THE DATASHEET OF

P4SMA62A

Features

- RoHS compliant* and halogen free**
- Surface Mount SMA package
- Breakdown Voltage: 6.8 to 550 volts
- Peak Pulse Power: 400 watts
- Typical temperature coefficient: $\Delta V_{BR} = 0.1\ \% \times V_{BR} @ 25\ °C \times \Delta T$

Applications

- IEC 61000-4-2 ESD (Min. Level 4)
- IEC 61000-4-4 EFT
- IEC 61000-4-5 Surge

P4SMA Transient Voltage Suppressor Diode Series

General Information

The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package DO-214AC (SMA) size format. The Transient Voltage Suppressor series offers a choice of Breakdown Voltages from 6.8 V up to 550 V. Typical fast response times are less than 1.0 picosecond for unidirectional devices and less than 5.0 picoseconds for bidirectional devices.

Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.

Additional Information

Click these links for more information:

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Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

Parameter		Symbol	Value	Unit
Peak Pulse Power Dissipation (T_P = 1 ms) (Note 1,2)		P_{PK}	400	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)		I_{FSM}	40	Amps
Instantaneous Forward Voltage @ 25 A (For Unidirectional Units Only)	P4SMA6.8A ~ P4SMA200A P4SMA220A ~ P4SMA550A	V_F	3.5 5.0	Volts
Operating Temperature Range		T_J	-55 to +150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C

1. Non-repetitive current pulse, per Pulse Waveform graph and derated above T_A = 25 °C per Pulse Derating Curve.
2. Mounted on 5.0 mm x 5.0 mm copper pad to each terminal.
3. 8.3 ms Single Half-Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).

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How to Order

P4SMA 6.8 CA - H

Series
P4SMA = SMA/DO-214AC

Breakdown Voltage
6.8 to 550 = 6.8 to 550 V_{BD} (Volts)

Suffix
A = 5 % Tolerance Unidirectional Device
CA = 5 % Tolerance Bidirectional Device

