	22.2	25.5	1.0	1	1	32.4	12.3
P4SMAJ22	P4SMAJ22C	W	UW	22	24.4	30.9	1.0	1	1	39.4	10.1
P4SMAJ22A	P4SMAJ22CA	X	UX	22	24.4	28.0	1.0	1	1	35.5	11.2
P4SMAJ24	P4SMAJ24C	Y	UY	24	26.7	33.8	1.0	1	1	43.0	9.3
P4SMAJ24A	P4SMAJ24CA	Z	UZ	24	26.7	30.7	1.0	1	1	38.9	10.3
P4SMAJ26	P4SMAJ26C	JD	VD	26	28.9	36.6	1.0	1	1	46.6	8.6
P4SMAJ26A	P4SMAJ26CA	JE	VE	26	28.9	33.2	1.0	1	1	42.1	9.5
P4SMAJ28	P4SMAJ28C	JF	VF	28	31.1	39.4	1.0	1	1	50.0	8.0
P4SMAJ28A	P4SMAJ28CA	JG	VG	28	31.1	35.8	1.0	1	1	45.4	8.8
P4SMAJ30	P4SMAJ30C	JH	VH	30	33.3	42.2	1.0	1	1	53.5	7.5
P4SMAJ30A	P4SMAJ30CA	JK	VK	30	33.3	38.3	1.0	1	1	48.4	8.3
P4SMAJ33	P4SMAJ33C	JL	VL	33	36.7	46.5	1.0	1	1	59.0	6.8
P4SMAJ33A	P4SMAJ33CA	JM	VM	33	36.7	42.2	1.0	1	1	53.3	7.5
P4SMAJ36	P4SMAJ36C	JN	VN	36	40.0	50.7	1.0	1	1	64.3	6.2
P4SMAJ36A	P4SMAJ36CA	JP	VP	36	40.0	46.0	1.0	1	1	58.1	6.9
P4SMAJ40	P4SMAJ40C	JQ	VQ	40	44.4	56.3	1.0	1	1	71.4	5.6
P4SMAJ40A	P4SMAJ40CA	JR	VR	40	44.4	51.1	1.0	1	1	64.5	6.2



