

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



Dimensions in inches and (millimeters)

Agency	Agency File Number
	E521119

PRIMARY CHARACTERISTICS	
V <sub>RWM</sub>	5.8V to 495V
V <sub>BR</sub>	6.45V to 577.5V
P <sub>PPM</sub>	1500W
T <sub>J max</sub>	150°C
Polarity	Uni-directional & Bi-directional
Package	DO-214AB

### FEATURES

- For surface mounted applications in order to optimize board space
- Typical maximum temperature coefficient  $\Delta V_{BR} = 0.1\% \times V_{BR} @ 25^\circ\text{C} \times \Delta T$
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to BV
- Meet MSL1 Level, per J-STD-020, LF maximum peak of 260 °C
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Matte Tin Lead-free plated



### MECHANICAL DATA

**Case:** JEDEC DO-214AB. Molded plastic

**Terminal:** Solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denoted positive end (cathode) except Bidirectional

### DEVICES FOR BIPOLAR APPLICATION

- For Bidirectional use Suffix CA for types 1.5SMC6.8CA thru types 1.5SMC550CA
- Electrical characteristics apply in both directions

### MAXIMUM RATINGS (25°C ambient temperature unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000µs waveform (Note 1, 2)	P <sub>PPM</sub>	1500	Watts
Peak Pulse Current of on 10/1000µs waveform (Note 1)	I <sub>PPM</sub>	See Next Table	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2, 3)	I <sub>FSM</sub>	200	Amps
Operating junction and Storage Temperature Range	T <sub>J</sub> T <sub>STG</sub>	-55 to +150	°C
Typical Thermal Resistance Junction to Lead	R <sub>θJL</sub>	15	°C/W
Typical Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	75	°C/W