Reel
(blank) = 13-inch reel
-H = 7-inch reel

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Unidirectional Device		Bidirectional Device		Breakdown Voltage V_{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Clamping Voltage @ I_{pp} (10/1000 μs)	Maximum Peak Pulse Current (10/1000 μs)	Maximum Clamping Voltage @ I_{pp} (8/20 μs)	Maximum Peak Pulse Current (8/20 μs)
Part No.	Marking	Part No.	Marking	Min.	Max.	@ I_T (mA)	V_{RWM} (V)	I_R (μA)	V_C (V)	I_{pp} (A)	V_C (V)	I_{pp} (A)
P4SMA6.8A	6V8A	P4SMA6.8CA	6V8C	6.45	7.14	10	5.8	1000	10.5	39	14	195
P4SMA7.5A	7V5A	P4SMA7.5CA	7V5C	7.13	7.88	10	6.4	500	11.3	36.3	14.7	181.5
P4SMA8.2A	8V2A	P4SMA8.2CA	8V2C	7.79	8.61	10	7.02	200	12.1	33.9	15.7	169.5
P4SMA9.1A	9V1A	P4SMA9.1CA	9V1C	8.65	9.55	1	7.78	50	13.4	30.6	17.4	153.0
P4SMA10A	10A	P4SMA10CA	10C	9.5	10.5	1	8.55	10	14.5	28.3	18.9	141.5
P4SMA11A	11A	P4SMA11CA	11C	10.5	11.6	1	9.4	5	15.6	26.3	20.3	131.5
P4SMA12A	12A	P4SMA12CA	12C	11.4	12.6	1	10.2	5	16.7	24.6	21.7	123.0
P4SMA13A	13A	P4SMA13CA	13C	12.4	13.7	1	11.1	1	18.2	22.5	23.7	112.5
P4SMA15A	15A	P4SMA15CA	15C	14.3	15.8	1	12.8	1	21.2	19.3	27.6	96.5
P4SMA16A	16A	P4SMA16CA	16C	15.2	16.8	1	13.6	1	22.5	18.2	29.3	91.0
P4SMA18A	18A	P4SMA18CA	18C	17.1	18.9	1	15.3	1	25.5	16.1	33.2	80.5
P4SMA20A	20A	P4SMA20CA	20C	19	21	1	17.1	1	27.7	14.8	36.0	74.0
P4SMA22A	22A	P4SMA22CA	22C	20.9	23.1	1	18.8	1	30.6	13.4	39.8	67.0
P4SMA24A	24A	P4SMA24CA	24C	22.8	25.2	1	20.5	1	33.2	12.3	43.2	61.5
P4SMA27A	27A	P4SMA27CA	27C	25.7	28.4	1	23.1	1	37.5	10.9	48.8	54.5
P4SMA30A	30A	P4SMA30CA	30C	28.5	31.5	1	25.6	1	41.4	9.9	53.8	49.5
P4SMA33A	33A	P4SMA33CA	33C	31.4	34.7	1	28.2	1	45.7	9	59	45
P4SMA36A	36A	P4SMA36CA	36C	34.2	37.8	1	30.8	1	49.9	8.2	64.9	41.0
P4SMA39A	39A	P4SMA39CA	39C	37.1	41	1	33.3	1	53.9	7.6	70.1	38.0
P4SMA43A	43A	P4SMA43CA	43C	40.9	45.2	1	36.8	1	59.3	6.9	77.1	34.5
P4SMA47A	47A	P4SMA47CA	47C	44.7	49.4	1	40.2	1	64.8	6.3	84.2	31.5
P4SMA51A	51A	P4SMA51CA	51C	48.5	53.6	1	43.6	1	70.1	5.8	91.1	29.0
P4SMA56A	56A	P4SMA56CA	56C	53.2	58.8	1	47.8	1	77	5.3	100.1	26.5
P4SMA62A	62A	P4SMA62CA	62C	58.9	65.1	1	53	1	85	4.8	110.5	24.0
P4SMA68A	68A	P4SMA68CA	68C	64.6	71.4	1	58.1	1	92	4.5	119.6	22.5
P4SMA75A	75A	P4SMA75CA	75C	71.3	78.8	1	64.1	1	103	4	134	20
P4SMA82A	82A	P4SMA82CA	82C	77.9	86.1	1	70.1	1	113	3.6	146.9	18.0
P4SMA91A	91A	P4SMA91CA	91C	86.5	95.5	1	77.8	1	125	3.3	162.5	16.5
P4SMA100A	100A	P4SMA100CA	100C	95	105	1	85.5	1	137	3	178	15
P4SMA110A	110A	P4SMA110CA	110C	105	116	1	94	1	152	2.7	197.6	13.5
P4SMA120A	120A	P4SMA120CA	120C	114	126	1	102	1	165	2.5	214.5	12.5
P4SMA130A	130A	P4SMA130CA	130C	124	137	1	111	1	179	2.3	232.7	11.5
P4SMA150A	150A	P4SMA150CA	150C	143	158	1	128	1	207	2	269	10
P4SMA160A	160A	P4SMA160CA	160C	152	168	1	136	1	219	1.9	284.7	9.5
P4SMA170A	170A	P4SMA170CA	170C	162	179	1	145	1	234	1.8	304.2	9.0
P4SMA180A	180A	P4SMA180CA	180C	171	189	1	154	1	246	1.7	319.8	8.5
P4SMA200A	200A	P4SMA200CA	200C	190	210	1	171	1	274	1.5	356.2	7.5
P4SMA220A	220A	P4SMA220CA	220C	209	231	1	185	1	328	1.3	426.4	6.5
P4SMA250A	250A	P4SMA250CA	250C	237	263	1	214	1	344	1.2	447.2	6.0
P4SMA300A	300A	P4SMA300CA	300C	285	315	1	256	1	414	1	538	5
P4SMA350A	350A	P4SMA350CA	350C	332	368	1	300	1	482	0.9	626.6	4.3
P4SMA400A	400A	P4SMA400CA	400C	380	420	1	342	1	548	0.8	712.4	3.8
P4SMA440A	440A	P4SMA440CA	440C	418	462	1	376	1	602	0.7	782.6	3.4
P4SMA480A	480A	P4SMA480CA	480C	456	504	1	408	1	658	0.6	855.4	3.1
P4SMA510A	510A	P4SMA510CA	510C	485	535	1	434	1	698	0.6	907.4	2.9
P4SMA530A	530A	P4SMA530CA	530C	503.5	556.5	1	477	1	725	0.6	942.5	2.8
P4SMA540A	540A	P4SMA540CA	540C	513	567	1	486	1	740	0.5	962.0	2.7
P4SMA550A	550A	P4SMA550CA	550C	522.5	577.5	1	495	1	760	0.5	988.0	2.6

