SOCAY

HF RoHS

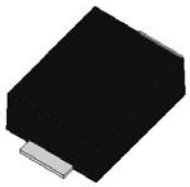
# Surface Mount Transient Voltage Suppressors (TVS)

## SMBF58CTC SMBF

### Description

SMBF58CTC is designed for DC 48V, POE supply equipment. It is used to replace the SMDJ series TVS, also can be solve the POE normal solution which use TSPD.

Bi-directional



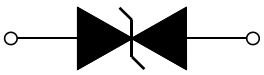
### Surge Level

- 10/700μs 40ohm 6KV
- 1.2/50μs-8/20μs 2ohm 1.4KV

### Features

- Low profile package.
- Excellent clamping capability.
- Glass passivated junction.
- High temperature reflow soldering: 260℃/40s at terminals.
- Plastic package has underwriters laboratory flammability 94V-0.
- For surface mounted applications in order to optimize board space.

### Functional Diagram



Bi-directional

### Absolute Maximum Ratings ($T_A$=25℃, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Steady state power dissipation at $T_L$=75℃ | $P_{M(AV)}$ | 5.0 | W |
| Peak pulse power dissipation on 10/1000μs waveform | $P_{PP}$ | 3000 | W |
| Peak pulse voltage on 10/700μs@40Ω waveform | $V_{PP}$ | 6000 | V |
| Peak pulse current on 8/20μs waveform | $I_{PP}$ | 700 | A |
| Peak pulse current on 10/1000μs waveform | $I_{PP}$ | 36 | A |
| Storage and operating junction temperature range | $T_{STG}$,$T_J$ | -55 to +150 | ℃ |

### Electrical Characteristics ($T_A$=25℃)

| Part Number | Marking Code | $V_R$ (V) | $I_R$ @$V_R$ (μA) | $V_{BR}$ @$I_T$ (V) | | $I_T$ (mA) | $V_C$ @10/700μs 6KV /40Ω max(V) | $V_C$ @8/20μs 700A max(V) | $V_C$@ 10/1000μs 36A max(V) |
|---|---|---|---|---|---|---|---|---|---|
| Bi-Polar | | | | MIN | MAX | | | | |
| SMBF58CTC | 58C | 58 | 1 | 60 | 75 | 1 | 90 | 90 | 90 |

**Notes:**
$V_R$: Stand-off Voltage -- Maximum voltage that can be applied.
$V_{BR}$: Breakdown Voltage.
$V_C$: Clamping Voltage -- Peak voltage measured across the suppressor at a specified surge voltage.
$I_R$: Reverse Leakage Current.



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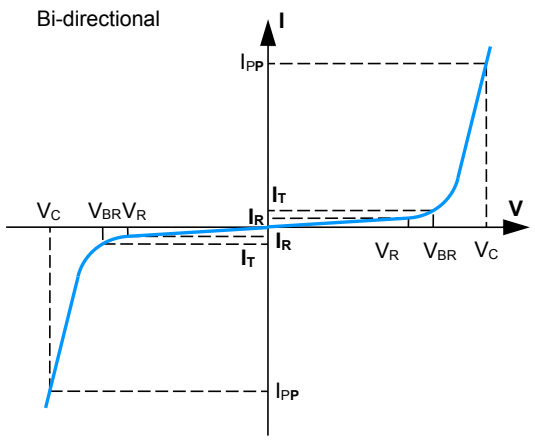
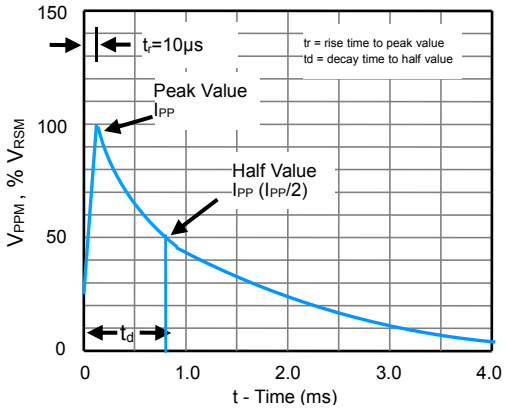
## Ratings and Characteristic Curves ($T_A$=25℃ unless otherwise noted)

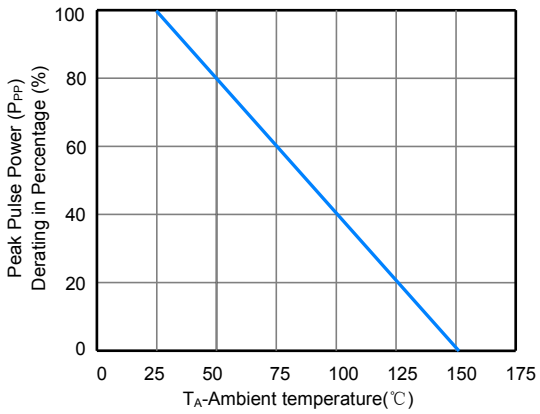
### Figure 1 - V-I Curve Characteristics




