

# Silicon Avalanche Diodes

## 1500W Surface Mount Transient Voltage Suppressors

### **NEW** **RoHS** 1.5SMC Series

#### FEATURES

- RoHS compliant
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low Inductance
- Excellent clamping capability
- Repetition Rate (duty cycle):0.05%
- Fast response time: typically less than 1.0ps from 0 Volts to BV min.
- Typical IR less than 1µA above 10V
- High temperature soldering: 250°C/10 seconds at terminals

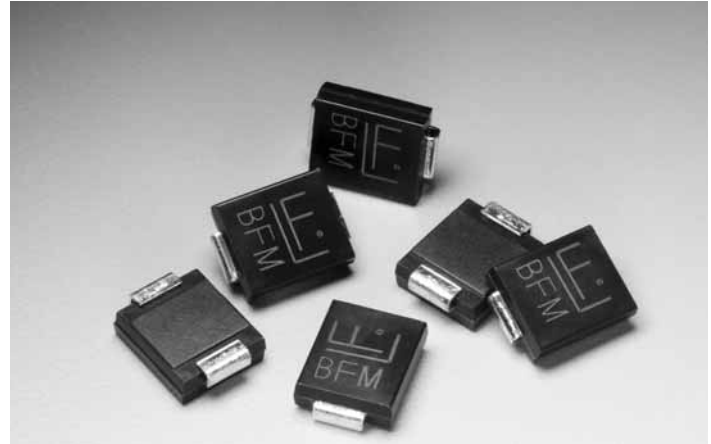
#### DEVICES FOR BIPOLAR APPLICATION

For Bidirectional use Suffix CA for types 1.5SMC6.8CA thru types 1.5SMC550CA

Electrical characteristics apply in both directions

**Agency Approvals:** Recognized under the Components Program of Underwriters Laboratories.

**Agency File Number:** E128667



#### MAXIMUM RATINGS AND CHARACTERISTICS

@25°C AMBIENT TEMPERATURE (unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power Dissipation on 10/1000µs waveform (Note 1.2, FIG.1)	P <sub>PPM</sub>	Min 1500	Watts
Peak pulse current of on 10/1000µs waveform (Note 1, FIG.3)	I <sub>PPM</sub>	See Table 1	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method)(Note3)	I <sub>FSM</sub>	200	Amps
Operating junction and Storage Temperature Range	T <sub>j</sub> , T <sub>sTG</sub>	-55 to +150	°C

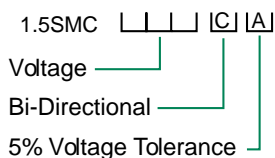
Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>= 25°C per Fig.2
2. Mounted on 8.0mm<sup>2</sup> Copper Pads to each terminal
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum

#### Mechanical Specifications:

- Weight:** 0.007 ounce, 0.21 gram
- Case:** JEDEC DO214AB. Molded plastic over glass passivated junction
- Mounting Position:** Any
- Polarity:** Color band denoted positive end (cathode) except Bidirectional
- Terminal:** Solder plated, solderable per MIL-STD-750, Method 2026
- Standard Packaging:** 16mm tape (EIA STD RS-481)

#### ORDERING INFORMATION



T = Tape and reeled (3000 pcs)

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## 1500W Surface Mount Transient Voltage Suppressors

