

# 5.0SMDJ Series



## Transient Voltage Suppressor

Working Peak Reverse Voltage: 12 to 170 Volts

Power Dissipation: 5000Watts

RoHS Device

Halogen Free



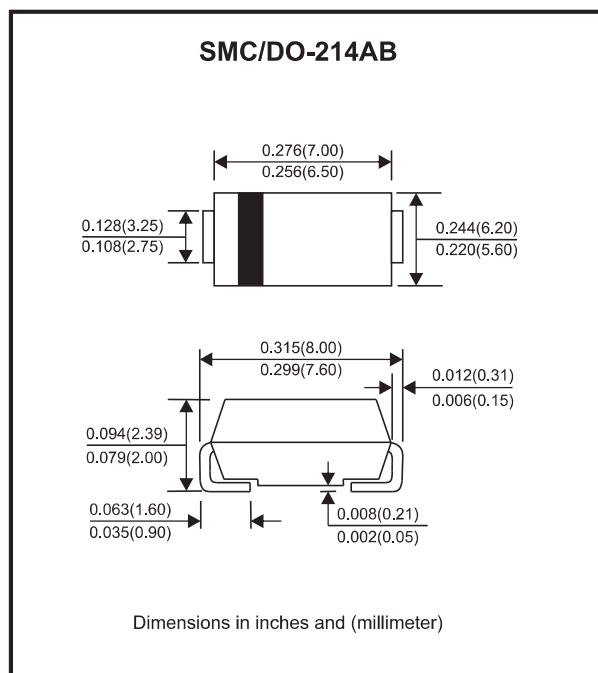
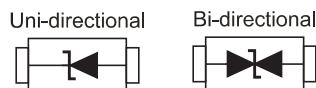
### Features

- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O

### Mechanical Data

- Case: SMC/DO-214AB, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band Except Bi-Directional
- Marking: Device Code
- Weight: 0.21 grams (approx.)

### Circuit Diagram



### Maximum Ratings and Electrical Characteristics (TA = 25°C unless otherwise noted)

Characteristics	Symbol	Value	Units
Peak pulse power dissipation at TA = 25°C by 10 x 1000µs waveform (Fig.1) (Note 1, 2)	P <sub>PPM</sub>	5000	W
Power dissipation on infinite heat sink at TA = 50°C	P <sub>M(AV)</sub>	6.5	W
Peak forward surge current, 8.3ms single half sine wave (Note 3)	I <sub>FSM</sub>	300	A
Maximum instantaneous forward voltage at 100A for unidirectional only	V <sub>F</sub>	5.0	V
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

Notes: 1. Non-repetitive current pulse. per Fig 3 and derated above Ta= 25°C per Fig. 2.

2. Mounted on copper pad area of 0.31 x 0.31" (8.0 x 8.0mm) to each terminal.

3. Mounted on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle = 4 per minute maximum.

## Electrical Characteristics (at TA=25°C, unless otherwise specified)

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RMW</sub>
(Uni)	(Bi)	(Uni)	(Bi)	V <sub>RMW</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12.0	13.30	14.70	10	19.9	252.00	800
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13.0	14.40	15.90	10	21.5	233.00	500
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14.0	15.60	17.20	10	23.2	216.00	200
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15.0	16.70	18.50	1	24.4	205.00	100
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16.0	17.80	20.50	1	26.0	193.00	50
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17.0	18.90	20.90	1	27.6	181.00	20
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18.0	20.00	22.10	1	29.2	172.00	10
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20.0	22.20	24.50	1	32.4	155.00	5
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22.0	24.40	26.90	1	35.5	141.00	5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24.0	26.70	29.50	1	38.9	129.00	5
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26.0	28.90	31.90	1	42.1	119.00	5
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28.0	31.10	34.40	1	45.4	110.00	5
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30.0	33.30	36.80	1	48.4	103.00	5
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33.0	36.70	40.60	1	53.3	93.90	5
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36.0	40.00	44.20	1	58.1	86.10	5
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40.0	44.40	49.10	1	64.5	77.60	5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43.0	47.80	52.80	1	69.4	72.10	5
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45.0	50.00	55.30	1	72.7	68.80	5
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48.0	53.30	58.90	1	77.4	64.70	5
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51.0	56.70	62.70	1	82.4	60.70	5
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	54.0	60.00	66.30	1	87.1	57.50	5
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58.0	64.40	71.20	1	93.6	53.50	5
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60.0	66.70	73.70	1	96.8	51.70	5
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64.0	71.10	78.60	1	103.0	48.60	5
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	70.0	77.80	86.00	1	113.0	44.30	5
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	75.0	83.00	92.10	1	121.0	41.40	5
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	78.0	86.00	95.80	1	126.0	39.70	5
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	85.0	94.00	104.00	1	137.0	36.50	5
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	90.0	100.00	111.00	1	146.0	34.30	5
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	100.0	111.00	123.00	1	162.0	30.90	5
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	110.0	122.00	135.00	1	177.0	28.30	5
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	120.0	133.00	147.00	1	193.0	26.00	5
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	130.0	144.00	159.00	1	209.0	24.00	5
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	150.0	167.00	185.00	1	243.0	20.60	5
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	160.0	178.00	197.00	1	259.0	19.30	5
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	170.0	189.00	209.00	1	275.0	18.20	5

