

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



Dimensions in inches and (millimeters)

Agency	Agency File Number
	E521119

PRIMARY CHARACTERISTICS	
V <sub>RWM</sub>	5.0V to 170V
V <sub>BR</sub>	6.4V to 209V
P <sub>PPM</sub>	5000W
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 5.0SMDJ5.0CA thru types 5.0SMDJ85CA
- 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>	5000	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>	300	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 VRWM(V)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc(V)	MAXIMUM PEAK PULSE CURRENT Ipp (A)	MAXIMUM REVERSE LEAKAGE @ VRWM IR(μA)
UNI- POLAR	BI-POLAR	UNI	BI		MIN	MAX				
5.0SMDJ5.0A	5.0SMDJ5.0CA	5RDE	5DDE	10	6.40	7.00	5.0	9.2	543.6	1050.0
5.0SMDJ6.0A	5.0SMDJ6.0CA	5RDG	5DDG	10	6.67	7.37	6.0	10.3	485.5	1050.0
5.0SMDJ6.5A	5.0SMDJ6.5CA	5RDK	5DDK	10	7.22	7.98	6.5	11.2	446.5	750.0
5.0SMDJ7.0A	5.0SMDJ7.0CA	5PDM	5DDM	10	7.78	8.60	7.0	12.0	416.8	300.0
5.0SMDJ7.5A	5.0SMDJ7.5CA	5PDP	5DDP	1	8.33	9.21	7.5	12.9	387.7	150.0
5.0SMDJ8.0A	5.0SMDJ8.0CA	5PDR	5DDR	1	8.89	9.83	8.0	13.6	367.7	70.0
5.0SMDJ8.5A	5.0SMDJ8.5CA	5PDT	5DDT	1	9.44	10.40	8.5	14.4	347.3	30.0
5.0SMDJ9.0A	5.0SMDJ9.0CA	5PDV	5DDV	1	10.00	11.10	9.0	15.4	324.8	12.0
5.0SMDJ10A	5.0SMDJ10CA	5PDX	5DDX	1	11.10	12.30	10.0	17.0	294.2	6.0
5.0SMDJ11A	5.0SMDJ11CA	5PDZ	5DDZ	1	12.20	13.50	11.0	18.2	274.8	2.0
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	1	13.30	14.70	12.0	19.9	252.0	2.0
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	1	14.40	15.90	13.0	21.5	233.0	2.0
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	1	15.60	17.20	14.0	23.2	216.0	2.0
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	1	16.70	18.50	15.0	24.4	205.0	2.0
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	1	17.80	19.70	16.0	26.0	193.0	2.0
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	1	18.90	20.90	17.0	27.6	181.5	2.0
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	1	20.00	22.10	18.0	29.2	172.0	2.0
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	1	22.20	24.50	20.0	32.4	159.0	2.0
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	1	24.40	26.90	22.0	35.5	145.1	2.0
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	1	26.70	29.50	24.0	38.9	132.4	2.0
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	1	28.90	31.90	26.0	42.1	122.3	2.0
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	1	31.10	34.40	28.0	45.4	113.4	2.0
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	1	33.30	36.80	30.0	48.4	106.4	2.0
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	1	36.70	40.60	33.0	53.3	96.6	2.0
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	1	40.00	44.20	36.0	58.1	88.6	2.0
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	1	44.40	49.10	40.0	64.5	79.8	2.0
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	1	47.80	52.80	43.0	69.4	74.2	2.0
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	1	50.00	55.30	45.0	72.7	70.8	2.0
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	1	53.30	58.90	48.0	77.4	66.5	2.0
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	1	56.70	62.70	51.0	82.4	62.5	2.0
5.0SMDJ54A	5.0SMDJ54CA	5RGE	5BGE	1	60.00	66.30	54.0	87.1	59.1	2.0
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	1	64.40	71.20	58.0	93.6	55.0	2.0
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	1	66.70	73.70	60.0	96.8	53.2	2.0
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	1	71.10	78.60	64.0	103.0	50.0	2.0
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	1	77.80	86.00	70.0	113.0	45.6	2.0
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	1	83.30	92.10	75.0	121.0	42.6	2.0
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	1	86.70	95.80	78.0	126.0	40.9	2.0
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	1	94.40	104.00	85.0	137.0	37.6	2.0
5.0SMDJ90A	-	5PGX	-	1	100.00	111.00	90.0	146.0	35.3	2.0
5.0SMDJ100A	-	5PGZ	-	1	111.00	123.00	100.0	162.0	31.8	2.0
5.0SMDJ110A	-	5PHE	-	1	122.00	135.00	110.0	177.0	29.1	2.0
5.0SMDJ120A	-	5PHG	-	1	133.00	147.00	120.0	193.0	26.7	2.0
5.0SMDJ130A	-	5PHK	-	1	144.00	159.00	130.0	209.0	24.6	2.0
5.0SMDJ150A	-	5PHM	-	1	167.00	185.00	150.0	243.0	21.2	2.0
5.0SMDJ160A	-	5PHP	-	1	178.00	197.00	160.0	259.0	19.9	2.0
5.0SMDJ170A	-	5PHR	-	1	189.00	209.00	170.0	275.0	18.7	2.0

For bidirectional type having Vrwm of 10 volts and less, the IR 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
5.0SMDJxxxA	3000	Tape & Reel - 16mm/13" tape	DO-214AB	EIA STD RS-481



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Part Number	Part Marking
<p><b>5.0SMDJ XXX C A</b></p> <p>             Narrow <math>V_{BR}</math> VOLTAGE TOLERANCE              BI-DIRECTIONAL  <math>V_{BR}</math> VOLTAGE              SERIES           </p>	<p>             Cathode Band              Logo              Marking Code              Date Code           </p>

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