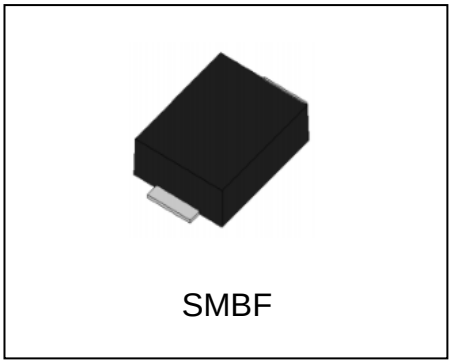
# WS58P15SMBF-BS

**Power Transient Voltage Suppressor**

## Features




- 3000 watts Peak Pulse Power (10/1000μs)
- Bidirectional Protection
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Glass Passivated Junction
- Built-in Strain relief
- Low inductance
- Low profile package
- High temperature solder:260℃/10 seconds at terminal

## Mechanical Characteristics

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

## Applications

- DC 48V supply
- PoE

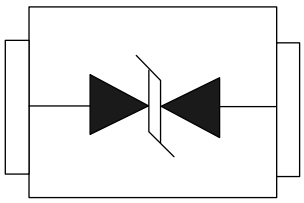
| **Absolute Maximum Rating** | | | |
|---|---|---|---|
| **Rating** | **Symbol** | **Value** | **Units** |
| Peak Pulse Power (tp =10/1000μs) (see Note1,2) | $P_{PPM}$ | 3000 | Watts |
| Peak pulse current (10/1000μs) (see Note2) | $I_{PP}$ | 32.1 | A |
| Peak pulse voltage (10/700μs 40Ω) | $V_{PP}$ | 4000 | V |
| Power Dissipation on infinite heat sink $T_L$ = 50 °C (Fig4) | $P_D$ | 5.0 | W |
| Operating Junction Temperature range | $T_J$ | -55 to + 150 | ℃ |
| Storage Temperature range | $T_{STG}$ | -55 to + 150 | ℃ |

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

**Note2:** Peak Pulse Power or Current Derated above $T_A$=25℃ Per Fig. 2 and Non-Repetitive Current Pulse,Per Fig.3.

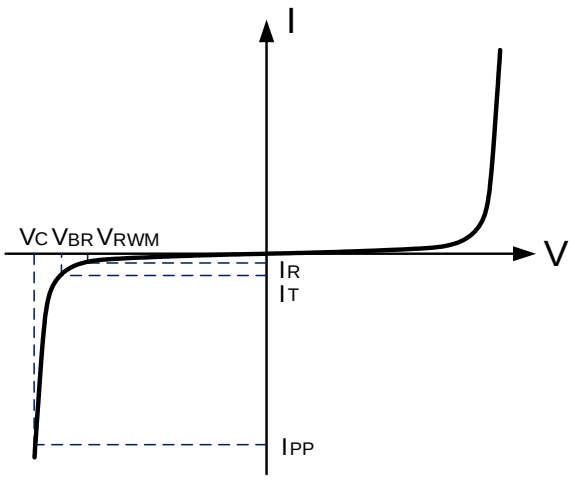
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## Pin Configuration



## 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 |




| Parameter | Symbol | Conditions | Minimum | Maximum | Units |
|---|---|---|---|---|---|
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | 58 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 64.4 | 71.2 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=58V, T=25°C | | 1 | μA |
| Clamping Voltage | $V_C$ | $I_{PP}$=32.1A, $t_p$=10/1000μs | | 93.6 | V |
| Clamping Voltage | $V_C$ | $V_{PPSM}$=4000V, $t_p$=10/700μs | | 95 | V |

