

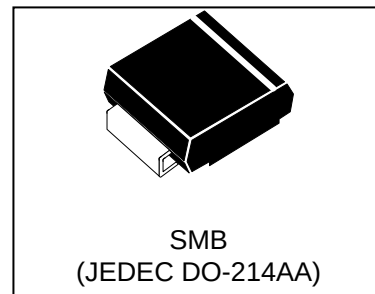


WS20P10SMBNR

Power Transient Voltage Suppressor

Features

- Unidirectional Protection
- Unidirectional with low VF (VF=1.2V at 3A)
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Low profile package
- High temperature solder:260°C/10 seconds at terminal



Mechanical Characteristics

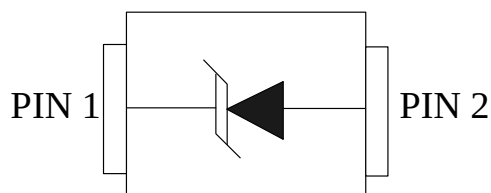
- JEDEC DO-214AA package
- Molding compound flammability rating:
UL 94V-0
- Marking: see marking code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

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

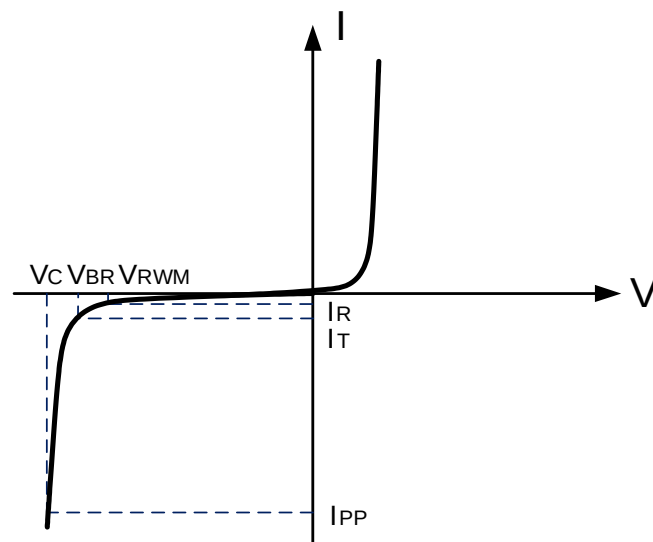
Absolute Maximum Rating			
Rating	Symbol	Value	Units
Non-repetitive peak impulse voltage (1.2/50μs-8/20μs, 12Ω)	V _{PPSM}	3000	V
Non-repetitive peak impulse current (1.2/50μs-8/20μs, 12Ω)	I _{PPSM}	250	A
Thermal Resistance Junction-to-Lead	R _{θJL}	20	°C/W
Operating Junction Temperature range	T _J	-65 to + 150	°C
Storage Temperature range	T _{STG}	-65 to + 150	°C

Pin Configuration



Electrical Characteristics

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



WS20P10SMBNR					
Parameter	Symbol	Conditions	Minimum	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}			20	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	22	24.5	V
Reverse Leakage Current	I_R	$V_{RWM}=20V, T_A=25^{\circ}C$		1	μA
Clamping Voltage	V_C	$V_{PPSM}=3KV, t_p=1.2/50-8/20\mu s(12\Omega)$		35	V

