

**Surface Mount Transient Voltage Suppressor Power  
5000Watts  
Stand-Off Voltage: 12V~170V**

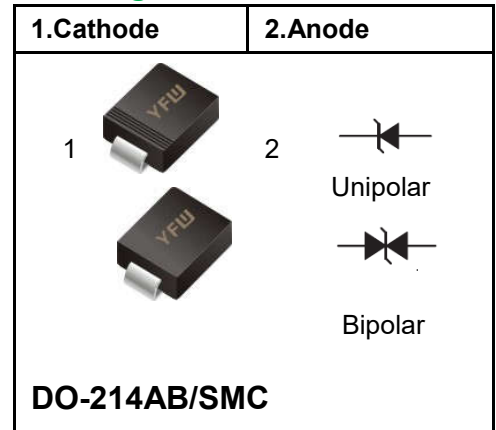
**FEATURES**

- ◆Peak power dissipation 5000w @10 x 1000 us Pulse
- ◆Low profile package.
- ◆Excellent clamping capability.
- ◆Typical  $I_R$  less than 5uA when  $V_{BR}$  above 22V.
- ◆Glass passivated junction.
- ◆Fast response time: typically less than 1.0ps from 0 Volts to BV min
- ◆IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ◆ESD protection of data lines in accordance with IEC 61000-4-2
- ◆EFT protection of data lines in accordance with IEC 61000-4-4
- ◆Halogen free and ROHS compliant
- ◆Lead-free finish

**MECHANICAL CHARACTERISTICS**

- ◆Case: SMC (DO-214AB) Molded Plastic over glass passivated junction.
- ◆Mounting Position: Any
- ◆Polarity: by cathode band denotes UNI-directional device, none cathode band denotes bi-directional device.
- ◆Terminal: Solder plated

**Pinning**



**Maximum Ratings and Characteristics @ 25°C Ambient Temperature (unless otherwise noted)**

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 us waveform (Note 1, 2, FIG.1)	$P_{PPM}$	5000	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2. 3)	$I_{FSM}$	300	A
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	$I_{PPM}$	See Next Table	A
Power dissipation on Infinite heat sink at $T_L=50\text{ }^\circ\text{C}$	$P_D$	6.5	W
Operating Junction Temperature and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
- 2.Mounted on  $8.0 \times 8.0\text{mm}^2$  (0.03mm thick) Copper Pads to each terminal.
- 3.Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

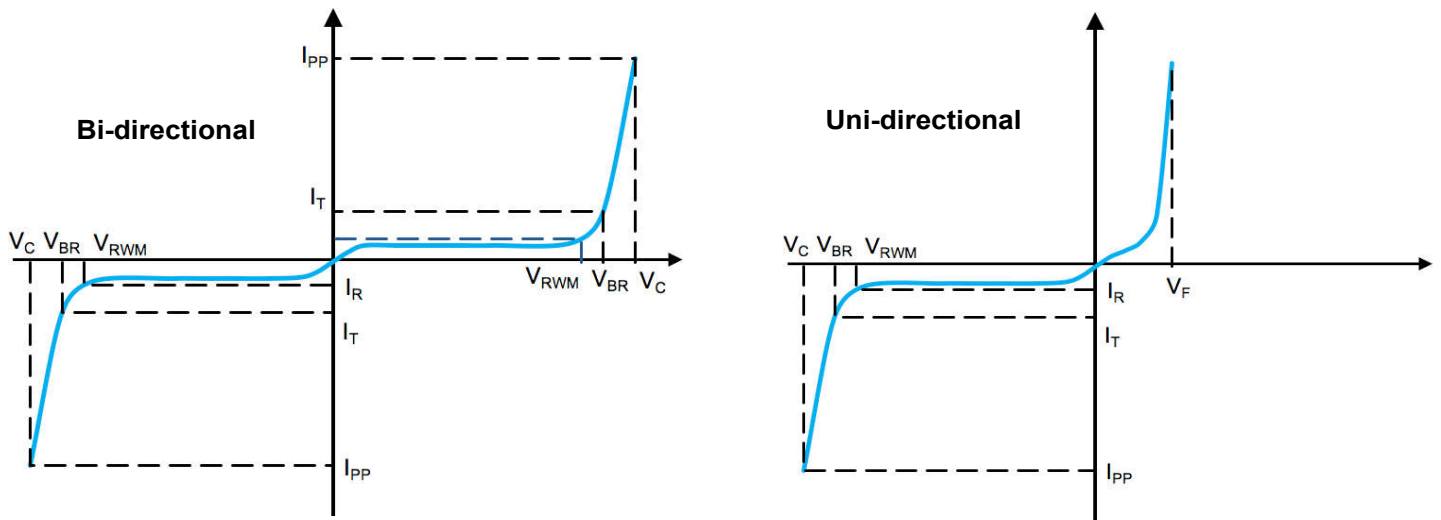
## Electrical Specification @ Tamb 25°C

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 VBR is ± 10% and VC is 5% higher than with A parts.

