

### DO-214AC (SMA J-Bend)



Dimensions in inches and(millimeters)

Agency	Agency File Number
	E521119

PRIMARY CHARACTERISTICS	
VRWM	5.0V to 440V
VBR	6.4V to 543V
PPPM	≥400W
TJ max	150°C
Polarity	Uni-directional & Bi-directional
Package	DO-214AC

### FEATURES

- For surface mounted applications in order to optimize board space
- Typical maximum temperature coefficient  $\Delta VBR=0.1\% \times VBR @ 25^{\circ}C \times \Delta T$
- 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-214AC. 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 C or CA Suffix for types SMAJ5.0 thru types SMAJ440 (e.g. SMAJ5.0A , SMAJ440CA)
- Electrical characteristics apply in both direction

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

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000µs waveform (Note 1, 2)	PPPM	≥400	Watts
Peak Pulse Current of on 10/1000µs waveform (Note 1)	IPPM	See Next Table	Amps
Peak Forward Surge Current,8.3ms Single Half Sine-Wave(Note 2, 3)	IFSM	40	Amps
Operating junction and Storage Temperature Range	TJ TSTG	-55 to +150	°C
Typical Thermal Resistance Junction to Lead	R <sub>θJL</sub>	30	°C/W
Typical Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	120	°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.