- For Bi-directional type having V<sub>RMW</sub> of 20 Volts and less, the I<sub>R</sub> limit is double.
- For parts without A, the V<sub>BR</sub> is ± 10% and V<sub>C</sub> is 5% higher than with A parts.

## Rating and Characteristic Curves (at $T_A=25^\circ\text{C}$ , unless otherwise specified)

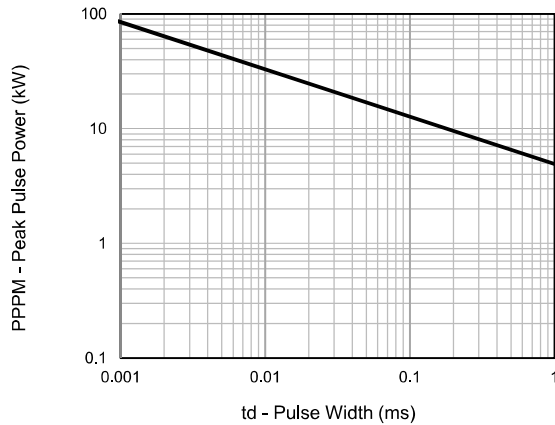


Fig.1 - Peak Pulse Power Rating

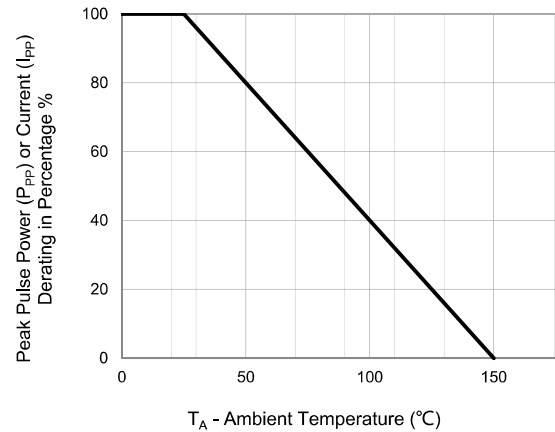


Fig.2 - Pulse Derating Curve

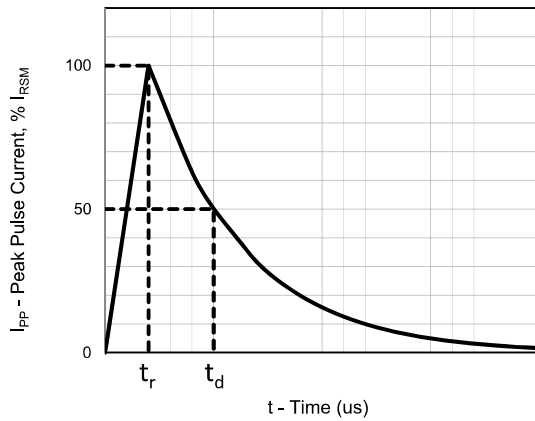


Fig.3 - Pulse Waveform

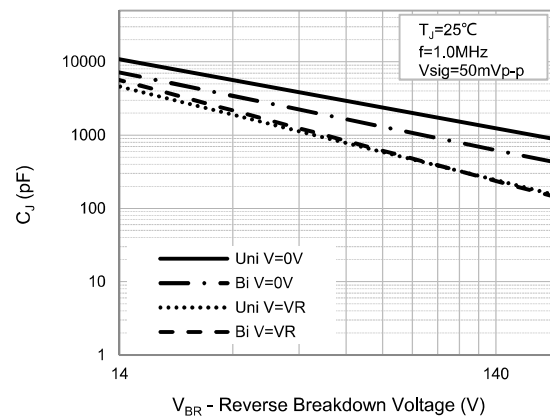