Notes: 1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.
3. For bidirectional devices with a V_R of 10 volts or less, the I_R limit is double.

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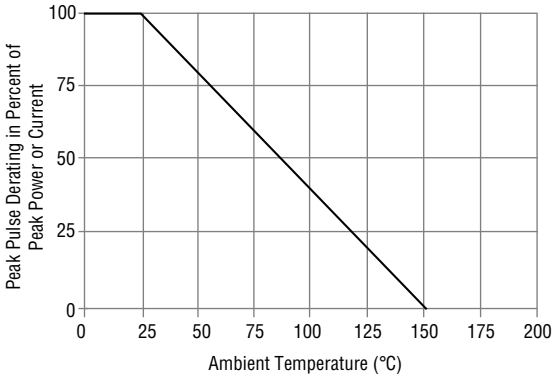
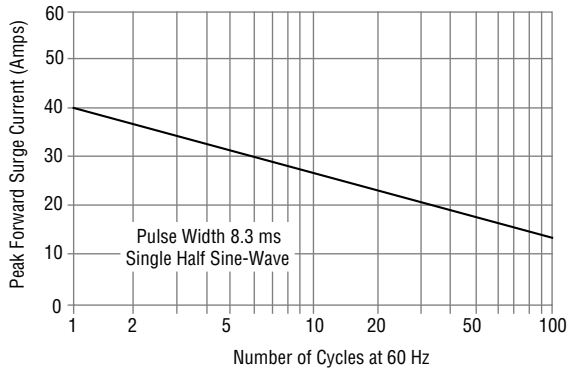
Rating & Characteristic Curves

