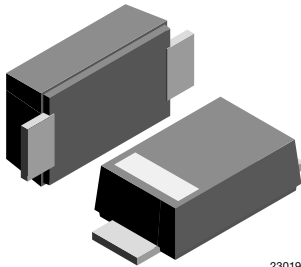
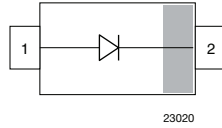


## Standard Recovery Rectifier High Voltage Surface-Mount

**eSMP® Series**

**SMF (DO-219AB)**

23019



23020

**FEATURES**

- For surface mounted applications
- Low profile package
- Ideal for automated placement
- Glass passivated
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Meets JESD 201 class 2 whisker test
- Wave and reflow solderable
- AEC-Q101 qualified
- Compatible to SOD-123W package case outline or SOD-123F and SOD-123FL
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**
**LINKS TO ADDITIONAL RESOURCES**


3D Models

**MECHANICAL DATA**
**Case:** SMF (DO-219AB)

**Polarity:** band denotes cathode end

**Weight:** approx. 15 mg

**Packaging codes / options:**

18/10K per 13" reel (8 mm tape)

08/3K per 7" reel (8 mm tape)

**Circuit configuration:** single

**PARTS TABLE**

| PART   | ORDERING CODE          | MARKING | REMARKS       |
|--------|------------------------|---------|---------------|
| S07B-M | S07B-M-18 or S07B-M-08 | UB      | Tape and reel |
| S07D-M | S07D-M-18 or S07D-M-08 | UD      | Tape and reel |
| S07G-M | S07G-M-18 or S07G-M-08 | UG      | Tape and reel |
| S07J-M | S07J-M-18 or S07J-M-08 | UJ      | Tape and reel |
| S07M-M | S07M-M-18 or S07M-M-08 | UM      | Tape and reel |

**ABSOLUTE MAXIMUM RATINGS** ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

| PARAMETER   | TEST CONDITION            | PART   | SYMBOL      | VALUE | UNIT |
|---|---------------------------|--------|-------------|-------|------|
| Maximum repetitive peak reverse voltage                 |                           | S07B-M | $V_{RRM}$   | 100   | V    |
|   |                           | S07D-M | $V_{RRM}$   | 200   | V    |
|   |                           | S07G-M | $V_{RRM}$   | 400   | V    |
|   |                           | S07J-M | $V_{RRM}$   | 600   | V    |
|   |                           | S07M-M | $V_{RRM}$   | 1000  | V    |
| Maximum RMS voltage                                     |                           | S07B-M | $V_{RMS}$   | 70    | V    |
|   |                           | S07D-M | $V_{RMS}$   | 140   | V    |
|   |                           | S07G-M | $V_{RMS}$   | 280   | V    |
|   |                           | S07J-M | $V_{RMS}$   | 420   | V    |
|   |                           | S07M-M | $V_{RMS}$   | 700   | V    |
| Maximum DC blocking voltage                             |                           | S07B-M | $V_{DC}$    | 100   | V    |
|   |                           | S07D-M | $V_{DC}$    | 200   | V    |
|   |                           | S07G-M | $V_{DC}$    | 400   | V    |
|   |                           | S07J-M | $V_{DC}$    | 600   | V    |
|   |                           | S07M-M | $V_{DC}$    | 1000  | V    |
| Maximum average forward rectified current               | $T_L = 110\text{ °C}$ (1) |        | $I_{F(AV)}$ | 1.5   | A    |
|   | $T_A = 65\text{ °C}$ (1)  |        | $I_{F(AV)}$ | 0.7   | A    |
| Peak forward surge current 8.3 ms single half sine-wave | $T_L = 25\text{ °C}$      |        | $I_{FSM}$   | 25    | A    |

**Note**

(1) Averaged over any 20 ms period



| THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                |                                   |             |      |
|--|----------------|-----------------------------------|-------------|------|
| PARAMETER  | TEST CONDITION | SYMBOL                            | VALUE       | UNIT |
| Thermal resistance junction to ambient air <sup>(1)</sup>                      |                | R <sub>thJA</sub>                 | 180         | K/W  |
| Operating junction and storage temperature range                               |                | T <sub>j</sub> , T <sub>stg</sub> | -65 to +175 | °C   |

