

Features

- Lead free
- RoHS compliant*
- Surface Mount SMC package
- Standoff Voltage: 5.0 to 170 volts
- Power Dissipation: 1500 watts

CD214C 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-214AB (SMC) size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage from 5 V up to 170 V and Breakdown Voltage up to 200 V. Typical fast response times are less than 1.0 ns for unidirectional devices and less than 5.0 ns for bidirectional devices from 0 V to Minimum Breakdown Voltage.

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

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

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation (T_P = 1 ms) (Note 1,2)	P_{PK}	1500	Watts
Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	200	Amps
Steady State Power Dissipation @ T_L = 75 °C	$P_{M(AV)}$	5.0	Watts
Maximum Instantaneous Forward Voltage @ I_{PP} = 100 A (For Unidirectional Units Only)	V_F	(Note 5)	Volts
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

1. Non-repetitive current pulse, per Pulse Waveform graph and derated above TA = 25 °C per Pulse Derating Curve.
2. Thermal Resistance Junction to Lead.
3. 8.3 ms Single Half-Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).
4. Single Phase, Half Wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20 %.
5. V_F = 3.5 V on CD214C-T5.0A through CD214C-T90A and V_F = 5.0 V on CD214C-T100A through CD214C-T170A.

How To Order

CD 214C - T 5.0 CA LF

Common Code
Chip Diode

Package
214A = SMA/DO-214AC
214B = SMB/DO-214AA
214C = SMC/DO-214AB

Model
T = Transient Voltage Suppressor Series

Working Peak Reverse Voltage
5.0 = 5.0 V_{RWM} (Volts)
170 = 170 V_{RWM} (Volts)

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

Terminations
LF = 100 % Sn (lead free)

BOURNS®
Reliable Electronic Solutions

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*RoHS Directive 2002/95/EC Jan 27 2003 including Annex
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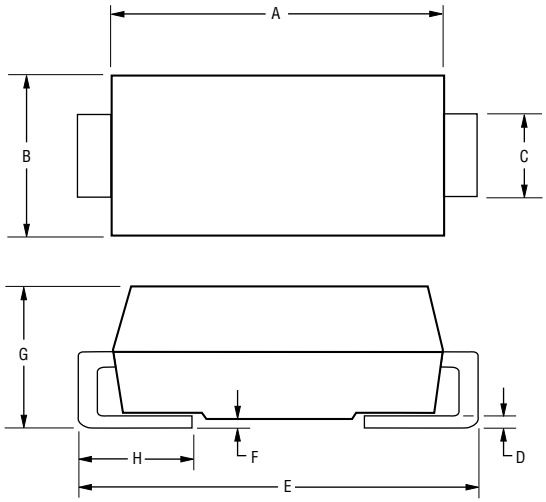
Electrical Characteristics (@T_A = 25 °C unless otherwise noted)

