

Transient Voltage Suppressors DO-214AC/SMA Package

P4SMA Series

MERITEK

FEATURE

- Breakdown Voltage: 6.8~600V
- Peak Power Dissipation: 400W
- Glass passivated chip
- Excellent clamping capability; Fast response time
- Terminal: Solderable per MIL-STD-750, Method 2026
- Epoxy: UL 94V-0 rate flame retardant
- UL/cUL safety approved: certification No: E223045



ELECTRICAL CHARACTERISTICS



Parameter	Symbols	Value	Unit
Peak power dissipation with a 10/1000 μ s waveform(1)	P_{PP}	400	Watts
Peak pulse current with a 10/1000 μ s waveform(1)	I_{PP}	See Next Table	Amps
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	1.0	Watts
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.	I_{FSM}	40	Amps
Maximum instantaneous forward voltage at 25 A for unidirectional only. $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$	V_F	3.5/5.0	Volts
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

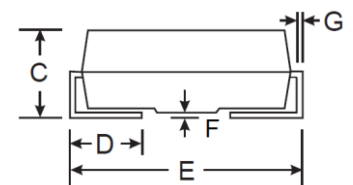
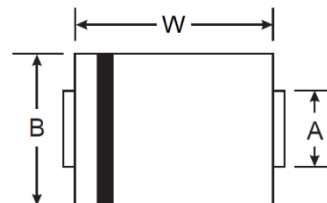
Rating at 25 $^\circ\text{C}$, ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

1. Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.

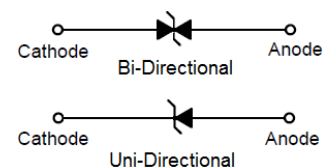
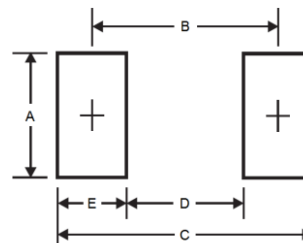
DIMENSIONS

Item	DO-214AC(SMA)	
	Millimeters	
	Min.	Max.
W	4.00	4.60
A	1.23	1.70
B	2.18	2.90
C	1.70	2.44
D	0.75	1.51
E	4.70	5.31
F	-	0.203
G	0.152	0.305



SOLDERING PAD LAYOUT

A	B	C	D	E
1.7	4.1	6.6	1.5	2.6



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ELECTRICAL CHARACTERISTICS(Continued)

