

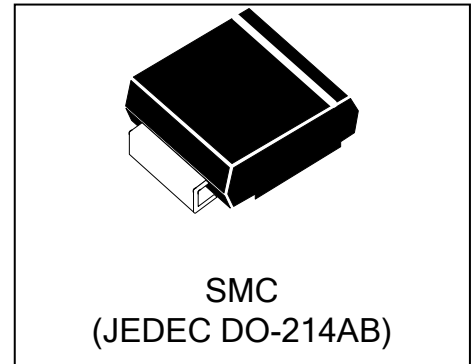


5.0SMDJxx(C)AL

Power Transient Voltage Suppressor

Features

- 5000 watts Peak Pulse Power (10/1000 μ s)
- Unidirectional and Bidirectional Protection
- Fast Response Time: Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- High temperature solder: 260°C/10 seconds at terminal
- IEC 61000-4-2 (ESD) $\pm$ 30kV(air), $\pm$ 30kV(contact)
- MSL: Level 1



Mechanical Characteristics

- JEDEC DO-214AB package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel per EIA 481
- RoHS Compliant

Applications

- I/O Interfaces
- Power lines
- Telecommunication
- Computers & Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 10/1000\mu s$) (see Note1,2& 3)	P_{PPM}	5000	Watts
Peak pulse current (10/1000 μ s) (see Note2&3)	I_{PPM}	See Electrical Characteristics	A
Peak Forward surge current (see Note4&5)	I_{FSM}	300	A
Power Dissipation on infinite heat sink $T_L = 50^\circ C$ (Fig4)	P_D	6.5	W
Operating Junction Temperature range	T_J	-55 to + 150	$^\circ C$
Storage Temperature range	T_{STG}	-55 to + 150	$^\circ C$

Note1: Peak Pulse Power Rating as Pulse Width, per Fig1.

Note2: Peak Pulse Power or Current Derated above $T_A = 25^\circ C$ Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Note3: Mounted on 5.0x5.0mm² copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Note5: Maximum Forward Surge Current only for Unidirectional Device per Fig5.

Electrical Characteristics

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage $V_{BR}(\text{Volts})@I_T$		Test Current I_T (mA)	Maximum Clamping Voltage $V_C@I_{PP}$ (Volts)	Maximum Peak Pulse Current I_{PP} (Amps)	Maximum Reverse Leakage $I_R@V_{RWM}$ (μA)
			MIN	MAX				
5.0SMDJ20AL	5.0SMDJ20CAL	20	22.2	24.5	1	32.4	155.0	5
5.0SMDJ22AL	5.0SMDJ22CAL	22	24.4	26.9	1	35.5	141.0	5
5.0SMDJ24AL	5.0SMDJ24CAL	24	26.7	29.5	1	38.9	129.0	5
5.0SMDJ26AL	5.0SMDJ26CAL	26	28.9	31.9	1	42.1	119.0	5
5.0SMDJ28AL	5.0SMDJ28CAL	28	31.1	34.4	1	45.4	110.0	5
5.0SMDJ30AL	5.0SMDJ30CAL	30	33.3	36.8	1	48.4	103.0	5
5.0SMDJ33AL	5.0SMDJ33CAL	33	36.7	40.6	1	53.3	93.9	5
5.0SMDJ36AL	5.0SMDJ36CAL	36	40.0	44.2	1	58.1	86.1	5
5.0SMDJ40AL	5.0SMDJ40CAL	40	44.4	49.1	1	64.5	77.6	5
5.0SMDJ43AL	5.0SMDJ43CAL	43	47.8	52.8	1	69.4	72.1	5
5.0SMDJ45AL	5.0SMDJ45CAL	45	50.0	55.3	1	72.7	68.8	5
5.0SMDJ48AL	5.0SMDJ48CAL	48	53.3	58.9	1	77.4	64.7	5
5.0SMDJ51AL	5.0SMDJ51CAL	51	56.7	62.7	1	82.4	60.7	5
5.0SMDJ54AL	5.0SMDJ54CAL	54	60.0	66.3	1	87.1	57.5	5
5.0SMDJ58AL	5.0SMDJ58CAL	58	64.4	71.2	1	93.6	53.5	5