Part Number	Part Number	Marking Code		V _{RRM}	V _{BR} @ I _F			I _F @ V _{RRM}		V _C @ I _F	
					Min.	Max.	I _F	UNI-	BI-	V	A
					V	V	mA	µA	µA		
UNI-	BI-	UNI-	BI-	V	V	V	mA	µA	µA	V	A
400W Transient Voltage Suppressor											
P4SMAJ43	P4SMAJ43C	JS	VS	43	47.8	60.5	1.0	1	1	76.7	5.2
P4SMAJ43A	P4SMAJ43CA	JT	VT	43	47.8	54.9	1.0	1	1	69.4	5.7
P4SMAJ45	P4SMAJ45C	JU	VU	45	50.0	63.3	1.0	1	1	80.3	5.0
P4SMAJ45A	P4SMAJ45CA	JV	VV	45	50.0	57.5	1.0	1	1	72.7	5.5
P4SMAJ48	P4SMAJ48C	JW	VW	48	53.3	67.5	1.0	1	1	85.5	4.7
P4SMAJ48A	P4SMAJ48CA	JX	VX	48	53.3	61.3	1.0	1	1	77.4	5.2
P4SMAJ51	P4SMAJ51C	JY	VY	51	56.7	71.8	1.0	1	1	91.1	4.4
P4SMAJ51A	P4SMAJ51CA	JZ	VZ	51	56.7	65.2	1.0	1	1	82.4	4.9
P4SMAJ54	P4SMAJ54C	RD	WD	54	60.0	76.0	1.0	1	1	96.3	4.2
P4SMAJ54A	P4SMAJ54CA	RE	WE	54	60.0	69.0	1.0	1	1	87.1	4.6
P4SMAJ58	P4SMAJ58C	RF	WF	58	64.4	81.6	1.0	1	1	103	3.9
P4SMAJ58A	P4SMAJ58CA	RG	WG	58	64.4	74.1	1.0	1	1	93.6	4.3
P4SMAJ60	P4SMAJ60C	RH	WH	60	66.7	84.5	1.0	1	1	107	3.7
P4SMAJ60A	P4SMAJ60CA	RK	WK	60	66.7	76.7	1.0	1	1	96.8	4.1
P4SMAJ64	P4SMAJ64C	RL	WL	64	71.1	90.1	1.0	1	1	114	3.5
P4SMAJ64A	P4SMAJ64CA	RM	WM	64	71.1	81.8	1.0	1	1	103	3.9
P4SMAJ70	P4SMAJ70C	RN	WN	70	77.8	98.6	1.0	1	1	125	3.2
P4SMAJ70A	P4SMAJ70CA	RP	WP	70	77.8	89.5	1.0	1	1	113	3.5
P4SMAJ75	P4SMAJ75C	RQ	WQ	75	83.3	105.7	1.0	1	1	134	3.0
P4SMAJ75A	P4SMAJ75CA	RR	WR	75	83.3	95.8	1.0	1	1	121	3.3
P4SMAJ78	P4SMAJ78C	RS	WS	78	86.7	109.8	1.0	1	1	139	2.9
P4SMAJ78A	P4SMAJ78CA	RT	WT	78	86.7	99.7	1.0	1	1	126	2.2
P4SMAJ85	P4SMAJ85C	RU	WU	85	94.4	119.2	1.0	1	1	151	2.6
P4SMAJ85A	P4SMAJ85CA	RV	WV	85	94.4	108.2	1.0	1	1	137	2.9
P4SMAJ90	P4SMAJ90C	RW	WW	90	100	126.5	1.0	1	1	160	2.5
P4SMAJ90A	P4SMAJ90CA	RX	WX	90	100	115.5	1.0	1	1	146	2.7
P4SMAJ100	P4SMAJ100C	RY	WY	100	111	141.0	1.0	1	1	179	2.2
P4SMAJ100A	P4SMAJ100CA	RZ	WZ	100	111	128.0	1.0	1	1	162	2.5
P4SMAJ110	P4SMAJ110C	SD	XD	110	122	154.5	1.0	1	1	196	2.0
P4SMAJ110A	P4SMAJ110CA	SE	XE	110	122	140.5	1.0	1	1	177	2.3
P4SMAJ120	P4SMAJ120C	SF	XF	120	133	169.0	1.0	1	1	214	1.9
P4SMAJ120A	P4SMAJ120CA	SG	XG	120	133	153.0	1.0	1	1	193	2.0
P4SMAJ130	P4SMAJ130C	SH	XH	130	144	182.5	1.0	1	1	231	1.7
P4SMAJ130A	P4SMAJ130CA	SK	XK	130	144	165.5	1.0	1	1	209	1.9
P4SMAJ150	P4SMAJ150C	SL	XL	150	167	211.5	1.0	1	1	268	1.5
P4SMAJ150A	P4SMAJ150CA	SM	XM	150	167	192.5	1.0	1	1	243	1.6
P4SMAJ160	P4SMAJ160C	SN	XN	160	178	226.0	1.0	1	1	287	1.4
P4SMAJ160A	P4SMAJ160CA	SP	XP	160	178	205.0	1.0	1	1	259	1.5
P4SMAJ170	P4SMAJ170C	SQ	XQ	170	189	239.5	1.0	1	1	304	1.3
P4SMAJ170A	P4SMAJ170CA	SR	XR	170	189	217.5	1.0	1	1	275	1.4
P4SMAJ180	P4SMAJ180C	SS	YS	180	198	253.8	1.0	1	1	322	1.2
P4SMAJ180A	P4SMAJ180CA	ST	YT	180	198	230.4	1.0	1	1	292	1.3
P4SMAJ190	P4SMAJ190C	SU	YU	190	209	267.9	1.0	1	1	340	1.2
P4SMAJ190A	P4SMAJ190CA	SV	YV	190	209	243.2	1.0	1	1	308	1.3
P4SMAJ200	P4SMAJ200C	SW	YW	200	220	282	1.0	1	1	358	1.1
P4SMAJ200A	P4SMAJ200CA	SX	YX	200	220	256	1.0	1	1	324	1.2
P4SMAJ210	P4SMAJ210C	SY	YY	210	231	296.1	1.0	1	1	376	1.1
P4SMAJ210A	P4SMAJ210CA	SZ	YZ	210	231	268.8	1.0	1	1	340	1.2
P4SMAJ220	P4SMAJ220C	GD	ZD	220	242	310.2	1.0	1	1	394	1.0
P4SMAJ220A	P4SMAJ220CA	GE	ZE	220	242	281.6	1.0	1	1	356	1.1