Typical Characteristics

Figure 1: Pulse Waveform

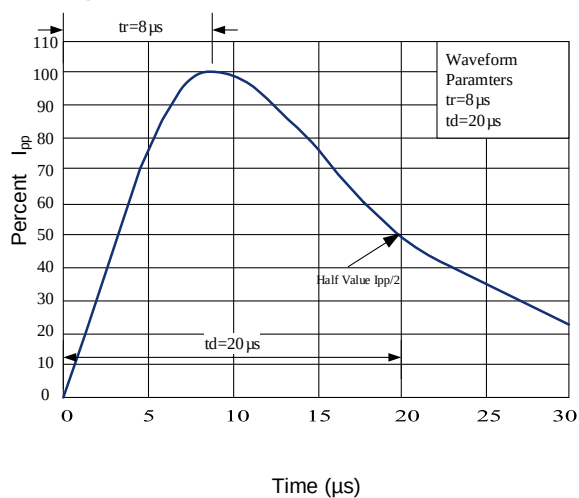
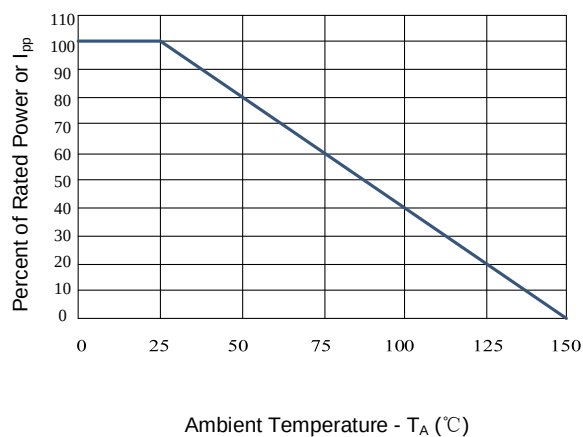
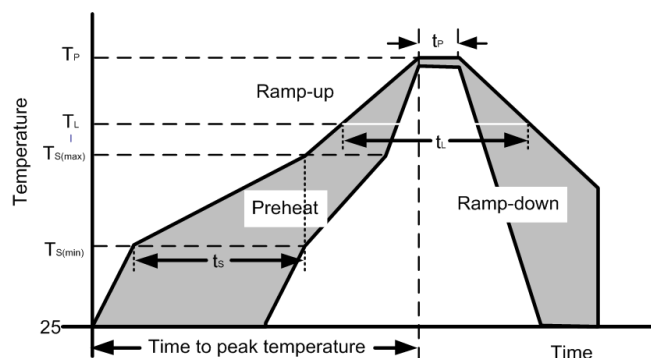


Figure 2: Pulse Derating Curve



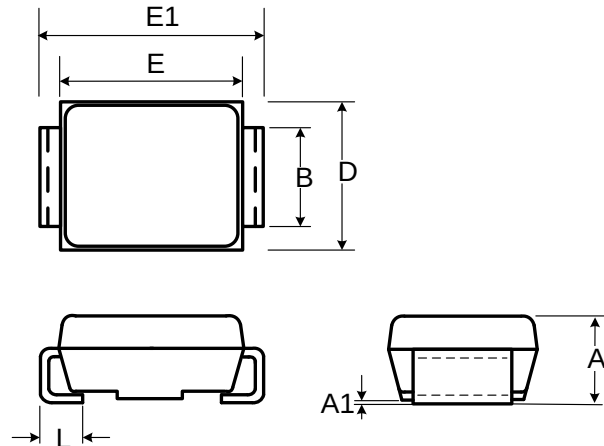
Recommended Soldering Parameters

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

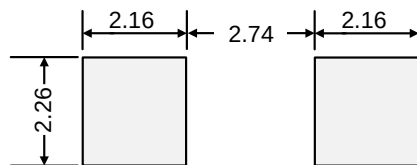


Outline Drawing – SMB(DO-214AA)

Ref. (mm)	Millimeters	
	Min.	Max.
A	2.13	2.60
A1	-	0.30
B	1.90	2.20
E	4.10	4.75
E1	5.21	5.59
D	3.30	3.94
L	0.76	1.52

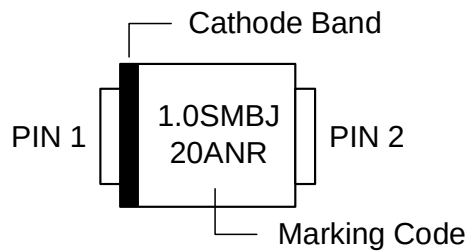


Recommended Solder Pad Layout



Dimensions in mm

Marking Code



Package Information

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

Contact Information

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For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.