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

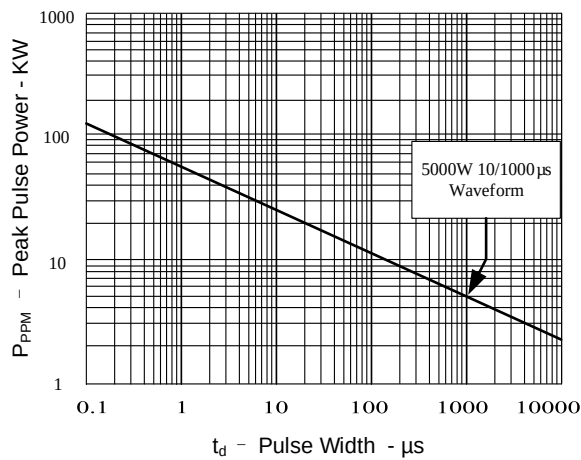


Figure 2: Pulse Derating Curve

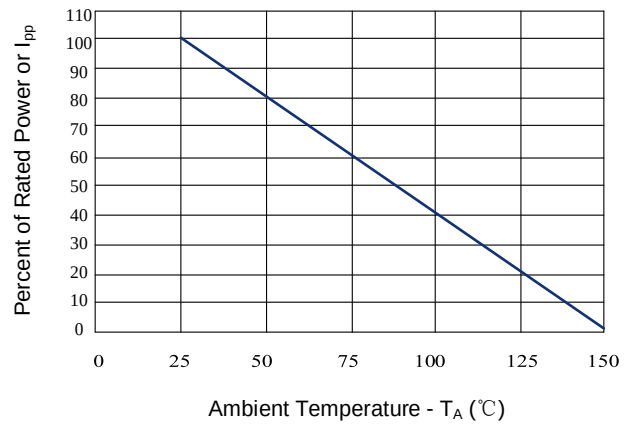


Figure 3: Pulse Waveform

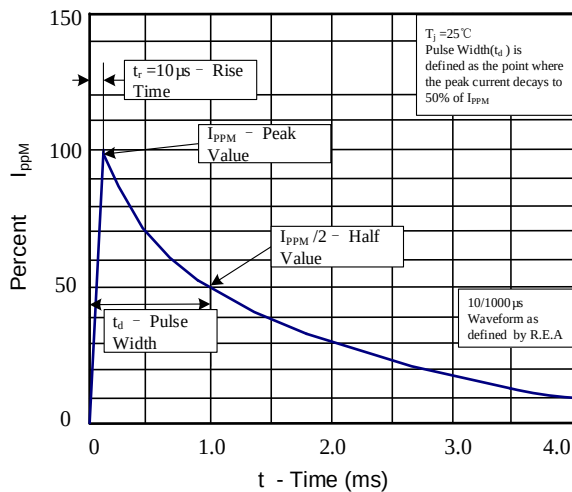


Figure 4: Steady State Power Dissipation Derating Curve

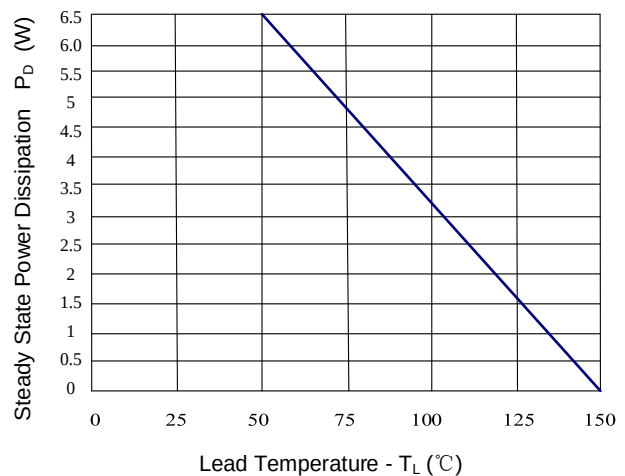
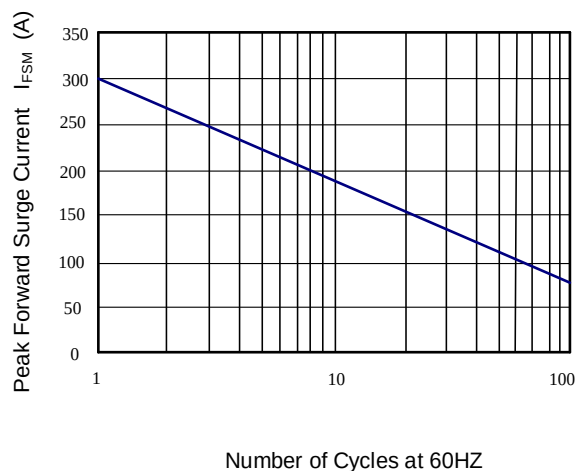