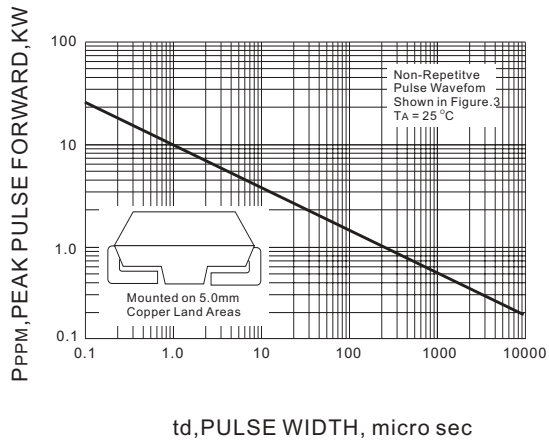


Fig.1 PEAK PULSE POWER RATING CURVE

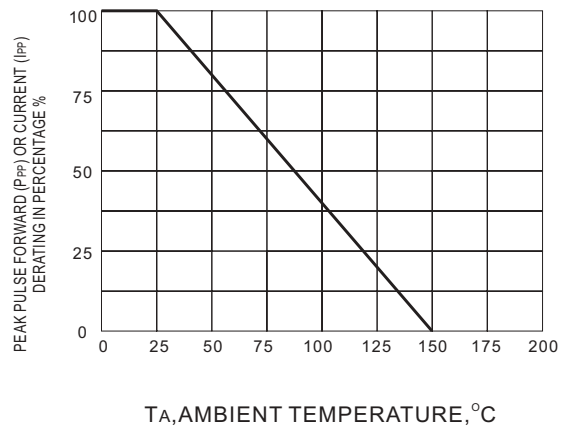


Fig.2 DERATING CURVE

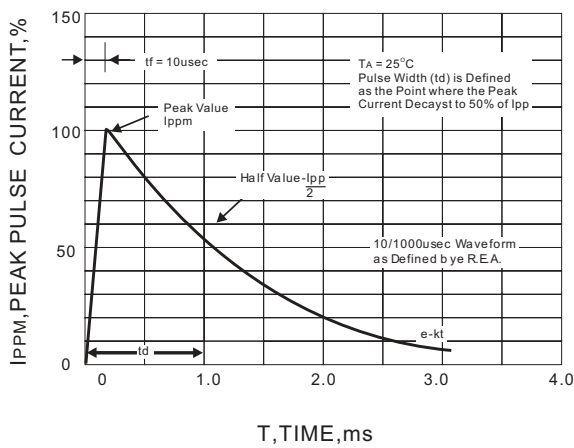


Fig.3 PULSE WAVEFORM

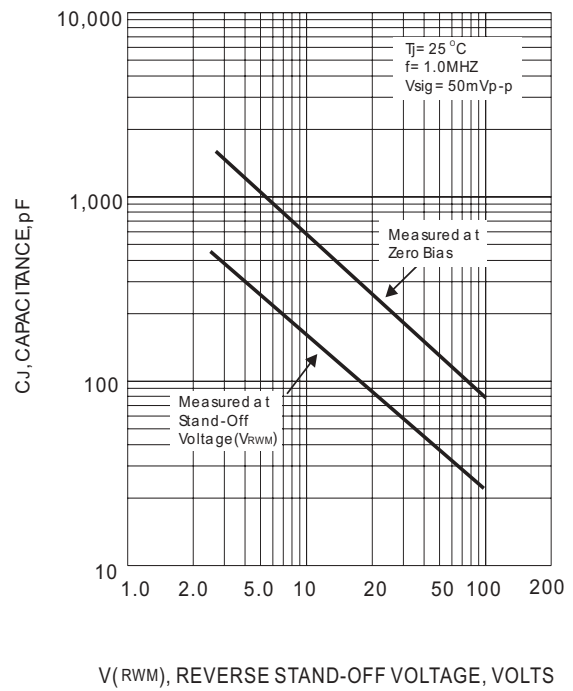


Fig.4 TYPICAL JUNCTION CAPACITANCE

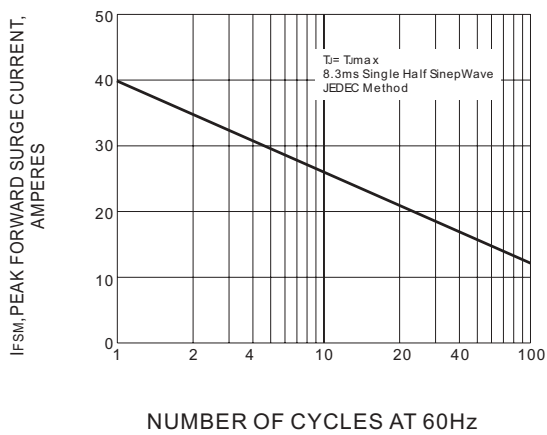


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT