

## Features

- 3000W peak pulse power capability with a 10/1000 $\mu$ s waveform
- Excellent clamping capability
- Fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020
- High temperature soldering guaranteed at 260°C, 10sec
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4



DO-214AB (SMC)

## Applications

For use in sensitive electronics protection against voltage transients induced by lightning or inductive load switching. Key applications include protection of I/O interfaces, industrial and LED lighting applications, DC power buses, and other vulnerable circuits used in consumer electronics.



## Mechanical Data

**Case:** DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

**Marking:** Cathode band on uni-directional devices only

## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 $\mu$ s Waveform <sup>1</sup> (Figure 3.)	P <sub>PPM</sub>	3000	W
Peak Power Pulse Current with a 10/1000 $\mu$ s Waveform <sup>1</sup> (Figure 1.)	I <sub>PPM</sub>	See Next Table	A
Peak Forward Surge Current 8.3ms Single Half Sine-Wave <sup>2</sup>	I <sub>FSM</sub>	250	A
Power Dissipation on Infinite Heatsink @ T <sub>L</sub> =75 °C (Figure 6.)	P <sub>D</sub>	6.0	W
Maximum Instantaneous Forward Voltage @100A (Uni-Directional Only)	V <sub>F</sub>	3.5	V
Typical Thermal Resistance Junction to Ambient <sup>3</sup>	R <sub>θJA</sub>	100	°C/W
Junction Temperature Range	T <sub>J</sub>	-65 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

Notes:

1. Non-repetitive current pulse, per Figure 3. and derated above T<sub>A</sub>=25 °C per Figure 2.
2. Measured on 8.3ms single half sine-wave, duty cycle=4 pulses per minute maximum. Uni-directional only.
3. Mounted on recommended pad layout, 2 oz, FR4 PCB

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Max Reverse Leakage Current <sup>1</sup>	Peak Pulse Current	Max. Clamp Voltage
UNI	BI	UNI	BI	V <sub>WM</sub>	V <sub>BR</sub> @ I <sub>T</sub>		I <sub>T</sub>	I <sub>D</sub> @ V <sub>WM</sub>	I <sub>PPM</sub>	V <sub>C</sub> @ I <sub>PPM</sub>
					Min	Max				
				V	V	V	mA	µA	A	V
3.0SMCJ5.0A	3.0SMCJ5.0CA	HDE	IDE	5	6.40	7.00	10	500	326.1	9.2
3.0SMCJ6.0A	3.0SMCJ6.0CA	HDG	IDG	6	6.67	7.37	10	200	291.1	10.3
3.0SMCJ6.5A	3.0SMCJ6.5CA	HDK	IDK	6.5	7.22	7.98	10	200	267.9	11.2
3.0SMCJ7.0A	3.0SMCJ7.0CA	HDM	IDM	7	7.78	8.60	10	200	250.0	12.0
3.0SMCJ7.5A	3.0SMCJ7.5CA	HDP	IDP	7.5	8.33	9.21	1	100	232.6	12.9
3.0SMCJ8.0A	3.0SMCJ8.0CA	HDR	IDR	8	8.89	9.83	1	50	220.6	13.6
3.0SMCJ8.5A	3.0SMCJ8.5CA	HDT	IDT	8.5	9.44	10.40	1	25	208.4	14.4
3.0SMCJ9.0A	3.0SMCJ9.0CA	HDV	IDV	9	10.0	11.1	1	10	194.8	15.4
3.0SMCJ10A	3.0SMCJ10CA	HDX	IDX	10	11.1	12.3	1	5	176.4	17.0
3.0SMCJ11A	3.0SMCJ11CA	HDZ	IDZ	11	12.2	13.5	1	5	165.0	18.2
3.0SMCJ12A	3.0SMCJ12CA	HEE	IEE	12	13.3	14.7	1	5	150.6	20.0
3.0SMCJ13A	3.0SMCJ13CA	HEG	IEG	13	14.4	15.9	1	5	139.4	21.6
3.0SMCJ14A	3.0SMCJ14CA	HEK	IEK	14	15.6	17.2	1	5	129.4	23.2
3.0SMCJ15A	3.0SMCJ15CA	HEM	IEM	15	16.7	18.5	1	5	123.0	24.4
3.0SMCJ16A	3.0SMCJ16CA	HEP	IEP	16	17.8	19.7	1	5	115.4	26.0
3.0SMCJ17A	3.0SMCJ17CA	HER	IER	17	18.9	20.9	1	5	106.6	28.2
3.0SMCJ18A	3.0SMCJ18CA	HET	IET	18	20.0	22.1	1	5	102.8	29.2
3.0SMCJ20A	3.0SMCJ20CA	HEV	IEV	20	22.2	24.5	1	5	92.6	32.4
3.0SMCJ22A	3.0SMCJ22CA	HEX	IEX	22	24.4	26.9	1	5	84.4	35.7
3.0SMCJ24A	3.0SMCJ24CA	HEZ	IEZ	24	26.7	29.5	1	5	77.2	38.9
3.0SMCJ26A	3.0SMCJ26CA	HFE	IFE	26	28.9	31.9	1	5	71.2	42.3
3.0SMCJ28A	3.0SMCJ28CA	HFG	IFG	28	31.1	34.4	1	5	66.0	45.6
3.0SMCJ30A	3.0SMCJ30CA	HFK	IFK	30	33.3	36.8	1	5	62.0	48.4
3.0SMCJ33A	3.0SMCJ33CA	HFM	IFM	33	36.7	40.6	1	5	56.2	53.7
3.0SMCJ36A	3.0SMCJ36CA	HFP	IFP	36	40.0	44.2	1	5	51.6	58.2

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Max Reverse Leakage Current <sup>1</sup>	Peak Pulse Current	Max. Clamp Voltage
UNI	BI	UNI	BI	V <sub>WM</sub>	V <sub>BR</sub> @ I <sub>T</sub>		I <sub>T</sub>	I <sub>D</sub> @ V <sub>WM</sub>	I <sub>PPM</sub>	V <sub>C</sub> @ I <sub>PPM</sub>
					Min	Max				
				V	V	V	mA	µA	A	V
3.0SMCJ40A	3.0SMCJ40CA	HFR	IFR	40	44.4	49.1	1	5	46.4	64.7
3.0SMCJ43A	3.0SMCJ43CA	HFT	IFT	43	47.8	52.8	1	5	43.2	69.5
3.0SMCJ45A	3.0SMCJ45CA	HFV	IFV	45	50.0	55.3	1	5	41.2	72.9
3.0SMCJ48A	3.0SMCJ48CA	HFX	IFX	48	53.3	58.9	1	5	38.8	77.4
3.0SMCJ51A	3.0SMCJ51CA	HFZ	IFZ	51	56.7	62.7	1	5	36.4	82.5
3.0SMCJ54A	3.0SMCJ54CA	HGE	IGE	54	60.0	66.3	1	5	34.4	87.5
3.0SMCJ58A	3.0SMCJ58CA	HGG	IGG	58	64.4	71.2	1	5	32.1	93.6
3.0SMCJ60A	3.0SMCJ60CA	HGK	IGK	60	66.7	73.7	1	5	31.0	97.0
3.0SMCJ64A	3.0SMCJ64CA	HGM	IGM	64	71.1	78.6	1	5	29.2	103.0
3.0SMCJ70A	3.0SMCJ70CA	HGP	IGP	70	77.8	86.0	1	5	26.8	112.1
3.0SMCJ75A	3.0SMCJ75CA	HGR	IGR	75	83.3	92.1	1	5	24.8	121.0
3.0SMCJ78A	3.0SMCJ78CA	HGT	IGT	78	86.7	95.8	1	5	22.8	132.0
3.0SMCJ85A	3.0SMCJ85CA	HGV	IGV	85	94.4	104.0	1	5	20.8	145.0
3.0SMCJ90A	3.0SMCJ90CA	HGX	IGX	90	100.0	111.0	1	5	20.6	146.0
3.0SMCJ100A	3.0SMCJ100CA	HGZ	IGZ	100	111.0	123.0	1	5	18.6	162.0
3.0SMCJ110A	3.0SMCJ110CA	HHE	IHE	110	122.0	135.0	1	5	16.8	179.0
3.0SMCJ120A	3.0SMCJ120CA	HHG	IHG	120	133.0	147.0	1	5	15.6	193.0
3.0SMCJ130A	3.0SMCJ130CA	HHK	IHK	130	144.0	159.0	1	5	14.4	209.0
3.0SMCJ150A	3.0SMCJ150CA	HHM	IHM	150	167.0	185.0	1	5	12.4	243.0
3.0SMCJ160A	3.0SMCJ160CA	HHP	IHP	160	178.0	197.0	1	5	11.6	259.0
3.0SMCJ170A	3.0SMCJ170CA	HHR	IHR	170	189.0	209.0	1	5	11.0	275.0

Note:

1. For bi-directional types having V<sub>WM</sub> of 10 Volts and less, the I<sub>R</sub> limit is doubled.

## Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

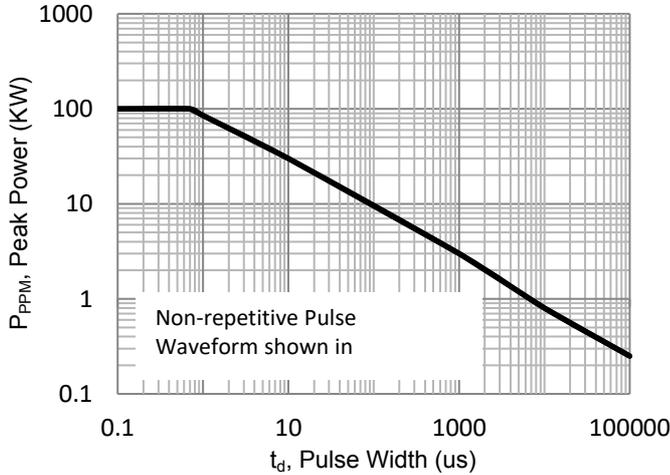


Figure 1. Peak Pulse Power Vs. Pulse Width

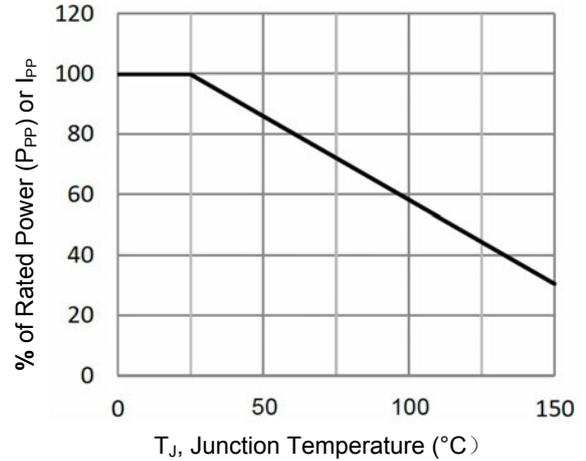


Figure 2. Pulse Power or Current Vs. Initial Junction Temperature

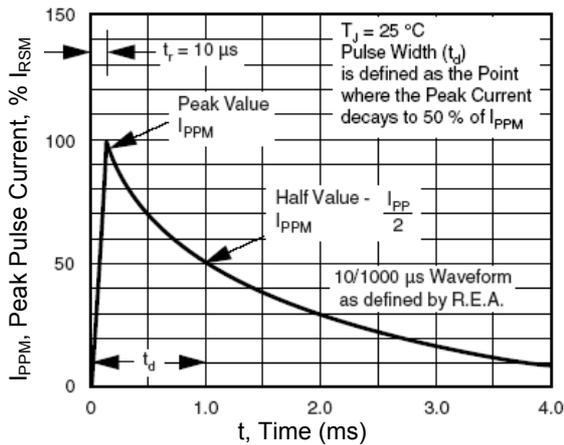


Figure 3. Pulse Waveform

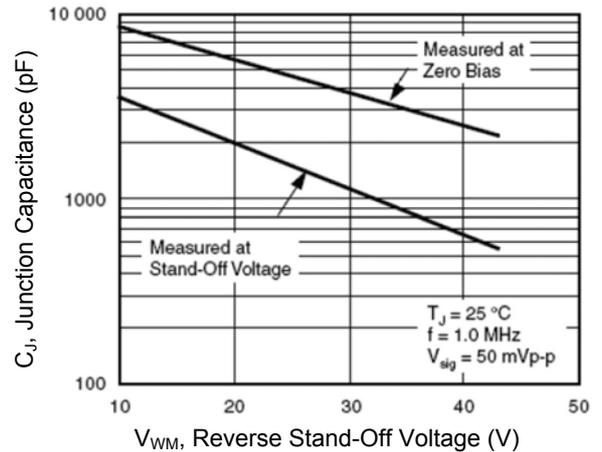


Figure 4. Typical Capacitance vs. Stand-Off Voltage

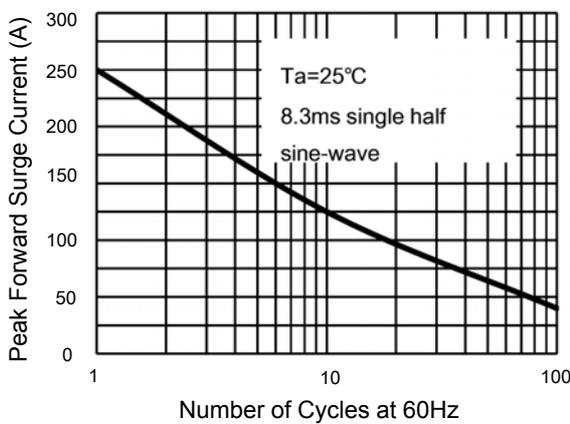


Figure 5. Maximum Non-Repetitive Peak Forward Surge Current Uni-directional

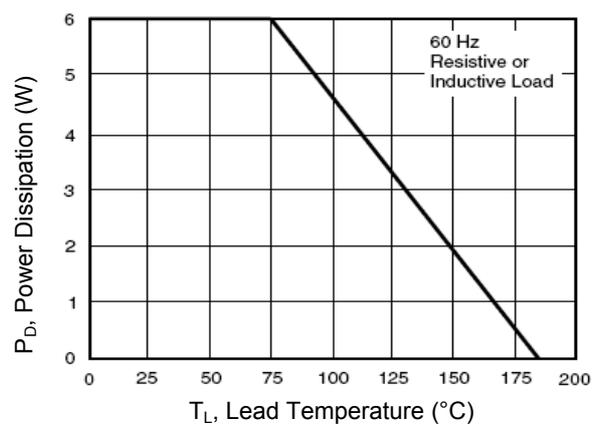