**I-V Curve Characteristics**



- $P_{PPM}$**  Peak Pulse Power Dissipation - Max power dissipation
- $V_{RWM}$**  Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
- $V_{BR}$**  Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current ( $I_T$ )
- $V_C$**  Clamping Voltage – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)
- $I_R$**  Reverse Leakage Current – Current measured at  $V_R$
- $V_F$**  Forward Voltage Drop for Uni-directional



Fig.1 - Peak Pulse Power Rating

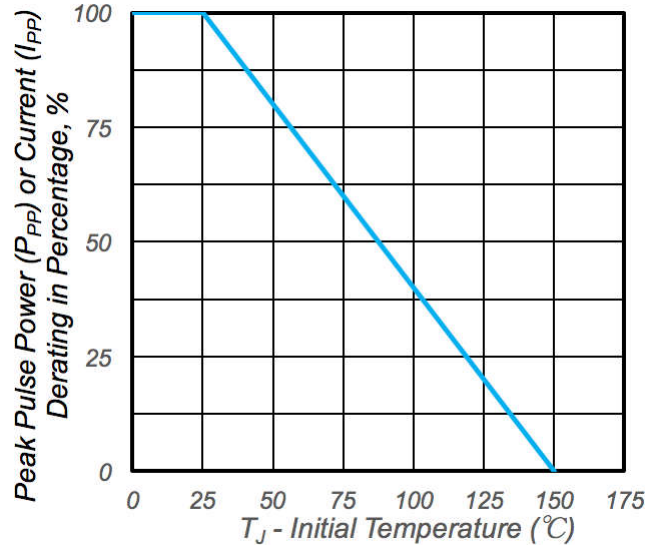


Fig.2 - Pulse Derating Curve



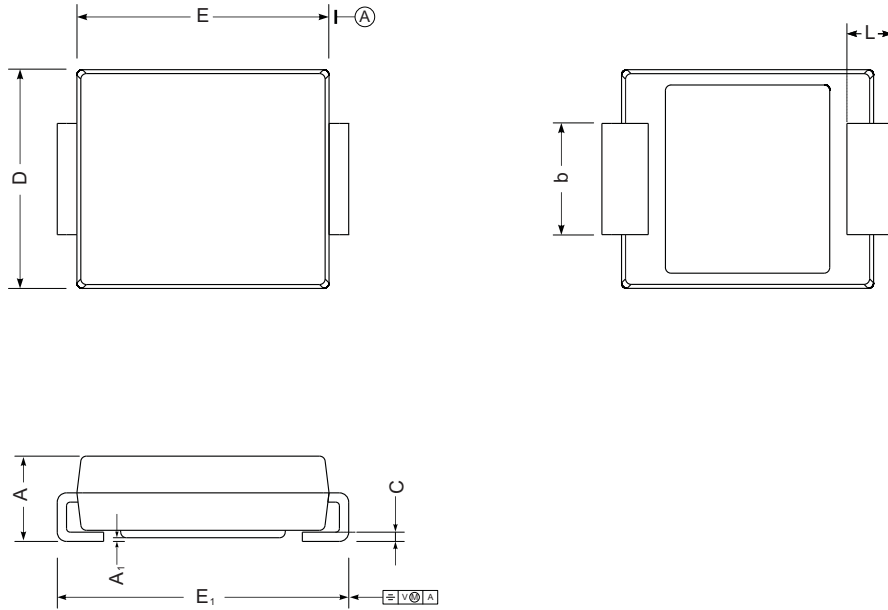
Fig.3 - Pulse Waveform



Fig.4 - Typical Junction Capacitance

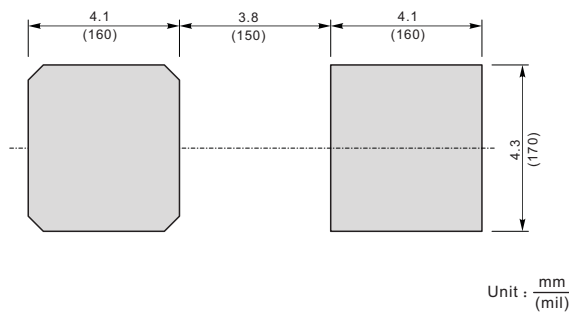
**Package Outline DO-214AB SMC**

Plastic surface mounted package; 2 leads



UNIT		A	E	D	E <sub>1</sub>	A <sub>1</sub>	C	L	b
mm	max	2.62	7.0	6.2	8.0	0.21	0.31	1.6	3.25
	min	2.00	6.5	5.6	7.6	0.05	0.15	0.9	2.75
mil	max	103	276	244	315	8.3	12	63	128
	min	79	256	220	299	2.0	5.9	35	108

**The recommended mounting pad size**



**Summary of Packing Options**

Package	Packing Description	Packing Quantity	Industry Standard
DO-214AB SMC	Tape/Reel, 13" reel	3000	EIA-481-1

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