### RoHS 1.5SMC Series

#### ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Reverse Stand off Voltage Vr (Volts)	Breakdown Voltage VBR (Volts) @ Ir		Test Current Ir (mA)	Maximum Clamping Voltage Vc @ Ipp (Volts)	Maximum Peak Pulse Current Ipp (A)	Maximum Reverse Leakage Ir @ Vr (µA)
		UNI	BI		MIN	MAX				
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	5.80	6.45	7.14	10	10.5	144.8	1000
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	134.5	500
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	125.6	200
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	7.78	8.65	9.50	1	13.4	113.4	50
1.5SMC10A	1.5SMC10CA	10A	10C	8.55	9.50	10.50	1	14.5	104.8	10
1.5SMC11A	1.5SMC11CA	11A	11C	9.40	10.50	11.60	1	15.6	97.4	5
1.5SMC12A	1.5SMC12CA	12A	12C	10.20	11.40	12.60	1	16.7	91.0	5
1.5SMC13A	1.5SMC13CA	13A	13C	11.10	12.40	13.70	1	18.2	83.5	5
1.5SMC15A	1.5SMC15CA	15A	15C	12.80	14.30	15.80	1	21.2	71.7	5
1.5SMC16A	1.5SMC16CA	16A	16C	13.60	15.20	16.80	1	22.5	67.6	5
1.5SMC18A	1.5SMC18CA	18A	18C	15.30	17.10	18.90	1	25.2	60.3	5
1.5SMC20A	1.5SMC20CA	20A	20C	17.10	19.00	21.00	1	27.7	54.9	5
1.5SMC22A	1.5SMC22CA	22A	22C	18.80	20.90	23.10	1	30.6	49.7	5
1.5SMC24A	1.5SMC24CA	24A	24C	20.50	22.80	25.20	1	33.2	45.8	5
1.5SMC27A	1.5SMC27CA	27A	27C	23.10	25.70	28.40	1	37.5	40.5	5
1.5SMC30A	1.5SMC30CA	30A	30C	25.60	28.50	31.50	1	41.4	36.7	5
1.5SMC33A	1.5SMC33CA	33A	33C	28.20	31.40	34.70	1	45.7	33.3	5
1.5SMC36A	1.5SMC36CA	36A	36C	30.80	34.20	37.80	1	49.9	30.5	5
1.5SMC39A	1.5SMC39CA	39A	39C	33.30	37.10	41.00	1	53.9	28.2	5
1.5SMC43A	1.5SMC43CA	43A	43C	36.80	40.90	45.20	1	59.3	25.6	5
1.5SMC47A	1.5SMC47CA	47A	47C	40.20	44.70	49.40	1	64.8	23.5	5
1.5SMC51A	1.5SMC51CA	51A	51C	43.60	48.50	53.60	1	70.1	21.7	5
1.5SMC56A	1.5SMC56CA	56A	56C	47.80	53.20	58.80	1	77.0	19.7	5
1.5SMC62A	1.5SMC62CA	62A	62C	53.00	58.90	65.10	1	85.0	17.9	5
1.5SMC68A	1.5SMC68CA	68A	68C	58.10	64.60	71.40	1	92.0	16.5	5
1.5SMC75A	1.5SMC75CA	75A	75C	64.10	71.30	78.80	1	103.0	14.8	5
1.5SMC82A	1.5SMC82CA	82A	82C	70.10	77.90	86.10	1	113.0	13.5	5
1.5SMC91A	1.5SMC91CA	91A	91C	77.80	86.50	95.50	1	125.0	12.2	5
1.5SMC100A	1.5SMC100CA	68A	100C	85.50	95.00	105.00	1	137.0	11.1	5
1.5SMC110A	1.5SMC110CA	75A	110C	94.00	105.00	116.00	1	152.0	10.0	5
1.5SMC120A	1.5SMC120CA	120A	120C	102.00	114.00	126.00	1	165.0	9.2	5
1.5SMC130A	1.5SMC130CA	130A	130C	111.00	124.00	137.00	1	179.0	8.5	5
1.5SMC150A	1.5SMC150CA	150A	150C	128.00	143.00	158.00	1	207.0	7.3	5
1.5SMC160A	1.5SMC160CA	160A	160C	136.00	152.00	168.00	1	219.0	6.9	5
1.5SMC170A	1.5SMC170CA	170A	170C	145.00	162.00	179.00	1	234.0	6.5	5
1.5SMC180A	1.5SMC180CA	180A	180C	154.00	171.00	189.00	1	246.0	6.2	5
1.5SMC200A	1.5SMC200CA	200A	200C	171.00	190.00	210.00	1	274.0	5.5	5
1.5SMC220A	1.5SMC220CA	220A	220C	185.00	209.00	231.00	1	328.0	4.6	5
1.5SMC250A	1.5SMC250CA	250A	250C	214.00	237.00	263.00	1	344.0	4.4	5
1.5SMC300A	1.5SMC300CA	300A	300C	256.00	285.00	315.00	1	414.0	3.7	5
1.5SMC350A	1.5SMC350CA	350A	350C	300.00	332.00	368.00	1	482.0	3.2	5
1.5SMC400A	1.5SMC400CA	400A	400C	342.00	380.00	420.00	1	548.0	2.8	5
1.5SMC440A	1.5SMC440CA	440A	440C	376.00	418.00	462.00	1	602.0	2.5	5
1.5SMC480A	1.5SMC480CA	480A	480C	408.00	456.00	504.00	1	658.0	2.3	5
1.5SMC510A	1.5SMC510CA	510A	510C	434.00	485.00	535.00	1	698.0	2.1	5
1.5SMC530A	1.5SMC530CA	530A	530C	477.00	503.50	556.50	1	725.0	2.1	5
1.5SMC540A	1.5SMC540CA	540A	540C	459.00	513.00	567.00	1	740.0	2.0	5
1.5SMC550A	1.5SMC550CA	550A	550C	495.00	522.50	577.50	1	760.0	2.0	5

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.  
The available parts are "A" type only, the parts without A (VBR is ± 10%) is not available.