**Note**

<sup>(1)</sup> Mounted on epoxy substrate with 3 mm x 3 mm Cu pads (≥ 40 μm thick)

| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |   |        |                 |      |      |      |      |    |
|---|---|--------|-----------------|------|------|------|------|----|
| PARAMETER   | TEST CONDITION  | PART   | SYMBOL          | MIN. | TYP. | MAX. | UNIT |    |
| Instantaneous forward voltage   | I <sub>F</sub> = 1 A <sup>(1)</sup>                                       | S07B-M | V <sub>F</sub>  |      |      | 1.1  | V    |    |
|   |   | S07D-M | V <sub>F</sub>  |      |      | 1.1  | V    |    |
|   |   | S07G-M | V <sub>F</sub>  |      |      | 1.1  | V    |    |
|   |   | S07J-M | V <sub>F</sub>  |      |      | 1.1  | V    |    |
|   |   | S07M-M | V <sub>F</sub>  |      |      | 1.1  | V    |    |
| Maximum DC reverse current at rated DC blocking voltage                           | T <sub>A</sub> = 25 °C  | S07B-M | I <sub>R</sub>  |      |      | 10   | μA   |    |
|   |   | S07D-M | I <sub>R</sub>  |      |      | 10   | μA   |    |
|   |   | S07G-M | I <sub>R</sub>  |      |      | 10   | μA   |    |
|   |   | S07J-M | I <sub>R</sub>  |      |      | 10   | μA   |    |
|   |   | S07M-M | I <sub>R</sub>  |      |      | 10   | μA   |    |
|   | T <sub>A</sub> = 125 °C   | S07B-M | I <sub>R</sub>  |      |      |      | 50   | μA |
|   |   | S07D-M | I <sub>R</sub>  |      |      |      | 50   | μA |
|   |   | S07G-M | I <sub>R</sub>  |      |      |      | 50   | μA |
|   |   | S07J-M | I <sub>R</sub>  |      |      |      | 50   | μA |
|   |   | S07M-M | I <sub>R</sub>  |      |      |      | 50   | μA |
| Reverse recovery time   | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A,<br>I <sub>rr</sub> = 0.25 A | S07B-M | t <sub>rr</sub> |      |      | 1800 | ns   |    |
|   |   | S07D-M | t <sub>rr</sub> |      |      | 1800 | ns   |    |
|   |   | S07G-M | t <sub>rr</sub> |      |      | 1800 | ns   |    |
|   |   | S07J-M | t <sub>rr</sub> |      |      | 1800 | ns   |    |
|   |   | S07M-M | t <sub>rr</sub> |      |      | 1800 | ns   |    |
| Typical capacitance   | 4 V, 1 MHz  | S07B-M | C <sub>j</sub>  |      | 4    |      | pF   |    |
|   |   | S07D-M | C <sub>j</sub>  |      | 4    |      | pF   |    |
|   |   | S07G-M | C <sub>j</sub>  |      | 4    |      | pF   |    |
|   |   | S07J-M | C <sub>j</sub>  |      | 4    |      | pF   |    |
|   |   | S07M-M | C <sub>j</sub>  |      | 4    |      | pF   |    |