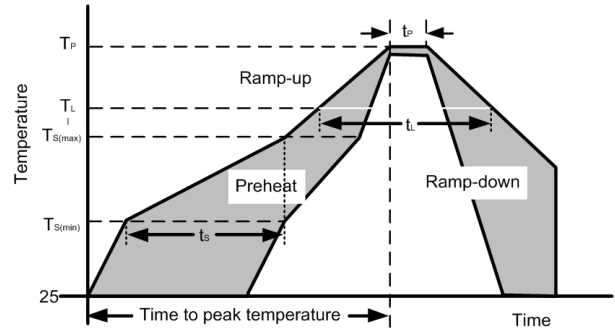
Figure 5: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

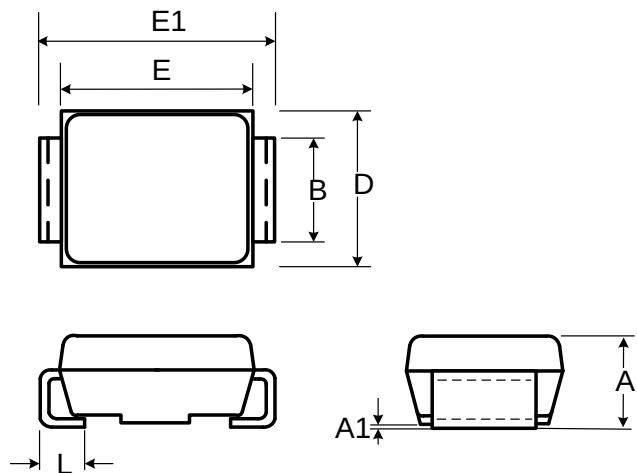
Recommended Soldering Parameters

Reflow Condition		
Pre-Heat	Temperature min ($T_{S(min)}$)	150°C
	Temperature max ($T_{S(max)}$)	200°C
	Time (min to max) (t_s)	60-190 s
Average ramp up rate (Liquidus Temp) (T_L) to peak		3°C/s max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		260°C

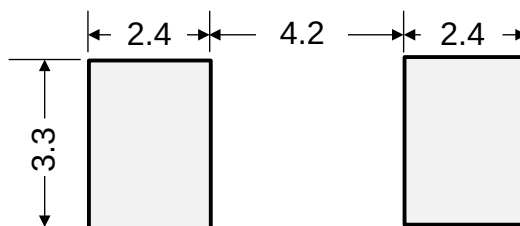


Outline Drawing – SMC(DO-214AB)

Ref. (mm)	Millimeters	
	Min.	Max.
A	2.06	2.70
A1	-	0.30
B	2.90	3.20
E	6.60	7.40
E1	7.75	8.13
D	5.59	6.22
L	0.76	1.52