Unidirectional Device		Bidirectional Device		Breakdown Voltage V_{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Voltage @IRSM	Maximum Reverse Surge Current
Part Number	Part Marking	Part Number	Part Marking	Min.	Max.	@ I_T (mA)	V_{RWM} (Volts)	I_R (uA)	V_{RSM} (Volts)	I_{RSM} (Amps)
CD214C-T5.0A	GDE	CD214C-T5.0CA	BDE	6.4	7.23	10	5	1000	9.2	163
CD214C-T6.0A	GDG	CD214C-T6.0CA	BDG	6.67	7.67	10	6	1000	10.3	145.6
CD214C-T6.5A	GDK	CD214C-T6.5CA	BDK	7.22	8.3	10	6.5	500	11.2	133.9
CD214C-T7.0A	GDM	CD214C-T7.0CA	BDM	7.78	8.95	10	7	200	12	125
CD214C-T7.5A	GDP	CD214C-T7.5CA	BDP	8.33	9.58	1	7.5	100	12.9	116.3
CD214C-T8.0A	GDR	CD214C-T8.0CA	BDR	8.89	10.2	1	8	50	13.6	110.3
CD214C-T8.5A	GDT	CD214C-T8.5CA	BDT	9.44	10.8	1	8.5	20	14.4	104.2
CD214C-T9.0A	GDV	CD214C-T9.0CA	BDV	10	11.5	1	9	10	15.4	97.4
CD214C-T10A	GDX	CD214C-T10CA	BDX	11.1	12.8	1	10	5	17	88.2
CD214C-T11A	GDZ	CD214C-T11CA	BDZ	12.2	14.4	1	11	5	18.2	82.4
CD214C-T12A	GEE	CD214C-T12CA	BEE	13.3	15.3	1	12	5	19.9	75.3
CD214C-T13A	GEG	CD214C-T13CA	BEG	14.4	16.5	1	13	5	21.5	69.7
CD214C-T14A	GEK	CD214C-T14CA	BEK	15.6	17.9	1	14	5	23.2	64.7
CD214C-T15A	GEM	CD214C-T15CA	BEM	16.7	19.2	1	15	5	24.4	61.5
CD214C-T16A	GEP	CD214C-T16CA	BEP	17.8	20.5	1	16	5	26	57.7
CD214C-T17A	GER	CD214C-T17CA	BER	18.9	21.7	1	17	5	27.6	53.3
CD214C-T18A	GET	CD214C-T18CA	BET	20	23.3	1	18	5	29.2	51.4
CD214C-T20A	GEV	CD214C-T20CA	BEV	22.2	25.5	1	20	5	32.4	46.3
CD214C-T22A	GEX	CD214C-T22CA	BEX	24.4	28	1	22	5	35.5	42.2
CD214C-T24A	GEZ	CD214C-T24CA	BEZ	26.7	30.7	1	24	5	38.9	38.6
CD214C-T26A	GFE	CD214C-T26CA	BFE	28.9	32.2	1	26	5	42.1	35.6
CD214C-T28A	GFG	CD214C-T28CA	BFG	31.1	35.8	1	28	5	45.4	33
CD214C-T30A	GFK	CD214C-T30CA	BFK	33.3	38.3	1	30	5	48.4	31
CD214C-T33A	GFM	CD214C-T33CA	BFM	36.7	42.2	1	33	5	53.3	28.1
CD214C-T36A	GFP	CD214C-T36CA	BFP	40	46	1	36	5	58.1	25.8
CD214C-T40A	GFR	CD214C-T40CA	BFR	44.4	51.1	1	40	5	64.5	23.3
CD214C-T43A	GFT	CD214C-T43CA	BFT	47.8	54.9	1	43	5	69.4	21.6
CD214C-T45A	GFV	CD214C-T45CA	BFV	50	57.5	1	45	5	72.7	20.6
CD214C-T48A	GFX	CD214C-T48CA	BFX	53.3	61.3	1	48	5	77.4	19.4
CD214C-T51A	GFZ	CD214C-T51CA	BFZ	56.7	65.2	1	51	5	82.4	18.2
CD214C-T54A	GGE	CD214C-T54CA	BGE	60	69	1	54	5	87.1	17.2
CD214C-T58A	GGG	CD214C-T58CA	BGG	64.4	74.6	1	58	5	93.6	16
CD214C-T60A	GGK	CD214C-T60CA	BGK	66.7	76.7	1	60	5	96.8	15.5
CD214C-T64A	GGM	CD214C-T64CA	BGM	71.1	81.8	1	64	5	103	14.6
CD214C-T70A	GGP	CD214C-T70CA	BGP	77.8	89.5	1	70	5	113	13.3
CD214C-T75A	GGR	CD214C-T75CA	BGR	83.3	95.8	1	75	5	121	12.4
CD214C-T78A	GGT	CD214C-T78CA	BGT	86.7	99.7	1	78	5	126	11.4
CD214C-T85A	GGV	CD214C-T85CA	BGV	94.4	108.2	1	85	5	137	10.4
CD214C-T90A	GGX	CD214C-T90CA	BGX	100	115.5	1	90	5	146	10.3
CD214C-T100A	GGZ	CD214C-T100CA	BGZ	111	128	1	100	5	162	9.3
CD214C-T110A	GHE	CD214C-T110CA	BHE	122	140	1	110	5	177	8.4
CD214C-T120A	GHG	CD214C-T120CA	BHG	133	153	1	120	5	193	7.9
CD214C-T130A	GHK	CD214C-T130CA	BHK	144	165	1	130	5	209	7.2
CD214C-T150A	GHM	CD214C-T150CA	BHM	167	192	1	150	5	243	6.2
CD214C-T160A	GHP	CD214C-T160CA	BHP	178	205	1	160	5	259	5.8
CD214C-T170A	GHR	CD214C-T170CA	BHR	189	217.5	1	170	5	275	5.5

Notes:
1. Suffix 'A' denotes a 5 % tolerance 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.
4. For unidirectional devices with a V_F max. of 3.5 V at an I_F of 35 A, 0.5 Sine Wave of 8.3 ms Pulse Width.