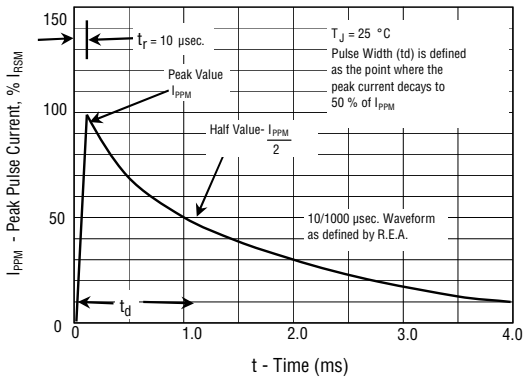
Pulse Derating Curve



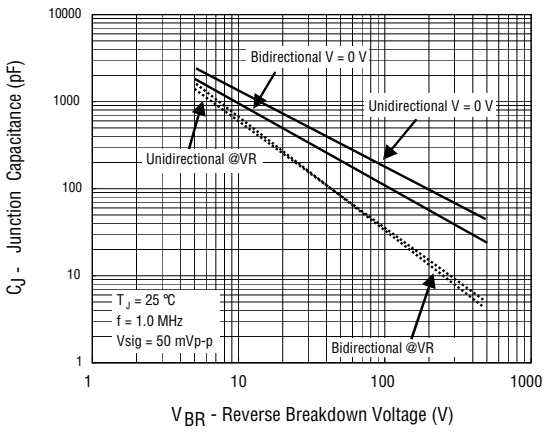
Maximum Non-Repetitive Surge Current



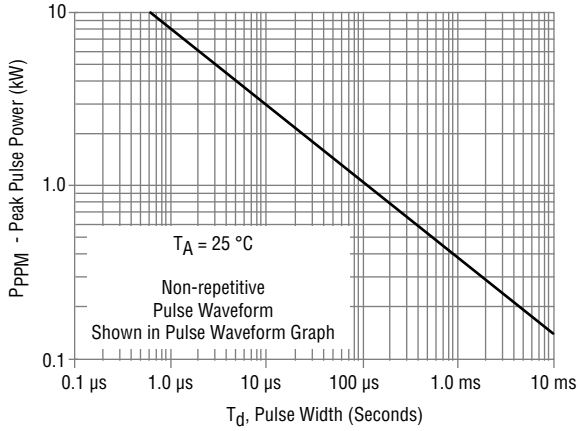
Pulse Waveform



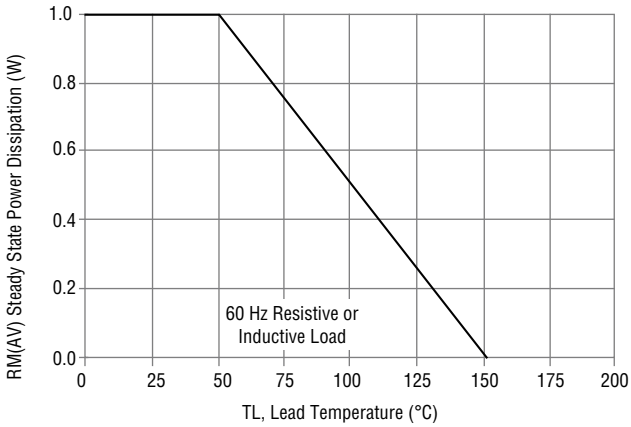
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve



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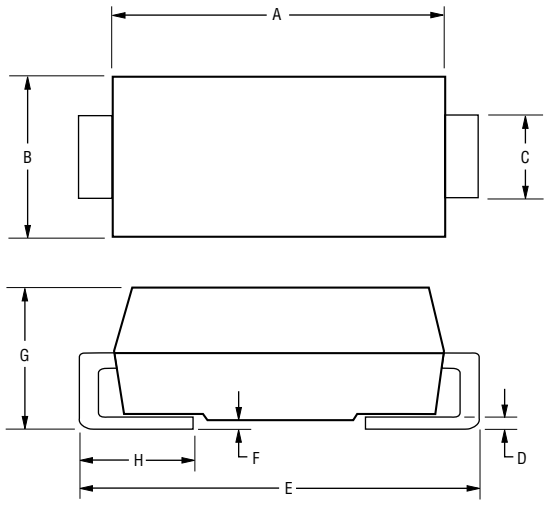
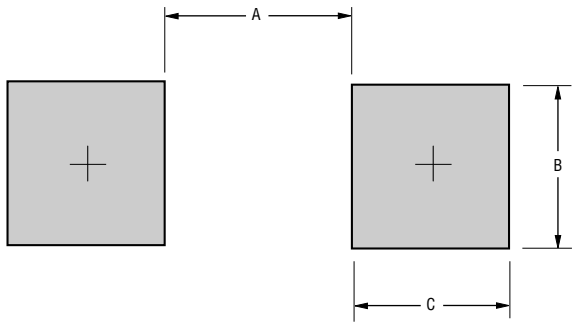
Product Dimensions



Dimension	SMA (DO-214AC)
A	3.99 - 4.50 (0.157 - 0.177)
B	2.54 - 2.79 (0.100 - 0.110)
C	1.25 - 1.65 (0.049 - 0.065)
D	0.15 - 0.31 (0.006 - 0.112)
E	4.93 - 5.28 (0.194 - 0.208)
F	0.203 (0.008) MAX.
G	1.98 - 2.29 (0.078 - 0.090)
H	0.76 - 1.52 (0.030 - 0.060)

DIMENSIONS: MM (INCHES)