Device Type (Uni)	Device Type	Marking Code		Breakdown Voltage VBR@IT			Working Peak Reverse Voltage VRWM(V)	Maximum Reverse Leakage IR @ VRWM(V)	Maximum Reverse Surge Current Ipp(A)	Maximum Clamping Voltage VC@Ipp
	(Bi)	Uni	Bi	Min(V)	Max(V)	IT(mA)				
P4SMA6.8A	P4SMA6.8CA	6V8A	6V8C	6.46	7.14	10	5.8	1000	38.10	10.5
P4SMA7.5A	P4SMA7.5CA	7V5A	7V5C	7.13	7.88	10	6.4	500	35.40	11.3
P4SMA8.2A	P4SMA8.2CA	8V2A	8V2C	7.79	8.61	10	7.0	200	33.06	12.1
P4SMA9.1A	P4SMA9.1CA	9V1A	9V1C	8.65	9.56	1.0	7.8	50	29.85	13.4
P4SMA10A	P4SMA10CA	10A	10C	9.50	10.50	1.0	8.6	10	27.59	14.5
P4SMA11A	P4SMA11CA	11A	11C	10.45	11.55	1.0	9.4	5.0	25.64	15.6
P4SMA12A	P4SMA12CA	12A	12C	11.40	12.60	1.0	10.2	5.0	23.95	16.7
P4SMA13A	P4SMA13CA	13A	13C	12.35	13.65	1.0	11.1	5.0	21.98	18.2
P4SMA15A	P4SMA15CA	15A	15C	14.25	15.75	1.0	12.8	5.0	18.87	21.2
P4SMA16A	P4SMA16CA	16A	16C	15.20	16.80	1.0	13.6	5.0	17.78	22.5
P4SMA18A	P4SMA18CA	18A	18C	17.10	18.90	1.0	15.3	5.0	15.87	25.2
P4SMA20A	P4SMA20CA	20A	20C	19.00	21.00	1.0	17.1	5.0	14.44	27.7
P4SMA22A	P4SMA22CA	22A	22C	20.90	23.10	1.0	18.8	5.0	13.07	30.6
P4SMA24A	P4SMA24CA	24A	24C	22.80	25.20	1.0	20.5	5.0	12.05	33.2
P4SMA27A	P4SMA27CA	27A	27C	25.65	28.35	1.0	23.1	5.0	10.67	37.5
P4SMA30A	P4SMA30CA	39A	39C	28.50	31.50	1.0	25.6	5.0	9.66	41.4
P4SMA33A	P4SMA33CA	33A	33C	31.35	34.65	1.0	28.2	5.0	8.75	45.7
P4SMA36A	P4SMA36CA	36A	36C	34.20	37.80	1.0	30.8	5.0	8.02	49.9
P4SMA39A	P4SMA39CA	39A	39C	37.05	40.95	1.0	33.3	5.0	7.42	53.9
P4SMA43A	P4SMA43CA	43A	43C	40.85	45.15	1.0	36.8	5.0	6.75	59.3
P4SMA47A	P4SMA47CA	47A	47C	44.65	49.35	1.0	40.2	5.0	6.17	64.8
P4SMA51A	P4SMA51CA	51A	51C	48.45	53.55	1.0	43.6	5.0	5.71	70.1
P4SMA56A	P4SMA56CA	56A	56C	53.20	58.80	1.0	47.8	5.0	5.19	77.0
P4SMA62A	P4SMA62CA	62A	62C	58.90	65.10	1.0	53.0	5.0	4.71	85.0
P4SMA68A	P4SMA68CA	68A	68C	64.60	71.40	1.0	58.1	5.0	4.35	92.0
P4SMA75A	P4SMA75CA	75A	75C	71.25	78.75	1.0	64.1	5.0	3.88	103.0
P4SMA82A	P4SMA82CA	82A	82C	77.90	86.10	1.0	70.1	5.0	3.54	113.0
P4SMA91A	P4SMA91CA	91A	91C	86.45	95.55	1.0	77.8	5.0	3.20	125.0
P4SMA100A	P4SMA100CA	100A	100C	95.00	105.00	1.0	85.5	5.0	2.92	137.0
P4SMA110A	P4SMA110CA	110A	110C	104.50	115.50	1.0	94.0	5.0	2.63	152.0
P4SMA120A	P4SMA120CA	120A	120C	114.00	126.00	1.0	102.0	5.0	2.42	165.0
P4SMA130A	P4SMA130CA	130A	130C	123.50	136.50	1.0	111.0	5.0	2.23	179.0
P4SMA150A	P4SMA150CA	150A	150C	142.50	157.50	1.0	128.0	5.0	1.93	207.0
P4SMA160A	P4SMA160CA	160A	160C	152.00	168.00	1.0	136.0	5.0	1.83	219.0
P4SMA170A	P4SMA170CA	170A	170C	161.50	178.50	1.0	145.0	5.0	1.71	234.0
P4SMA180A	P4SMA180CA	180A	180C	171.00	189.00	1.0	154.0	5.0	1.63	246.0
P4SMA200A	P4SMA200CA	200A	200C	190.00	210.00	1.0	171.0	5.0	1.46	274.0
P4SMA220A	P4SMA220CA	220A	220C	209.00	231.00	1.0	185.0	5.0	1.22	328.0
P4SMA250A	P4SMA250CA	250A	250C	237.50	262.50	1.0	214.0	5.0	1.16	344.0
P4SMA300A	P4SMA300CA	300A	300C	285.00	315.00	1.0	256.0	5.0	0.97	414.0
P4SMA350A	P4SMA350CA	350A	350C	332.50	367.50	1.0	299.3	5.0	0.83	482.0
P4SMA380A	P4SMA380CA	380A	380C	361.00	399.00	1.0	324.9	5.0	0.76	524.4
P4SMA400A	P4SMA400CA	400A	400C	380.00	420.00	1.0	342.0	5.0	0.72	552.0
P4SMA440A	P4SMA440CA	440A	440C	418.00	462.00	1.0	376.2	5.0	0.66	607.2
P4SMA500A	P4SMA500CA	500A	500C	475.00	525.00	1.0	427.5	5.0	0.58	690.0
P4SMA520A	P4SMA520CA	520A	520C	494.00	546.00	1.0	444.6	5.0	0.56	717.6
P4SMA550A	P4SMA550CA	550A	550C	522.50	577.50	1.0	470.3	5.0	0.53	759.0
P4SMA600A	P4SMA600CA	600A	600C	570.00	630.00	1.0	513.0	5.0	0.48	828.0

