

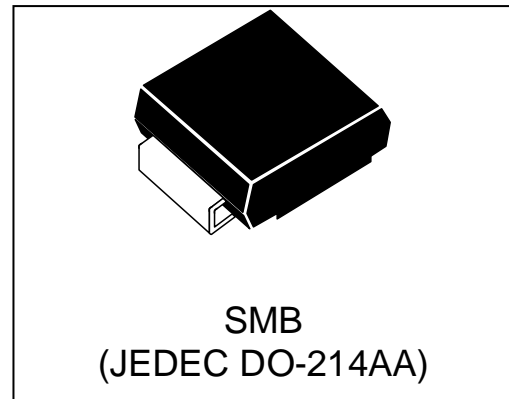


WS58P20SMB-BH

Power Transient Voltage Suppressor

Features

- 2000 watts Peak Pulse Power (10/1000 μ s)
- Bidirectional Protection
- Fast Response Time: Typically < 1ns
- Excellent Clamping Capability
- Glass Passivated Junction
- Built-in Strain relief
- Low inductance
- Low profile package
- IEC 61000-4-2 (ESD) \pm 30kV(air), \pm 30kV(contact)
- MSL: Level 1



Mechanical Characteristics

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

Applications

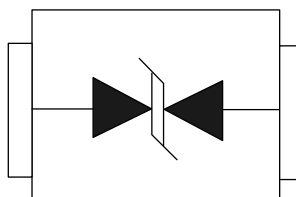
- I/O Interfaces
- Power lines
- Telecommunication
- Computers & Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating ($T_A=25^{\circ}\text{C}$ unless otherwise noted)			
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 10/1000\mu\text{s}$) (see Note1,2)	P_{PPM}	2000	Watts
Non-repetitive peak impulse Voltage 10/700 μs (ITU-T K.20, K.21 & K.45, K.44)	V_{PPSM}	4000	V
Peak pulse current (10/1000 μs) (see Note2)	I_{PP}	22.0	A
Power Dissipation on infinite heat sink $T_L = 50^{\circ}\text{C}$ (Fig4)	P_D	6.5	W
Operating Temperature range	T_{OP}	-65 to + 150	$^{\circ}\text{C}$
Junction Temperature range	T_J	-65 to + 150	$^{\circ}\text{C}$
Storage Temperature range	T_{STG}	-65 to + 150	$^{\circ}\text{C}$

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

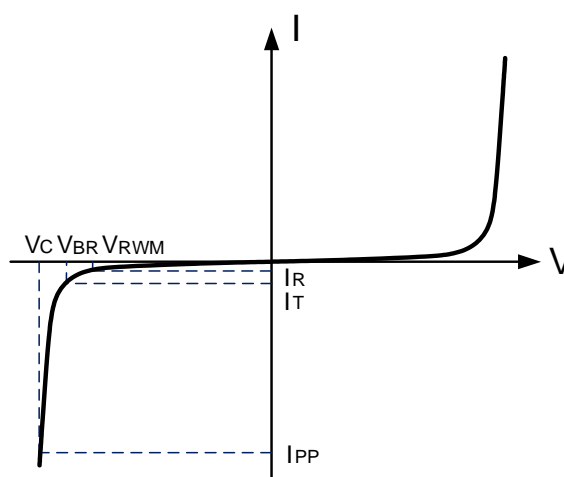
Note2: Peak Pulse Power or Current Derated above $T_A=25^{\circ}\text{C}$ Per Fig. 2 and Non-Repetitive Current Pulse,Per Fig.3.

Pin Configuration



Electrical Characteristics (T_A=25°C unless otherwise noted)

Symbol	Parameter
I _{PP}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @ I _{PP}
V _{RWM}	Working Peak Reverse Voltage
I _R	Maximum Reverse Leakage Current @ V _{RWM}
V _{BR}	Breakdown Voltage @ I _T
I _T	Test Current



WS58P20SMB-BH					
Parameter	Symbol	Conditions	Minimum	Maximum	Units
Reverse Stand-Off Voltage	V _{RWM}			58	V
Reverse Breakdown Voltage	V _{BR}	I _T =1mA	62	71.2	V
Reverse Leakage Current	I _R	V _{RWM} =58V, T=25°C		1	μA
Clamping Voltage	V _C	I _{PP} =22.0A, t _p =10/1000μs		93.6	V
Clamping Voltage	V _C	V _{PPSM} =4KV, t _p =10/700μs		90	V

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

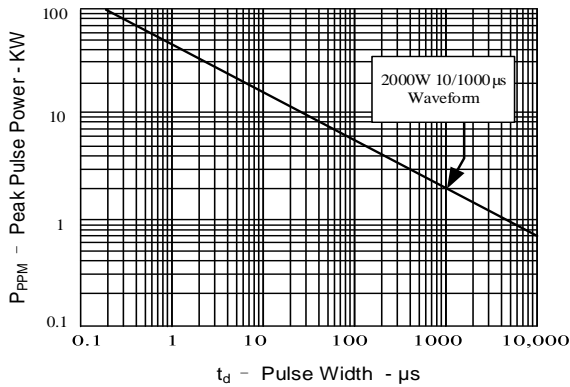


Figure 2: Pulse Derating Curve

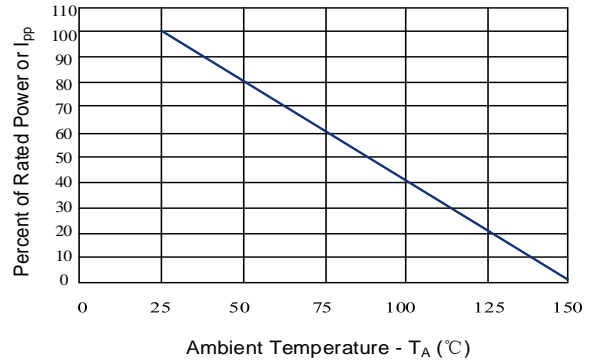


Figure 3: Pulse Waveform

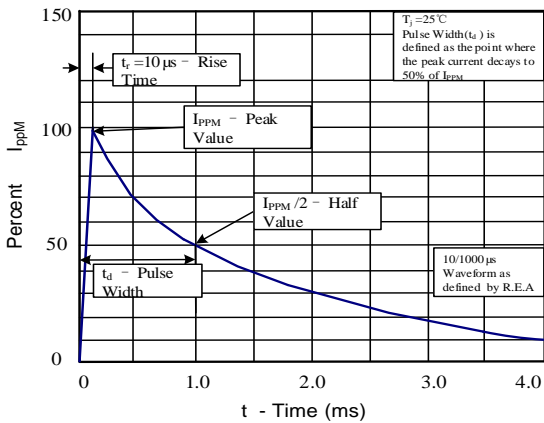
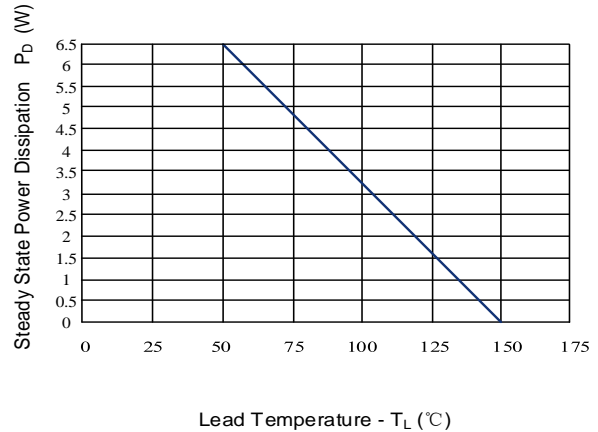


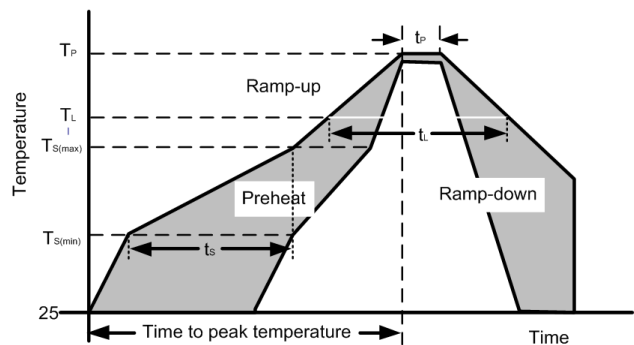
Figure 4: Steady State Power Dissipation Derating Curve



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.

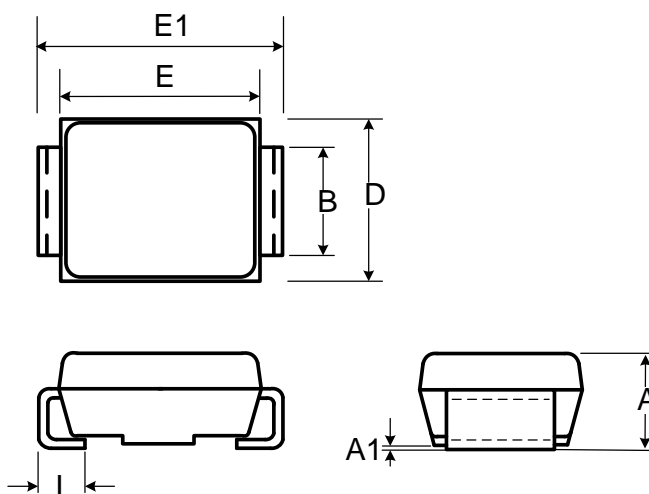
Recommended Soldering Parameters

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
Ts(max) to TL - 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

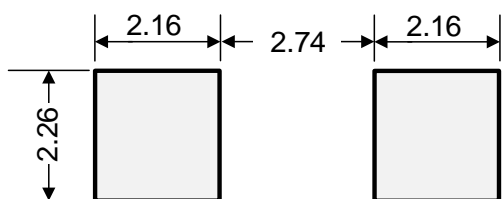


Outline Drawing – SMB(DO-214AA)

Ref. (mm)	Millimeters	
	Min.	Max.
A	2.130	2.600
A1	-	0.300
B	1.900	2.200
E	4.100	4.750
E1	5.210	5.590
D	3.300	3.940
L	0.760	1.520



Recommended Solder Pad Layout



Dimensions in mm

Marking Code

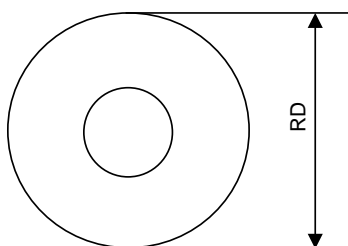


Package Information

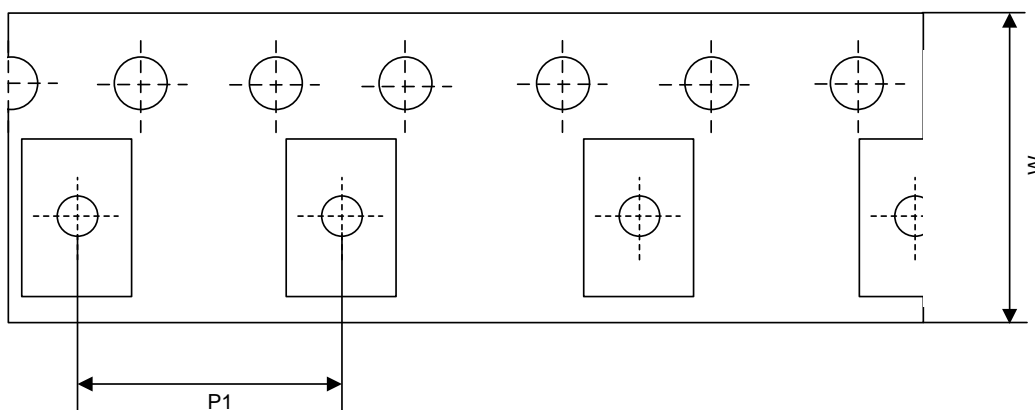
Package Type	Description	Quantity (pcs)
SMB(DO-214AA)	Tape & Reel -12mm/13" tape	3000

Tape and Reel Information

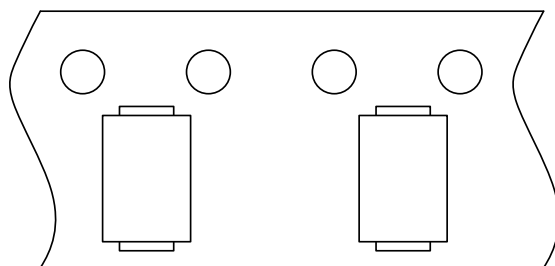
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



User Direction of Feed

Top View

RD	Reel Dimensions	13 inch
W	Overall width of the carrier tape	12 mm
P1	Pitch between successive cavity centers	8 mm

Contact Information

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Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

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.

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