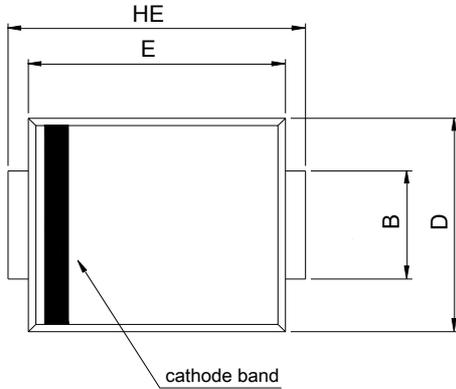


Figure 6. Steady State Power Derating Curve

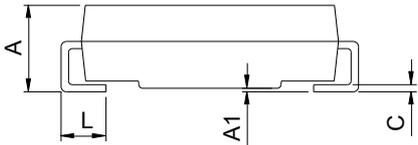
# 3.0SMCJx Series

Transient Voltage Suppressors  
 Peak Pulse Power 3000W Stand-off Voltage 5V to 170V

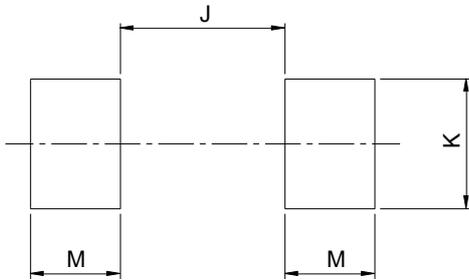
## Package Outline Dimensions DO-214AB (SMC)



SMC (DO-214AB)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.00	0.20	0.000	0.008
B	2.90	3.20	0.114	0.126
C	0.15	0.31	0.006	0.012
D	5.58	6.22	0.220	0.245
E	6.60	7.15	0.260	0.281
HE	7.75	8.15	0.305	0.321
L	0.76	1.60	0.030	0.063



## Recommended Pad Layout



SMC Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	4.60	-	0.181
K	3.20	-	0.126	-
M	2.00	-	0.079	-