Fig.4 - Typical Junction Capacitance

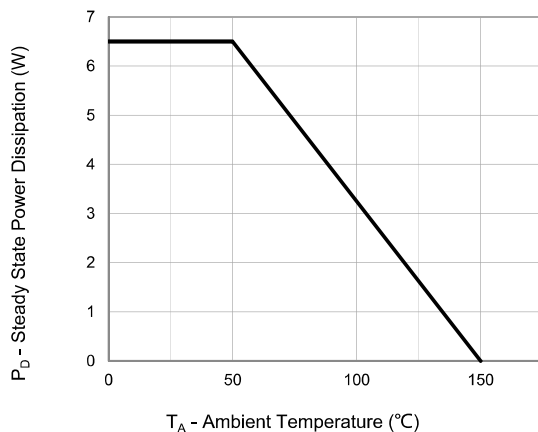


Fig.5 - Steady State Power Dissipation Derating Curve

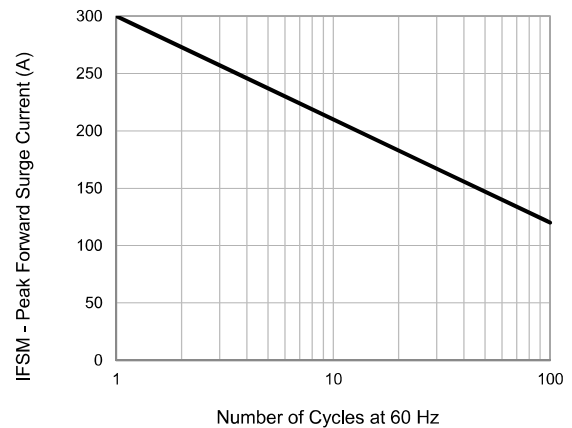
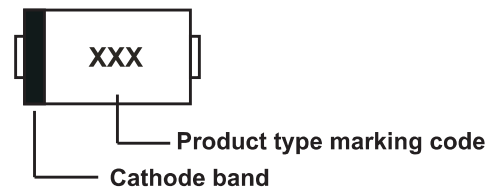


Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

## Marking Code

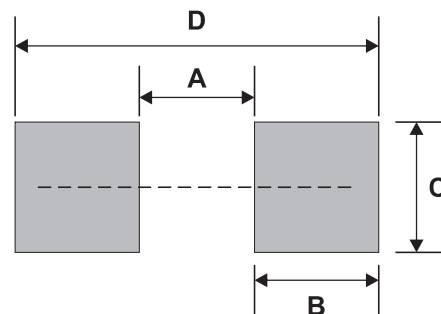
Part Number	Marking Code
5.0SMDJ - Series	See Page.2



xxx = Marking code (see Page.2)

## Suggested P.C.B. PAD Layout

SIZE	DO-214AB (SMC)	
	(mm)	(inch)
A	3.80	0.150
B	4.10	0.161
C	4.30	0.169
D	12.00	0.472