**Note**

<sup>(1)</sup> Pulse test: 300 μs pulse width, 1 % duty cycle

## TYPICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

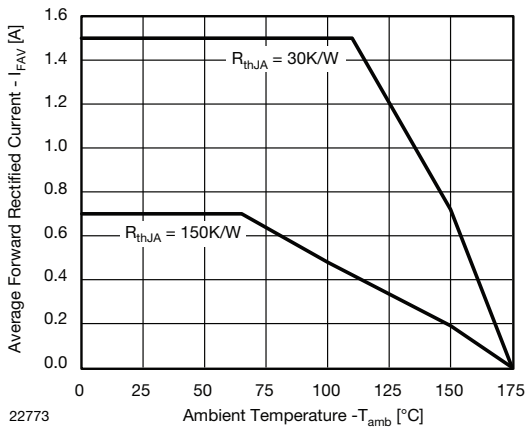


Fig. 1 - Forward Current Derating Curve

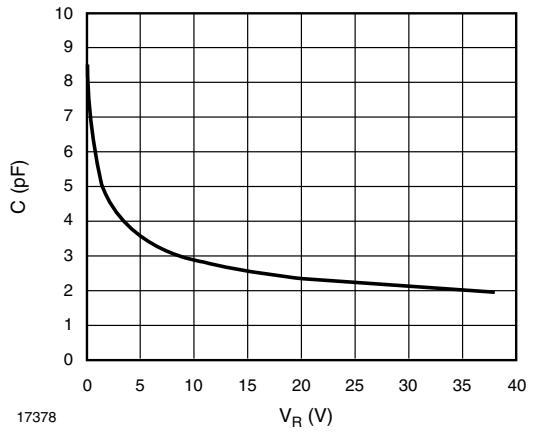


Fig. 4 - Capacitance vs. Reverse Voltage

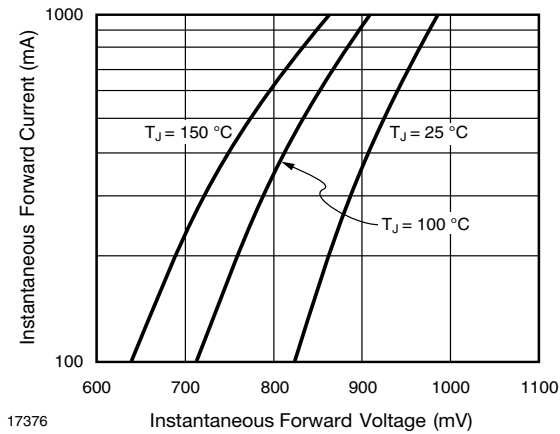


Fig. 2 - Typical Instantaneous Forward Characteristics

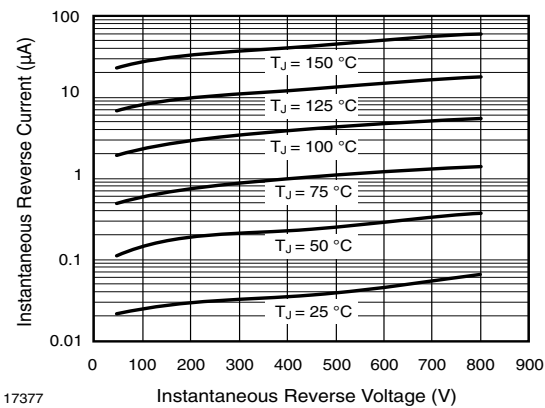
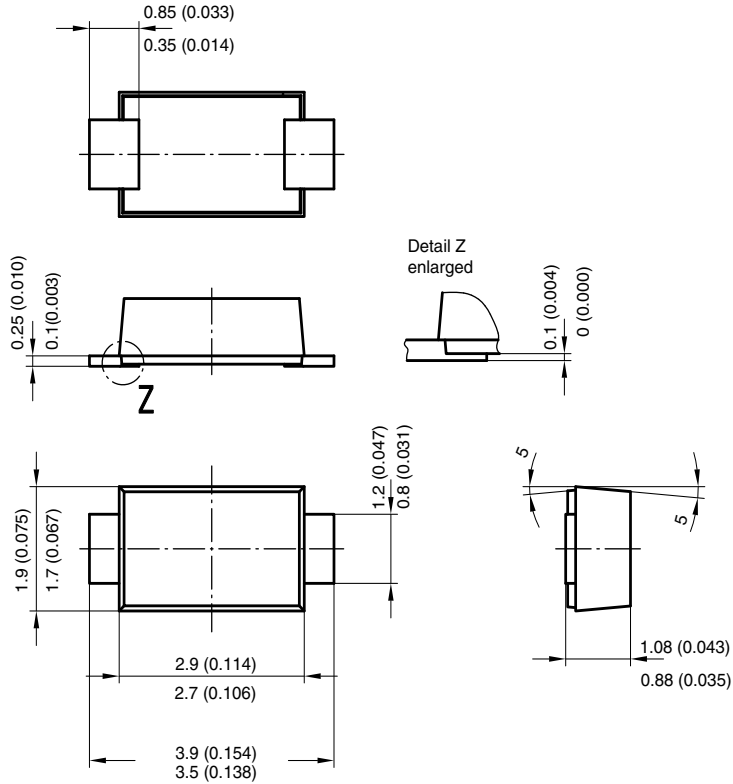


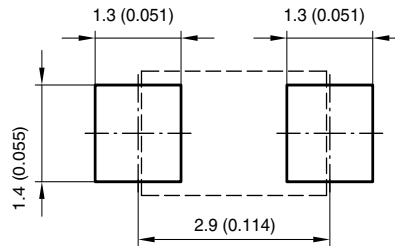
Fig. 3 - Typical Instantaneous Reverse Characteristics



## PACKAGE DIMENSIONS in millimeters (inches): SMF (DO-219AB)

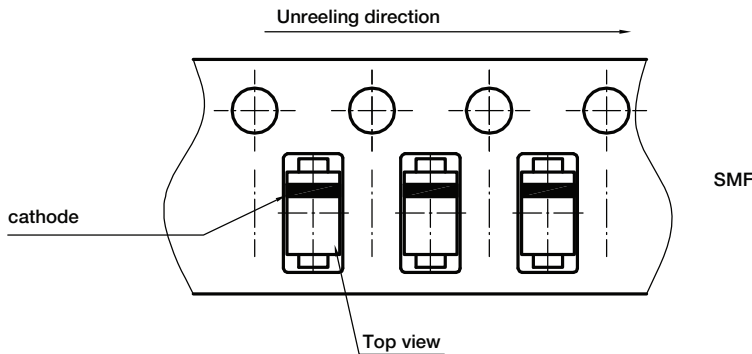


Foot print recommendation:



Created - Date: 15. February 2005  
 Rev. 3 - Date: 13. March 2007  
 Document no.: S8-V-3915.01-001 (4)  
 17247

## ORIENTATION IN CARRIER TAPE - SMF (DO-219AB)



Document no.: S8-V-3717.02-003 (4)  
 Created - Date: 09. Feb. 2010  
 22670



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