# Typical Characteristics

**Figure 1: Peak Pulse Power Rating Curve**

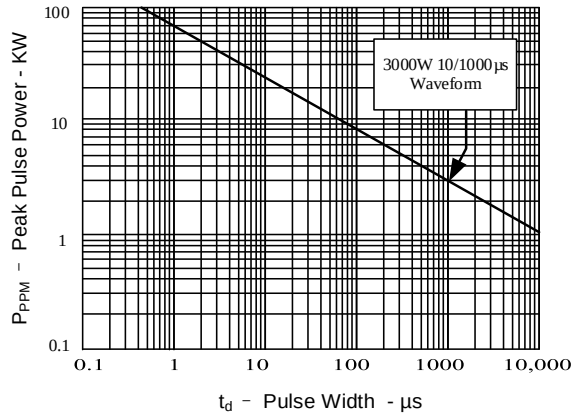



**Figure 2: Pulse Derating Curve**

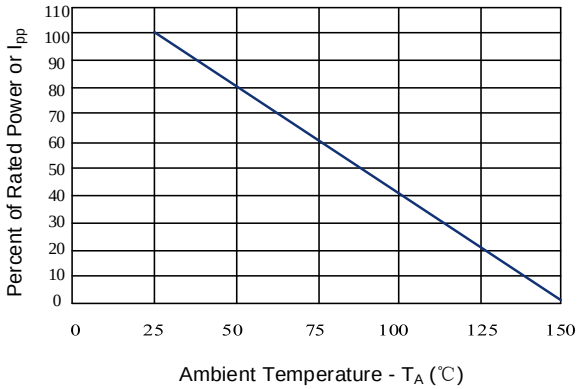



**Figure 3: Pulse Waveform**

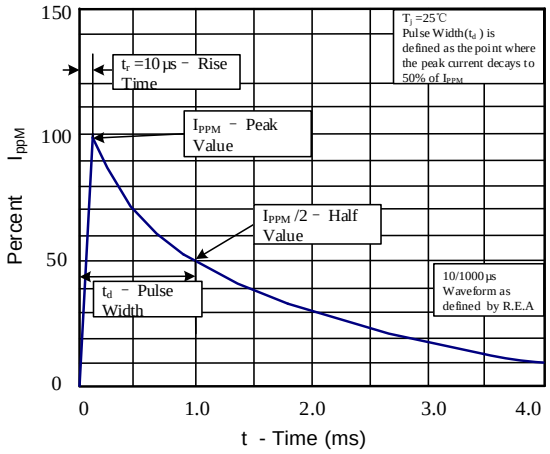
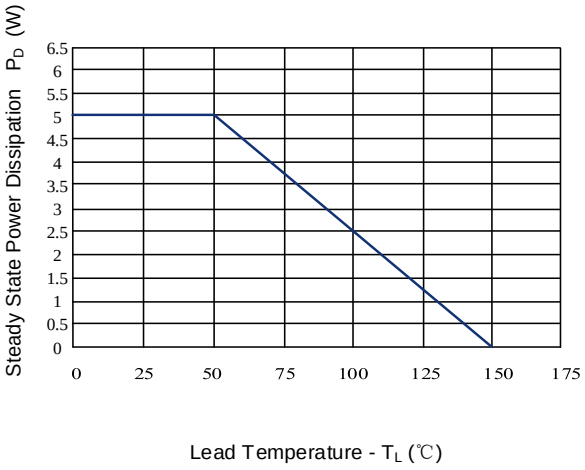
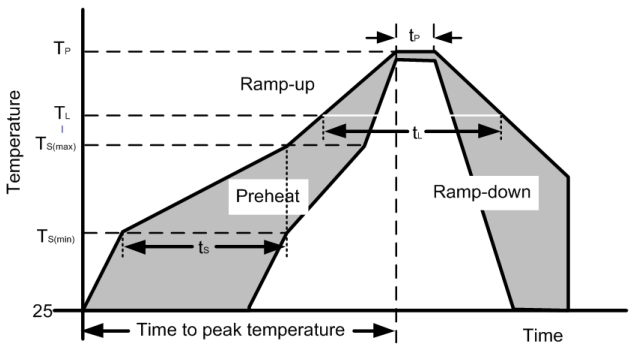



**Figure 4: Steady State Power Dissipation Derating Curve**



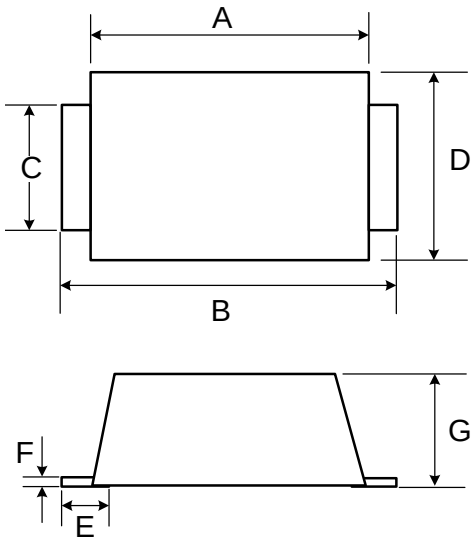

# Recommended Soldering Parameters

| 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 |

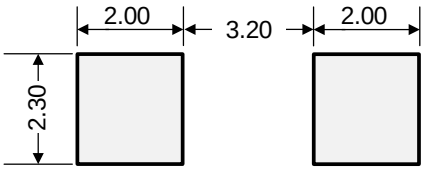


## Outline Drawing – SMBF

| Ref.（mm） | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 4.65 | 5.15 |
| B | 5.60 | 6.00 |
| C | 1.85 | 2.15 |
| D | 3.90 | 4.50 |
| E | 0.60 | - |
| F | 0.12 | 0.28 |
| G | 2.05 | 2.35 |

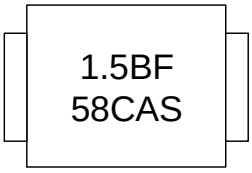



## Recommended Solder Pad Layout




Dimensions in mm

## Marking Code




## Package Information

3000 PCS/REEL

## Contact Information

No.1001, Shiwan(7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-68969993 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**
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.*