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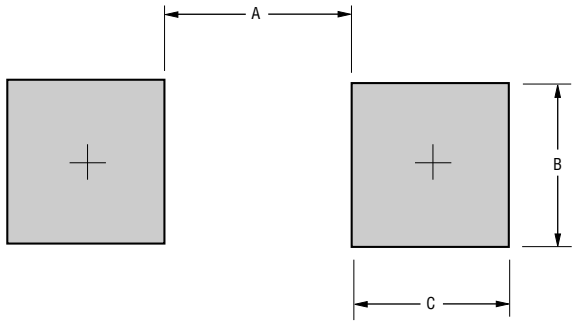
Product Dimensions



Dimension	SMC (DO-214AB)
A	6.60 - 7.11 (0.260 - 0.280)
B	5.59 - 6.22 (0.220 - 0.245)
C	2.92 - 3.18 (0.115 - 0.125)
D	0.15 - 0.31 (0.006 - 0.112)
E	7.75 - 8.13 (0.305 - 0.320)
F	0.05 - 0.20 (0.002 - 0.008)
G	2.01 - 2.62 (0.080 - 0.103)
H	0.76 - 1.52 (0.030 - 0.060)

DIMENSIONS: MM (INCHES)

Recommended Pad Layout



Dimension	SMC (DO-214AB)
A (Max.)	4.69 (0.185)
B (Min.)	3.07 (0.121)
C (Min.)	1.52 (0.060)

DIMENSIONS: MM (INCHES)

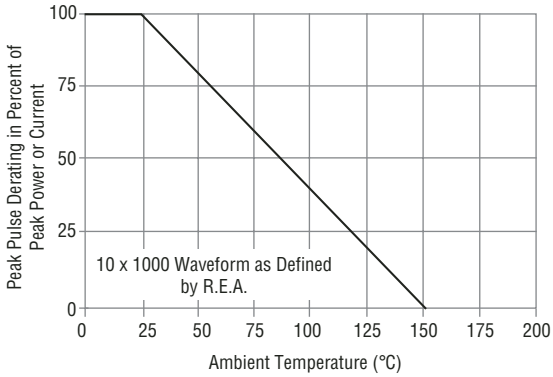
Physical Specifications

Case .....Molded plastic per UL Class 94V-0
Polarity .....Cathode band indicates unidirectional device
No cathode band indicates bidirectional device
Weight .....0.007 ounces / 0.21 grams

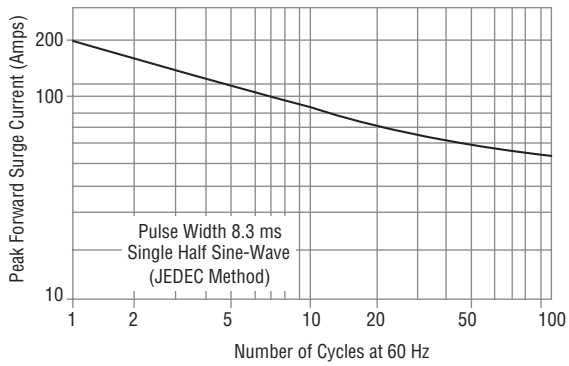
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Rating and Characteristic Curves