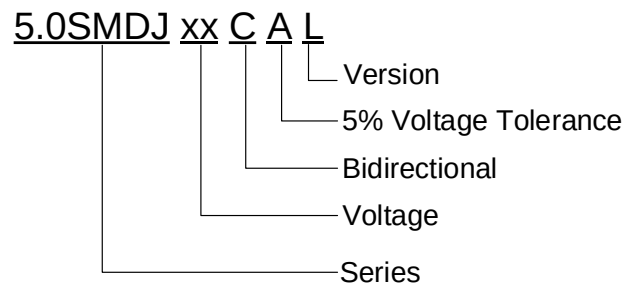


Recommended Solder Pad Layout

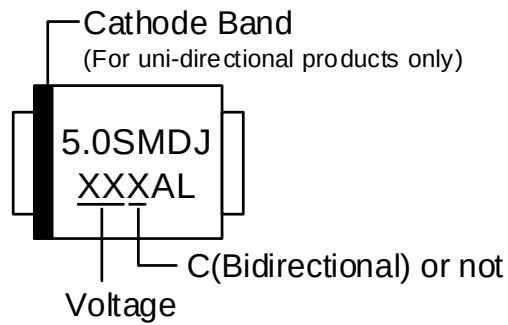


Dimensions in mm

Part Numbering System



Part Marking System

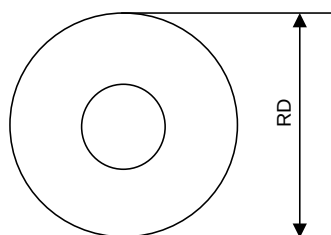


Package Information

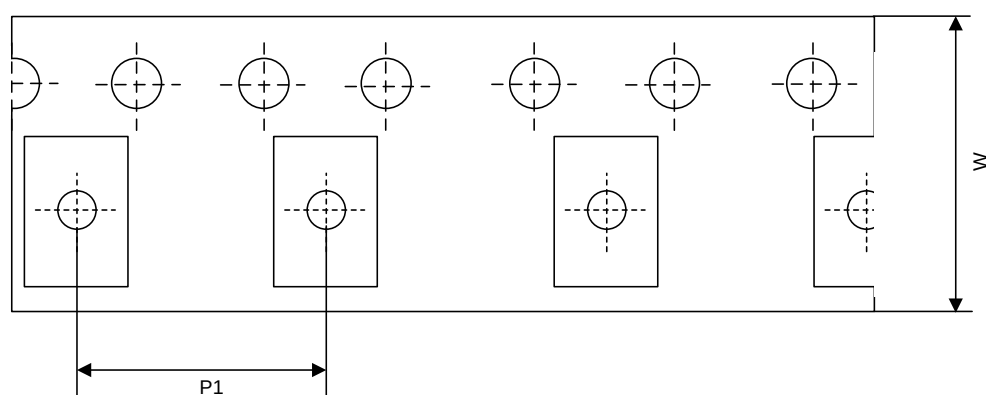
Package Type	Description	Quantity (pcs)
SMC(DO-214AB)	Tape & Reel -16mm/13" tape	3000

Tape and Reel Information

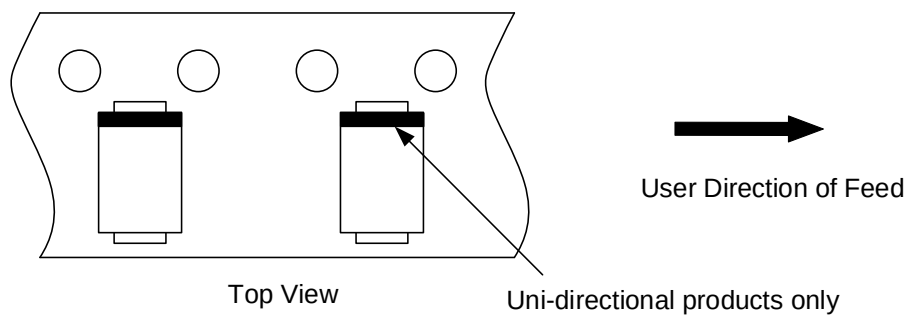
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



RD	Reel Dimensions	13 inch
W	Overall width of the carrier tape	16 mm
P1	Pitch between successive cavity centers	8 mm

Contact Information

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For additional information, please contact your local Sales Representative.

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Product Specification Statement

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The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

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Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

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