### Figure 2 - Pulse Waveform




### Figure 3 - Pulse Derating Curve



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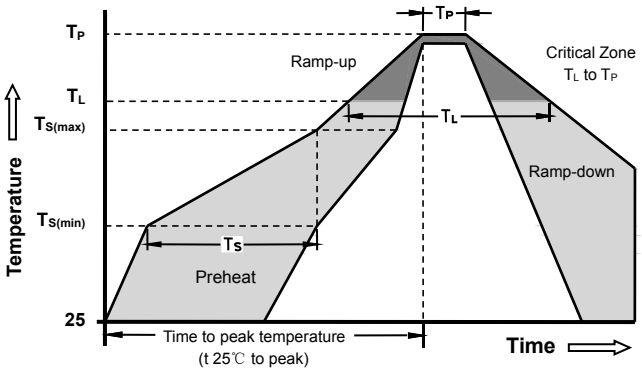
## Soldering Parameters

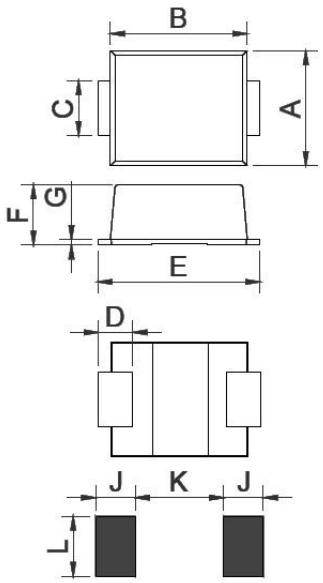
### Reflow Condition




| Reflow Condition | | Lead–free assembly |
|---|---|---|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | 150℃ |
| | -Temperature Max ($T_{s(max)}$) | 200℃ |
| | - Time (min to max) ($T_s$) | 60 -180 seconds |
| Average ramp up rate ( Liquidus Temp $T_L$) to peak | | 3℃/second max |
| $T_{S(max)}$ to $T_L$ - Ramp-up Rate | | 3℃/second max |
| Reflow | - Temperature ($T_L$) (Liquidus) | 217℃ |
| | - Time (min to max) ($T_L$) | 60 - 150 seconds |
| Peak Temperature ($T_P$) | | 260 +0/-5℃ |
| Time within 5 ℃ of actual peak Temperature ($t_p$) | | 20 - 40 seconds |
| Ramp-down Rate | | 6℃/second max |
| Time 25℃ to peak Temperature ($T_P$) | | 8 minutes max |
| Do not exceed | | 260℃ |

## Dimensions

### SMBF




| Dimensions | Inches | | Millimeters | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.154 | 0.177 | 3.90 | 4.50 |
| B | 0.183 | 0.203 | 4.65 | 5.15 |
| C | 0.073 | 0.085 | 1.85 | 2.15 |
| D | 0.024 | - | 0.6 | - |
| E | 0.220 | 0.236 | 5.60 | 6.00 |
| F | 0.081 | 0.093 | 2.05 | 2.35 |
| G | 0.005 | 0.011 | 0.12 | 0.28 |
| J | 0.079 | - | 2.00 | - |
| K | - | 0.126 | - | 3.20 |
| L | 0.091 | - | 2.30 | - |



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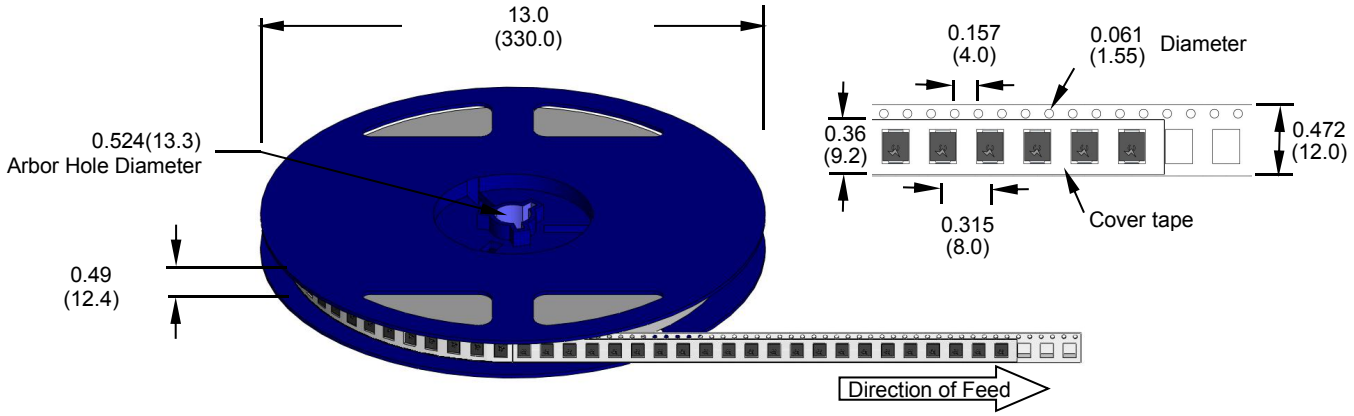
### Packaging

| Part Number | Package | Reel (pcs) | Per Carton (pcs) | Reel Diameters (mm) |
|---|---|---|---|---|
| SMBF58CTC | SMBF | 3000 | 48000 | 330 |

### Tape and Reel Specifications




Dimensions are in inches
(and millimeters)



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