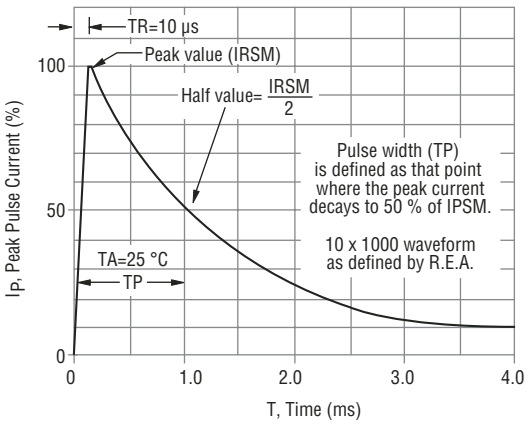
Pulse Derating Curve



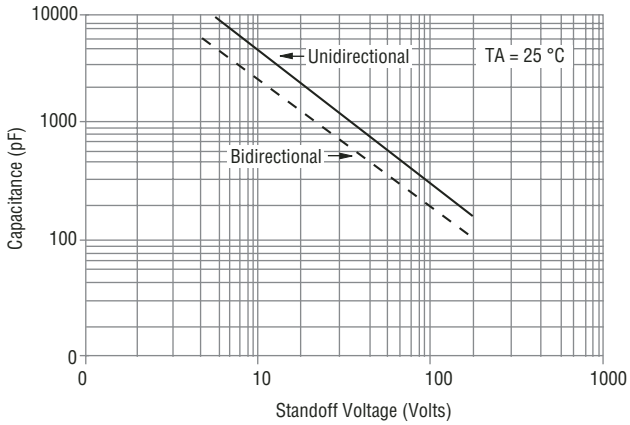
Maximum Non-Repetitive Surge Current



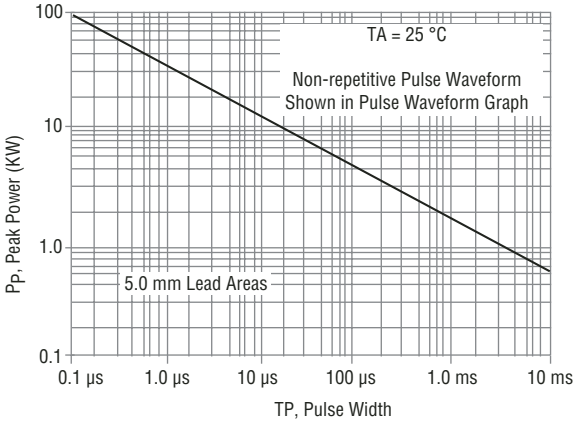
Pulse Waveform



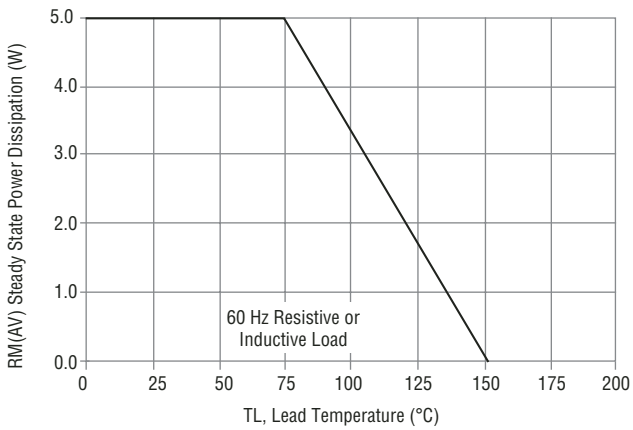
Typical Junction Capacitance



Pulse Rating Curve



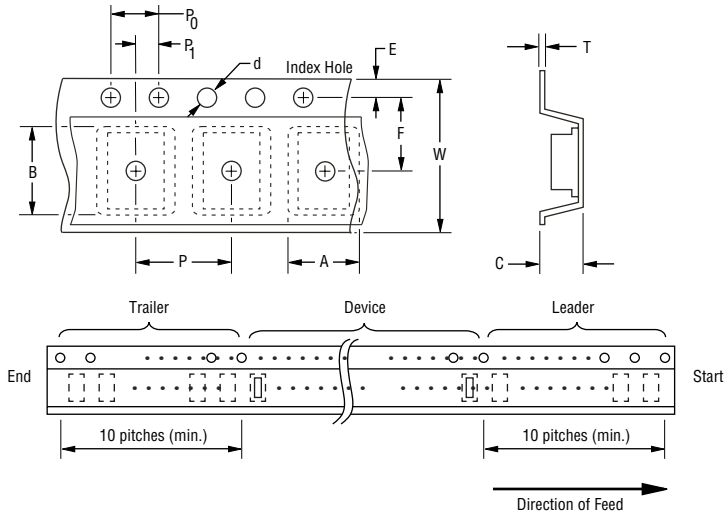
Steady State Power Derating Curve

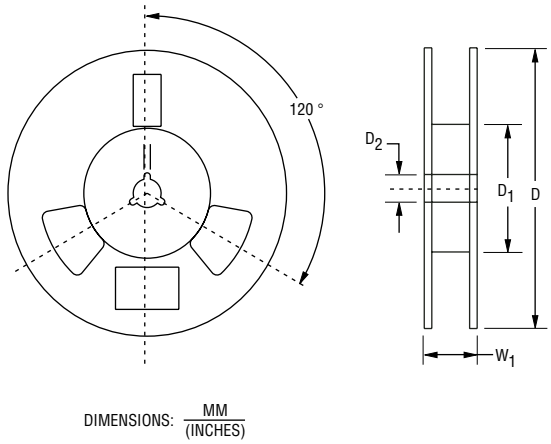


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Packaging Information

The product will be dispensed in Tape and Reel format (see diagram below).





DIMENSIONS: MM (INCHES)

Devices are packed in accordance with EIA standard RS-481-A and specifications shown here.

Item	Symbol	SMC (DO-214AB)
Carrier Width	A	7.22 ± 0.10 (0.284 - 0.004)
Carrier Length	B	8.11 ± 0.10 (0.319 - 0.004)
Carrier Depth	C	2.36 ± 0.10 (0.093 - 0.004)
Sprocket Hole	d	1.55 ± 0.05 (0.061 - 0.002)
Reel Outside Diameter	D	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	7.50 ± 0.10 (0.295 - 0.004)
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 ± 0.10 (0.079 - 0.004)
Overall Tape Thickness	T	0.30 ± 0.10 (0.012 - 0.004)
Tape Width	W	16.00 ± 0.20 (0.630 - 0.008)
Reel Width	W_1	22.4 (0.882) MAX.
Quantity per Reel	--	3,000

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