CHARACTERISTICS CURVES

Fig.1 Pulse Derating Curve

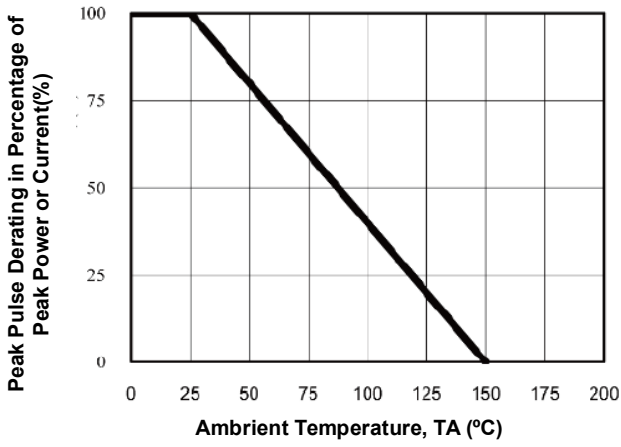


Fig 2. Maximum Non-Repetitive Surge Current

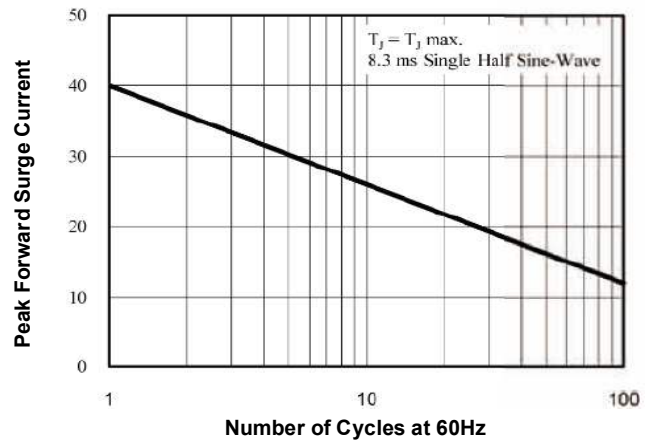


Fig 3. Steady State Power Derating Curve

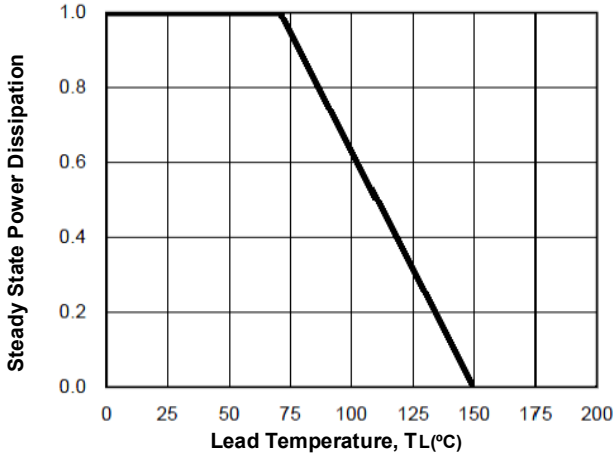


Fig 4. Peak Pulse Power Rating Curve

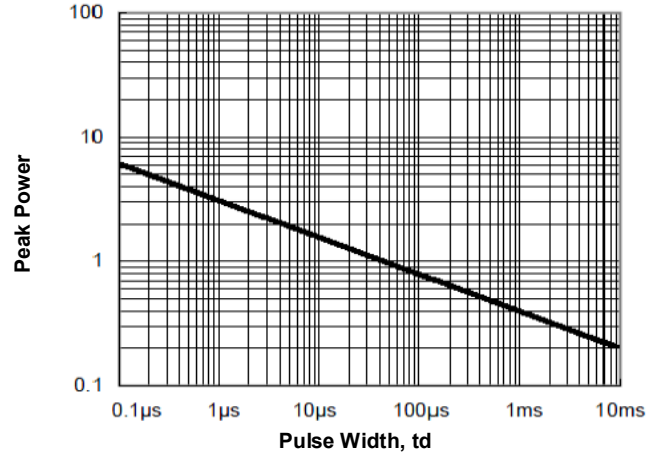
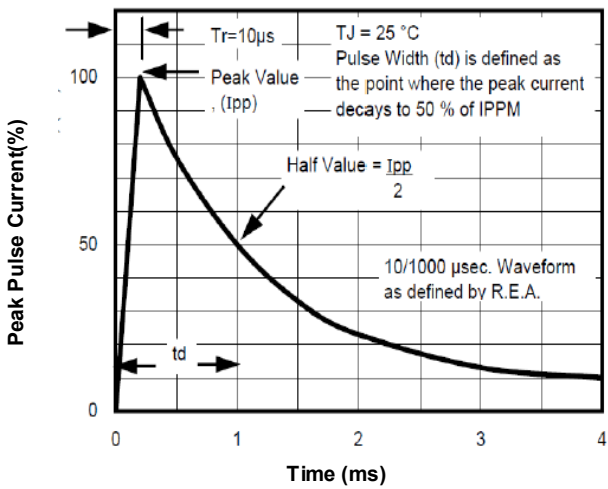
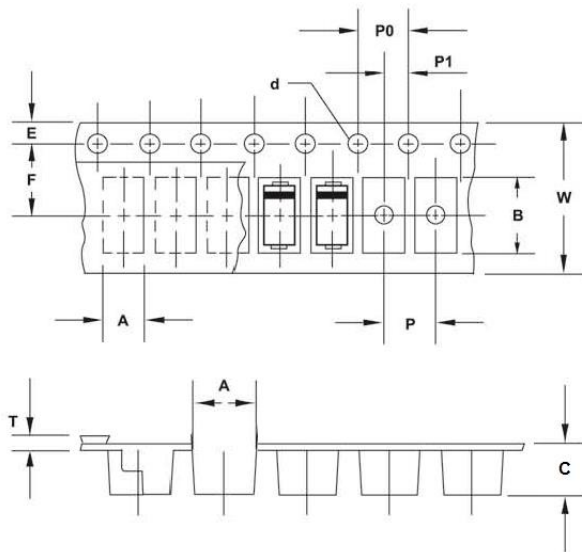


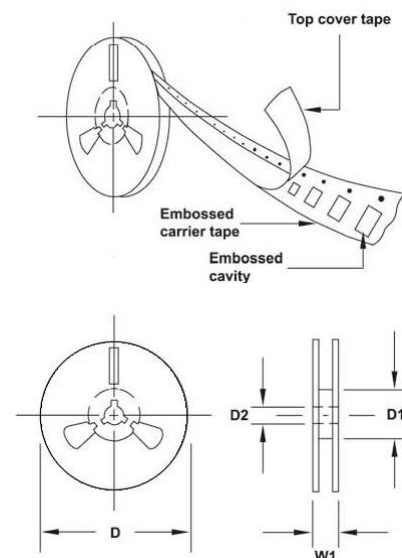
Fig 5. Pulse Waveform



PACKAGING SPECIFICATION- DO214AC (SMA) - Tape Carrier and Reel



DO-214AC(SMA) - Tape carrier



DO-214AC(SMA) - Reel

Item	Symbol	DO-214AC (SMA)	Item	Symbol	DO-214AC (SMA)
Carrier width	A	3.00 ± 0.10	Punch hole position	F	5.65 ± 0.05
Carrier length	B	5.40 ± 0.10	Punch hole pitch	P	4.00 ± 0.10
Carrier depth	C	2.40 ± 0.10	Sprocket hole pitch	P0	4.00 ± 0.10
Sprocket hole	d	1.50 ± 0.10	Embossment center	P1	2.00 ± 0.10
Reel outside diameter	D	330.0 ± 2.0	Overall tape thickness	T	0.30 ± 0.05
Reel inner diameter	D1	50 min.	Tape width	W	12.00 ± 0.20
Feed hole diameter	D2	13.00 ± 0.50	Reel width	W1	16.80 ± 2.00
Sprocket hole position	E	1.50 ± 0.10			

Unit: mm

RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Average Ramp-up Rate T_L to T_P		3°C/second max.
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Tempe. Max $T_{s(max)}$	200°C
	Time (min. to max.) (t_s)	60-120 seconds
Ramp-up Rate $T_{s(max)}$ to T_L		3°C/second max.
Reflow	Temp. (T_L)	217°C
	Time (t_L)	60-260 seconds
Peak Temperature (T_P)		255 ^{-0/+5} °C
Time within 5°C of actual peak Temperature (t_p)		10-30 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to peak Temp. (T_P)		6 minutes max.