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SILICON DIODE  
ARRAYS

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### RoHS 1.5SMC Series

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

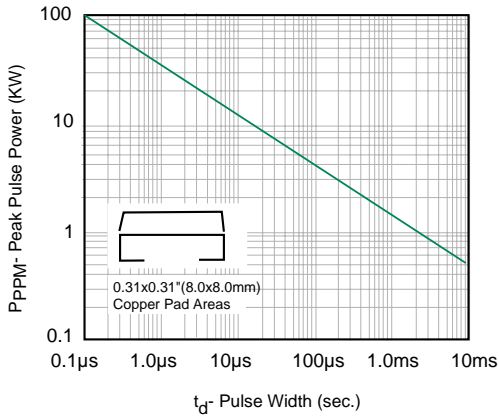


Fig. 1 Peak Pulse Power Rating

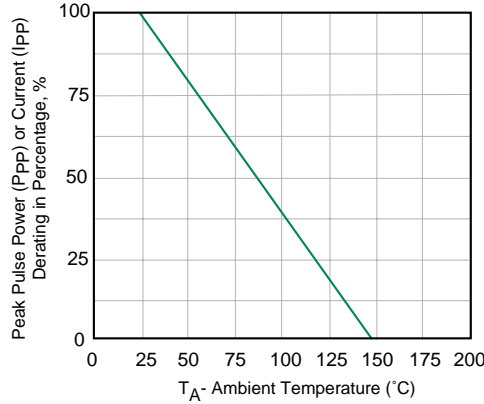


Fig. 2 Pulse Derating Curve

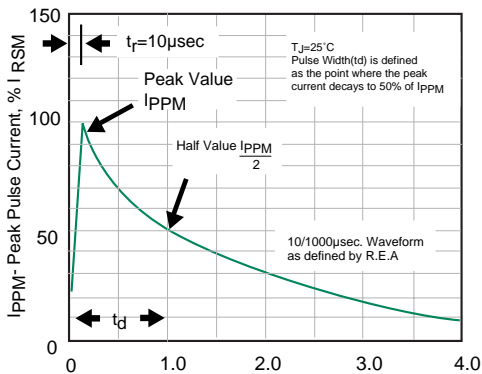


Fig. 3 Pulse Waveform

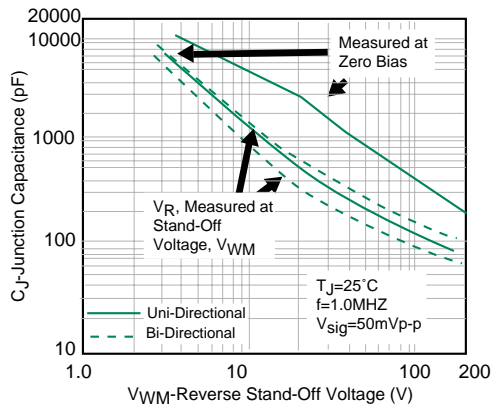


Fig. 4- Typical Junction Capacitance

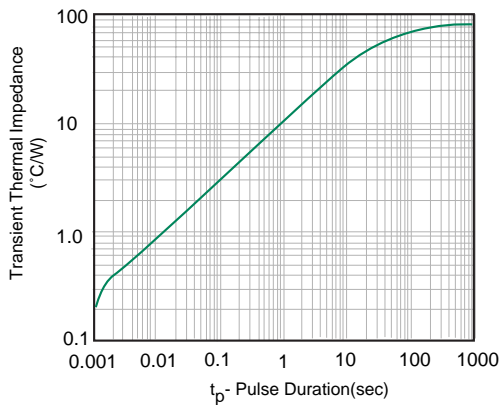


Fig. 5- Typ. Transient Thermal Impedance

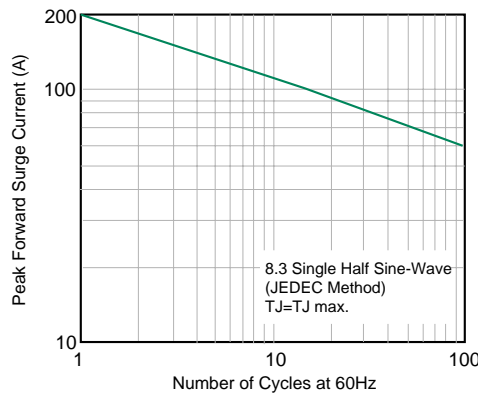


Fig. 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only

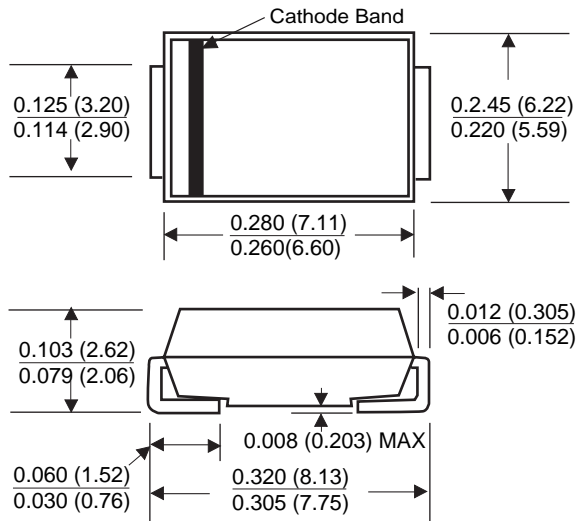
# Silicon Avalanche Diodes

## 1500W Surface Mount Transient Voltage Suppressors

### RoHS 1.5SMC Series

#### Package Outline Dimensions and Pad Layouts

##### DO-214AB (SMC J-Bend)



Dimensions in inches and (millimeters)