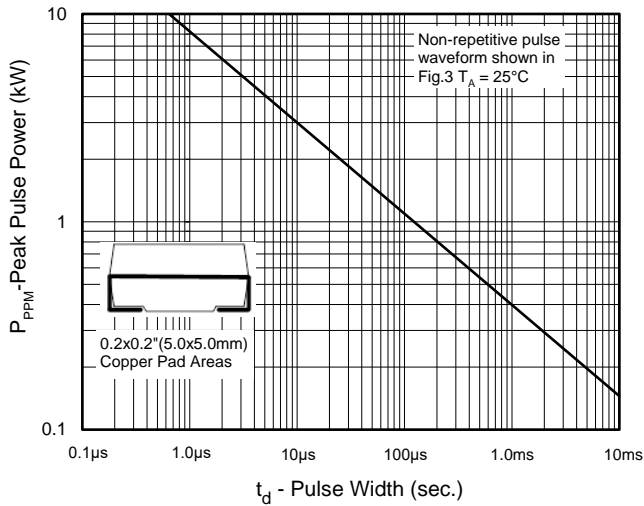
## ELECTRICAL CHARACTERISTICS

PART NUMBER		MARKING CODE		TEST CURRENT I <sub>T</sub> (mA)	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) @I <sub>T</sub>		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				
SMAJ5.0A	SMAJ5.0CA	AE	WE	10	6.40	7.00	5.0	9.2	43.5	800.0
SMAJ6.0A	SMAJ6.0CA	AG	WG	10	6.67	7.37	6.0	10.3	38.8	800.0
SMAJ6.5A	SMAJ6.5CA	AK	WK	10	7.22	7.98	6.5	11.2	35.7	500.0
SMAJ7.0A	SMAJ7.0CA	AM	WM	10	7.78	8.60	7.0	12.0	33.3	200.0
SMAJ7.5A	SMAJ7.5CA	AP	WP	1	8.33	9.21	7.5	12.9	31.0	100.0
SMAJ8.0A	SMAJ8.0CA	AR	WR	1	8.89	9.83	8.0	13.6	29.4	50.0
SMAJ8.5A	SMAJ8.5CA	AT	WT	1	9.44	10.40	8.5	14.4	27.8	20.0
SMAJ9.0A	SMAJ9.0CA	AV	VV	1	10.00	11.10	9.0	15.4	26.0	10.0
SMAJ10A	SMAJ10CA	AX	WX	1	11.10	12.30	10.0	17.0	23.5	5.0
SMAJ11A	SMAJ11CA	AZ	WZ	1	12.20	13.50	11.0	18.2	22.0	1.0
SMAJ12A	SMAJ12CA	BE	XE	1	13.30	14.70	12.0	19.9	20.1	1.0
SMAJ13A	SMAJ13CA	BG	XG	1	14.40	15.90	13.0	21.5	18.6	1.0
SMAJ14A	SMAJ14CA	BK	XK	1	15.60	17.20	14.0	23.2	17.2	1.0
SMAJ15A	SMAJ15CA	BM	XM	1	16.70	18.50	15.0	24.4	16.4	1.0
SMAJ16A	SMAJ16CA	BP	XP	1	17.80	19.70	16.0	26.0	15.4	1.0
SMAJ17A	SMAJ17CA	BR	XR	1	18.90	20.90	17.0	27.6	14.5	1.0
SMAJ18A	SMAJ18CA	BT	XT	1	20.00	22.10	18.0	29.2	13.7	1.0
SMAJ20A	SMAJ20CA	BV	XV	1	22.20	24.50	20.0	32.4	12.3	1.0
SMAJ22A	SMAJ22CA	BX	XX	1	24.40	26.90	22.0	35.5	11.3	1.0
SMAJ24A	SMAJ24CA	BZ	XZ	1	26.70	29.50	24.0	38.9	10.3	1.0
SMAJ26A	SMAJ26CA	CE	YE	1	28.90	31.90	26.0	42.1	9.5	1.0
SMAJ28A	SMAJ28CA	CG	YG	1	31.10	34.40	28.0	45.4	8.8	1.0
SMAJ30A	SMAJ30CA	CK	YK	1	33.30	36.80	30.0	48.4	8.3	1.0
SMAJ33A	SMAJ33CA	CM	YM	1	36.70	40.60	33.0	53.3	7.5	1.0
SMAJ36A	SMAJ36CA	CP	YP	1	40.00	44.20	36.0	58.1	6.9	1.0
SMAJ40A	SMAJ40CA	CR	YR	1	44.40	49.10	40.0	64.5	6.2	1.0
SMAJ43A	SMAJ43CA	CT	YT	1	47.80	52.80	43.0	69.4	5.8	1.0
SMAJ45A	SMAJ45CA	CV	YV	1	50.00	55.30	45.0	72.7	5.5	1.0
SMAJ48A	SMAJ48CA	CX	YX	1	53.30	58.90	48.0	77.4	5.2	1.0
SMAJ51A	SMAJ51CA	CZ	YZ	1	56.70	62.70	51.0	82.4	4.9	1.0
SMAJ54A	SMAJ54CA	RE	ZE	1	60.00	66.30	54.0	87.1	4.6	1.0
SMAJ58A	SMAJ58CA	RG	ZG	1	64.40	71.20	58.0	93.6	4.3	1.0
SMAJ60A	SMAJ60CA	RK	ZK	1	66.70	73.70	60.0	96.8	4.1	1.0
SMAJ64A	SMAJ64CA	RM	ZM	1	71.10	78.60	64.0	103.0	3.9	1.0
SMAJ70A	SMAJ70CA	RP	ZP	1	77.80	86.00	70.0	113.0	3.5	1.0
SMAJ75A	SMAJ75CA	RR	ZR	1	83.30	92.10	75.0	121.0	3.3	1.0
SMAJ78A	SMAJ78CA	RT	ZT	1	86.70	95.80	78.0	126.0	3.2	1.0
SMAJ85A	SMAJ85CA	RV	ZV	1	94.40	104.00	85.0	137.0	2.9	1.0
SMAJ90A	SMAJ90CA	RX	ZX	1	100.00	111.00	90.0	146.0	2.7	1.0
SMAJ100A	SMAJ100CA	RZ	ZZ	1	111.00	123.00	100.0	162.0	2.5	1.0
SMAJ110A	SMAJ110CA	SE	VE	1	122.00	135.00	110.0	177.0	2.3	1.0
SMAJ120A	SMAJ120CA	SG	VG	1	133.00	147.00	120.0	193.0	2.1	1.0
SMAJ130A	SMAJ130CA	SK	VK	1	144.00	159.00	130.0	209.0	1.9	1.0
SMAJ150A	SMAJ150CA	SM	VM	1	167.00	185.00	150.0	243.0	1.6	1.0
SMAJ160A	SMAJ160CA	SP	VP	1	178.00	197.00	160.0	259.0	1.5	1.0
SMAJ170A	SMAJ170CA	SR	VR	1	189.00	209.00	170.0	275.0	1.5	1.0
SMAJ180A	SMAJ180CA	ST	VT	1	201.00	222.00	180.0	292.0	1.4	1.0
SMAJ200A	SMAJ200CA	SV	VV	1	224.00	247.00	200.0	324.0	1.2	1.0
SMAJ220A	SMAJ220CA	SX	VX	1	246.00	272.00	220.0	356.0	1.1	1.0
SMAJ250A	SMAJ250CA	SZ	VZ	1	279.00	309.00	250.0	405.0	1	1.0
SMAJ300A	SMAJ300CA	TE	UE	1	335.00	371.00	300.0	486.0	0.8	1.0
SMAJ350A	SMAJ350CA	TG	UG	1	391.00	432.00	350.0	567.0	0.7	1.0
SMAJ400A	SMAJ400CA	TK	UK	1	447.00	494.00	400.0	648.0	0.6	1.0
SMAJ440A	SMAJ440CA	TM	UM	1	492.00	543.00	440.0	713.0	0.6	1.0