#### Note

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

## ELECTRICAL CHARACTERISTICS

PART NUMBER		MARKING CODE		TEST CURRENT IT (mA)	BREAKDOWN VOLTAGE VBR(V) @IT		REVERSE STAND-OFF VOLTAGE V <sub>RWM</sub> (V)	MAXIMUM CLAMPING VOLTAGE @I <sub>pp</sub> V <sub>c</sub> (V)	MAXIMUM PEAK PULSE CURRENT I <sub>pp</sub> (A)	MAXIMUM REVERSE LEAKAGE @ V <sub>RWM</sub> I <sub>r</sub> (µA)
UNI- POLAR	BI-POLAR	UNI	BI		MIN	MAX				
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	10	6.45	7.14	5.8	10.5	144.8	1000.0
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	10	7.13	7.88	6.4	11.3	134.5	500.0
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	10	7.79	8.61	7.0	12.1	125.6	200.0
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	1	8.65	9.50	7.8	13.4	113.4	50.0
1.5SMC10A	1.5SMC10CA	10A	10C	1	9.50	10.50	8.6	14.5	104.8	10.0
1.5SMC11A	1.5SMC11CA	11A	11C	1	10.50	11.60	9.4	15.6	97.4	5.0
1.5SMC12A	1.5SMC12CA	12A	12C	1	11.40	12.60	10.2	16.7	91.0	5.0
1.5SMC13A	1.5SMC13CA	13A	13C	1	12.40	13.70	11.1	18.2	83.5	1.0
1.5SMC15A	1.5SMC15CA	15A	15C	1	14.30	15.80	12.8	21.2	71.7	1.0
1.5SMC16A	1.5SMC16CA	16A	16C	1	15.20	16.80	13.6	22.5	67.6	1.0
1.5SMC18A	1.5SMC18CA	18A	18C	1	17.10	18.90	15.3	25.2	60.3	1.0
1.5SMC20A	1.5SMC20CA	20A	20C	1	19.00	21.00	17.1	27.7	54.9	1.0
1.5SMC22A	1.5SMC22CA	22A	22C	1	20.90	23.10	18.8	30.6	49.7	1.0
1.5SMC24A	1.5SMC24CA	24A	24C	1	22.80	25.20	20.5	33.2	45.8	1.0
1.5SMC27A	1.5SMC27CA	27A	27C	1	25.70	28.40	23.1	37.5	40.5	1.0
1.5SMC30A	1.5SMC30CA	30A	30C	1	28.50	31.50	25.6	41.4	36.7	1.0
1.5SMC33A	1.5SMC33CA	33A	33C	1	31.40	34.70	28.2	45.7	33.3	1.0
1.5SMC36A	1.5SMC36CA	36A	36C	1	34.20	37.80	30.8	49.9	30.5	1.0
1.5SMC39A	1.5SMC39CA	39A	39C	1	37.10	41.00	33.3	53.9	28.2	1.0
1.5SMC43A	1.5SMC43CA	43A	43C	1	40.90	45.20	36.8	59.3	25.6	1.0
1.5SMC47A	1.5SMC47CA	47A	47C	1	44.70	49.40	40.2	64.8	23.5	1.0
1.5SMC51A	1.5SMC51CA	51A	51C	1	48.50	53.60	43.6	70.1	21.7	1.0
1.5SMC56A	1.5SMC56CA	56A	56C	1	53.20	58.80	47.8	77.0	19.7	1.0
1.5SMC62A	1.5SMC62CA	62A	62C	1	58.90	65.10	53.0	85.0	17.9	1.0
1.5SMC68A	1.5SMC68CA	68A	68C	1	64.60	71.40	58.1	92.0	16.5	1.0
1.5SMC75A	1.5SMC75CA	75A	75C	1	71.30	78.80	64.1	103.0	14.8	1.0
1.5SMC82A	1.5SMC82CA	82A	82C	1	77.90	86.10	70.1	113.0	13.5	1.0
1.5SMC91A	1.5SMC91CA	91A	91C	1	86.50	95.50	77.8	125.0	12.2	1.0
1.5SMC100A	1.5SMC100CA	100A	100C	1	95.00	105.00	85.5	137.0	11.1	1.0
1.5SMC110A	1.5SMC110CA	110A	110C	1	105.00	116.00	94.0	152.0	10.0	1.0
1.5SMC120A	1.5SMC120CA	120A	120C	1	114.00	126.00	102.0	165.0	9.2	1.0
1.5SMC130A	1.5SMC130CA	130A	130C	1	124.00	137.00	111.0	179.0	8.5	1.0
1.5SMC150A	1.5SMC150CA	150A	150C	1	143.00	158.00	128.0	207.0	7.3	1.0
1.5SMC160A	1.5SMC160CA	160A	160C	1	152.00	168.00	136.0	219.0	6.9	1.0
1.5SMC170A	1.5SMC170CA	170A	170C	1	162.00	179.00	145.0	234.0	6.5	1.0
1.5SMC180A	1.5SMC180CA	180A	180C	1	171.00	189.00	154.0	246.0	6.2	1.0
1.5SMC200A	1.5SMC200CA	200A	200C	1	190.00	210.00	171.0	274.0	5.5	1.0
1.5SMC220A	1.5SMC220CA	220A	220C	1	209.00	231.00	185.0	328.0	4.6	1.0
1.5SMC250A	1.5SMC250CA	250A	250C	1	237.00	263.00	214.0	344.0	4.4	1.0
1.5SMC300A	1.5SMC300CA	300A	300C	1	285.00	315.00	256.0	414.0	3.7	1.0
1.5SMC350A	1.5SMC350CA	350A	350C	1	332.00	368.00	300.0	482.0	3.2	1.0
1.5SMC400A	1.5SMC400CA	400A	400C	1	380.00	420.00	342.0	548.0	2.8	1.0
1.5SMC440A	1.5SMC440CA	440A	440C	1	418.00	462.00	376.0	602.0	2.5	1.0
1.5SMC480A	1.5SMC480CA	480A	480C	1	456.00	504.00	408.0	658.0	2.3	1.0
1.5SMC510A	1.5SMC510CA	510A	510C	1	485.00	535.00	434.0	698.0	2.1	1.0
1.5SMC530A	1.5SMC530CA	530A	530C	1	503.50	556.50	477.0	725.0	2.1	1.0
1.5SMC540A	1.5SMC540CA	540A	540C	1	513.00	567.00	486.0	740.0	2.0	1.0
1.5SMC550A	1.5SMC550CA	550A	550C	1	522.50	577.50	495.0	760.0	2.0	1.0