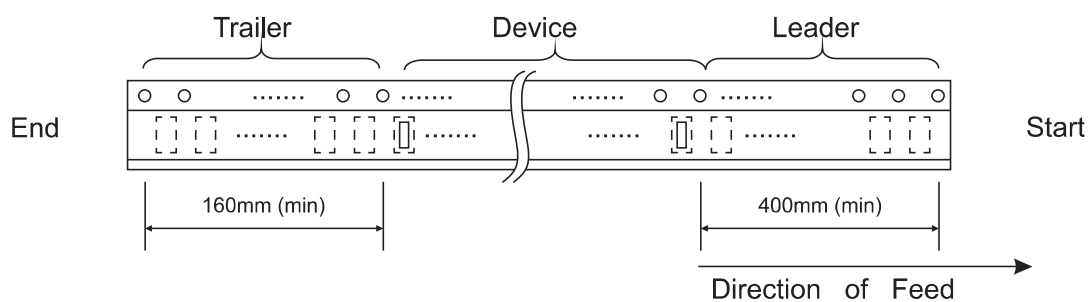
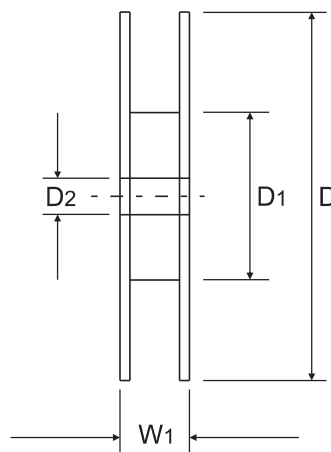
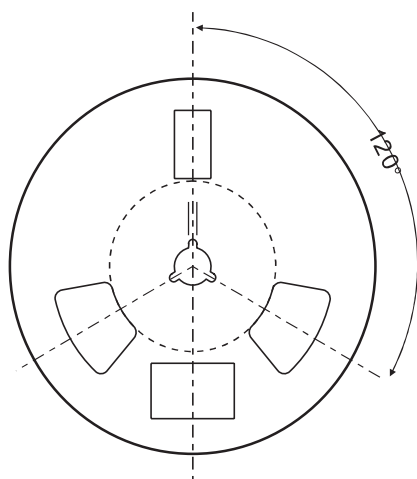
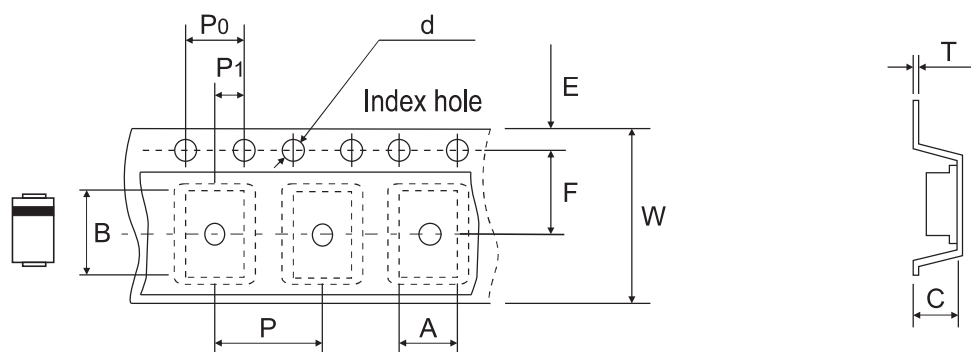


Note: 1. The pad layout is for reference purpose only.

## Standard Packaging

Case Type	REEL PACK	
	REEL ( pcs )	Reel Size (inch)
DO-214AB (SMC)	3,000	13

## Reel Taping Specification



DO-214AB (SMC)	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	$6.22 \pm 0.10$	$8.31 \pm 0.10$	$2.49 \pm 0.10$	$1.55 \pm 0.05$	$330 \pm 2.00$	$100.00 \pm 1.00$	$13.00 \pm 0.20$
	(inch)	$0.245 \pm 0.004$	$0.327 \pm 0.004$	$0.098 \pm 0.004$	$0.061 \pm 0.002$	$12.992 \pm 0.079$	$3.937 \pm 0.039$	$0.512 \pm 0.008$

DO-214AB (SMC)	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	$1.75 \pm 0.10$	$7.50 \pm 0.10$	$8.00 \pm 0.10$	$4.00 \pm 0.10$	$2.00 \pm 0.05$	$0.28 \pm 0.02$	$16.00 \pm 0.30$	$21.00 + 2.00$ $- 1.00$
	(inch)	$0.069 \pm 0.004$	$0.295 \pm 0.004$	$0.315 \pm 0.004$	$0.157 \pm 0.004$	$0.079 \pm 0.002$	$0.011 \pm 0.001$	$0.630 \pm 0.012$	$0.827 + 0.079$ $- 0.039$

Company reserves the right to improve product design , functions and reliability without notice.

Rev:1.0