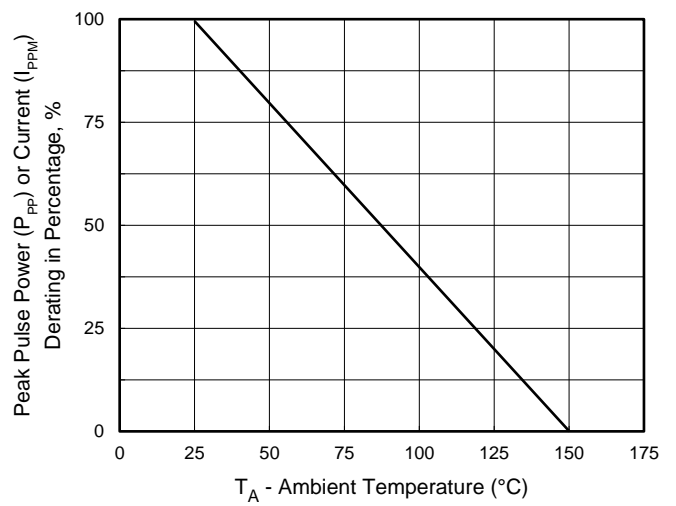
For bidirectional type having V<sub>rwm</sub> of 10 volts and less, the I<sub>R</sub> limit is double

RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

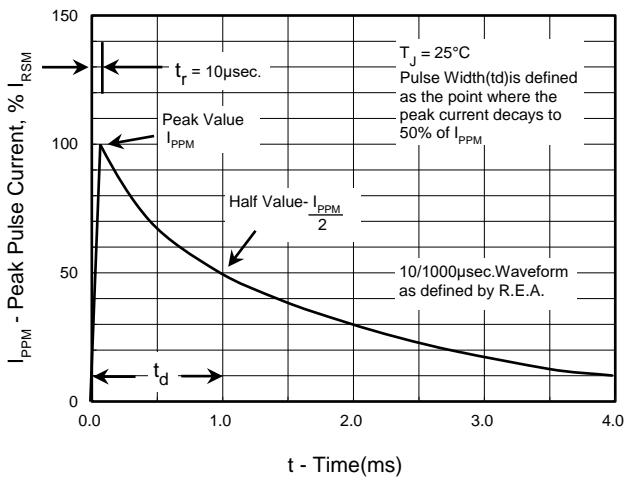
Peak Pulse Power Rating



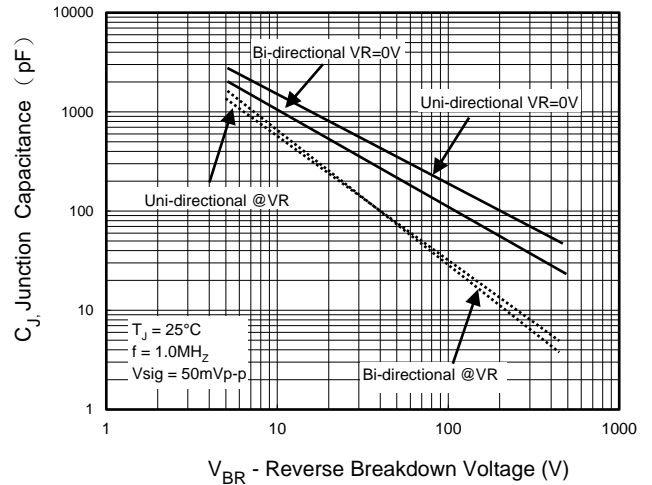
Pulse Derating Curve



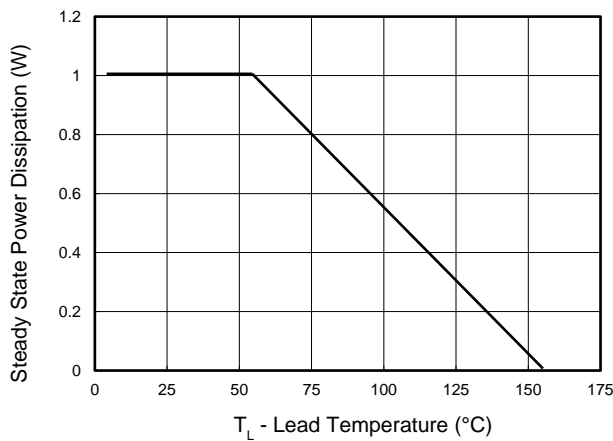
Pulse Waveform



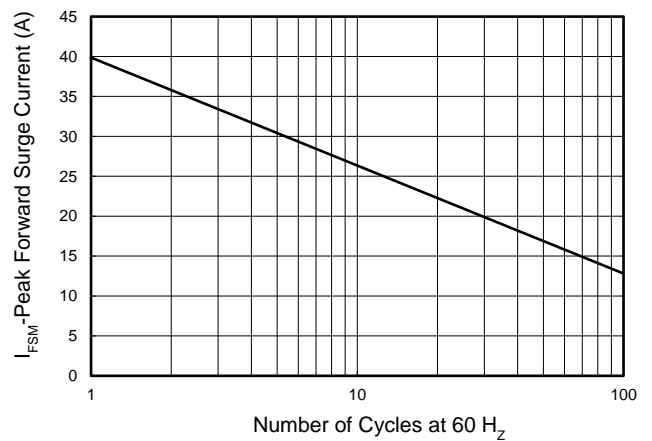
Typical Junction Capacitance



Steady State Power Derating Curve



Maximum Non-repetitive Forward Surge current Uni-directional only



## Ordering Information

Part Number	Quantity	Packing Option	Component Package	Packing Specification
SMAJxxxA	5000	Tape & Reel - 12mm/13" tape	DO-214AC	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>SMAJ XXX C A</b></p> <ul style="list-style-type: none"> <li>SERIES</li> <li>V<sub>R</sub> VOLTAGE</li> <li>BI-DIRECTIONAL</li> <li>Narrow V<sub>BR</sub> VOLTAGE TOLERANCE</li> </ul>	<p>Cathode Band</p> <p>Logo</p> <p>Marking Code (XXYW)</p> <p>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.