Recommended Footprint



Dimension	SMA (DO-214AC)
a (Max.)	2.70 (0.106)
b (Min.)	2.10 (0.083)
c (Min.)	1.27 (0.050)

DIMENSIONS: MM (INCHES)

Physical Specifications

Case ..... Molded plastic per UL Class 94V-0
Polarity..... Cathode band indicates unidirectional device
No cathode band indicates bidirectional device

Environmental Specifications

Moisture Sensitivity Level 1
ESD Classification (HBM)..... 3B

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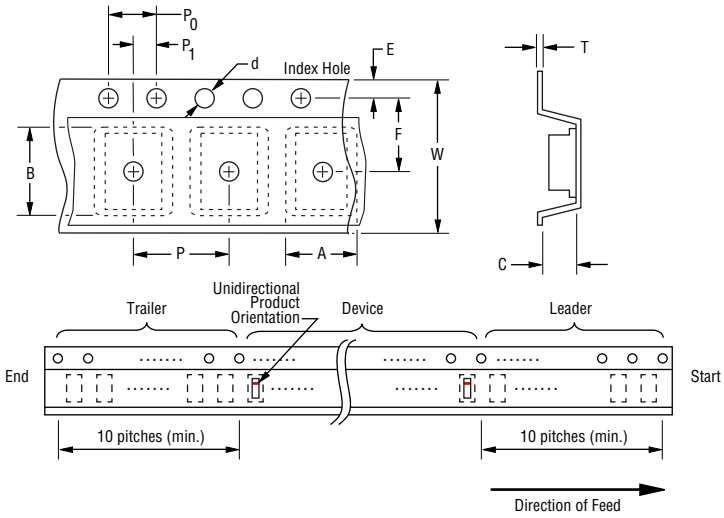
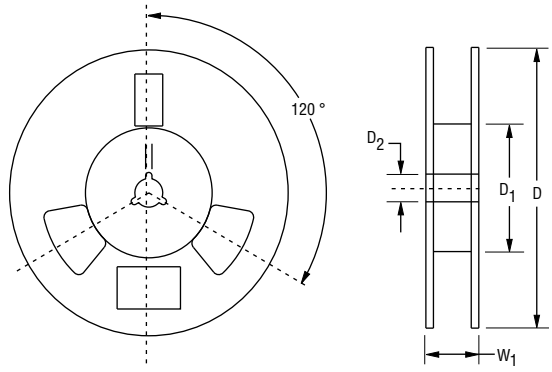
Packaging Information

The product will be dispensed in tape and reel format (see diagram below).





DIMENSIONS: MM / (INCHES)

Devices are packed in accordance with EIA 481 standard specifications shown here.

Item	Symbol	SMA (DO-214AC)	
		7 Inch Reel	13 Inch Reel
Carrier Width	A	2.90 ± 0.20 (0.114 ± 0.008)	
Carrier Length	B	5.50 ± 0.20 (0.217 ± 0.008)	
Carrier Depth	C	2.26 ± 0.20 (0.089 ± 0.008)	
Sprocket Hole	d	1.50 ± 0.10 (0.061 ± 0.004)	
Reel Outside Diameter	D	178 (7.008)	330 (12.992)
Reel Inner Diameter	D_1	50.0 (1.969) MIN.	
Feed Hole Diameter	D_2	13.0 ± 0.20 (0.512 ± 0.008)	
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)	
Punch Hole Position	F	5.50 ± 0.05 (0.217 ± 0.002)	
Punch Hole Pitch	P	4.00 ± 0.10 (0.157 ± 0.004)	
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)	
Embossment Center	P_1	2.00 ± 0.05 (0.079 ± 0.002)	
Overall Tape Thickness	T	0.30 ± 0.10 (0.012 ± 0.004)	
Tape Width	W	12.00 ± 0.30 (0.472 ± 0.012)	
Reel Width	W_1	18.4 (0.724) MAX.	
Quantity per Reel	--	1000	5,000

REV. 03/20

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- Shortage Management
- Alternative Solution
- Excess Inventory Management