For bidirectional type having V<sub>rwm</sub> of 10 volts and less, the IR limit is double

## RATINGS AND CHARACTERISTICS 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

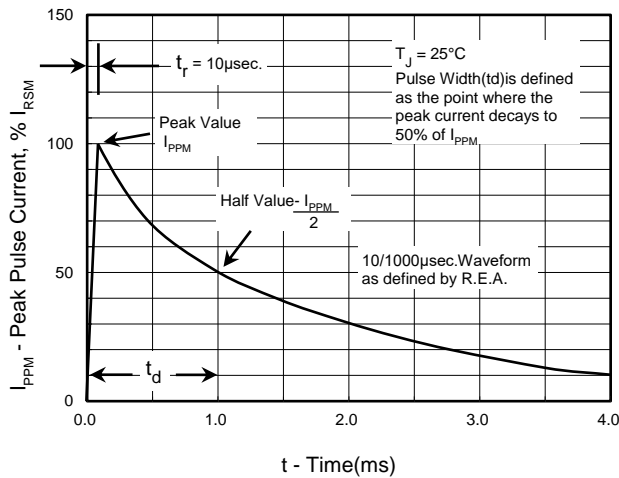


Fig. 4 - Typical Junction Capacitance



Fig. 5 - Steady State Power Derating Curve



Fig.6 - Maximum Non-repetitive Forward Surge current uni-directional only



## Ordering Information

Part Number	Quantity	Packing Option	Component Package	Packing Specification
1.5SMCxxxA	3000	Tape & Reel - 16mm/13" tape	DO-214AB	EIA STD RS-481



AOS Green Products use reduced levels of Halogens, and are also RoHS compliant. Please visit [www.aosmd.com/media/AOSGreenPolicy.pdf](http://www.aosmd.com/media/AOSGreenPolicy.pdf) for additional information.

Note: Green Product means Pb-free, RoHS and Halogens free compliant.

Part Number	Part Marking
<p><b>1.5SMC XXX C A</b></p> <p>Series V<sub>BR</sub> VOLTAGE BI-DIRECTIONAL Narrow V<sub>BR</sub> VOLTAGE TOLERANCE</p>	<p>Cathode Band Logo Marking Code Date Code</p>

## LEGAL DISCLAIMER

APPLICATIONS OR USES AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS ARE NOT AUTHORIZED. AOS DOES NOT ASSUME ANY LIABILITY ARISING OUT OF SUCH APPLICATIONS OR USES OF ITS PRODUCTS. AOS RESERVES THE RIGHT TO MAKE CHANGES TO PRODUCT SPECIFICATIONS WITHOUT NOTICE. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO EVALUATE SUITABILITY OF THE PRODUCT FOR THEIR INTENDED APPLICATION. CUSTOMER SHALL COMPLY WITH APPLICABLE LEGAL REQUIREMENTS, INCLUDING ALL APPLICABLE EXPORT CONTROL RULES, REGULATIONS AND LIMITATIONS.

AOS' products are provided subject to AOS' terms and conditions of sale which are set forth at:

[http://www.aosmd.com/terms\\_and\\_conditions\\_of\\_sale](http://www.aosmd.com/terms_and_conditions_of_sale)

## LIFE SUPPORT POLICY

ALPHA AND OMEGA SEMICONDUCTOR PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.