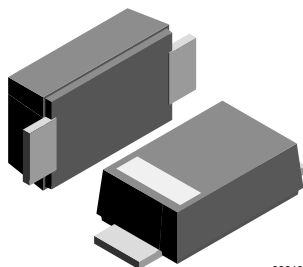


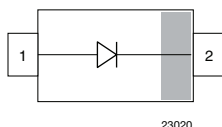
# Standard Recovery Rectifier High Voltage Surface Mount

## 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

## LINKS TO ADDITIONAL RESOURCES



## MECHANICAL DATA

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

**Polarity:** band denotes cathode end

**Weight:** approx. 15 mg

**Packaging codes / options:**

GS18/10K per 13" reel (8 mm tape)

GS08/3K per 7" reel (8 mm tape)

**Circuit configuration:** single

## PARTS TABLE

| PART | ORDERING CODE          | MARKING | REMARKS       |
|------|------------------------|---------|---------------|
| S07B | S07B-GS18 or S07B-GS08 | SB      | Tape and reel |
| S07D | S07D-GS18 or S07D-GS08 | SD      | Tape and reel |
| S07G | S07G-GS18 or S07G-GS08 | SG      | Tape and reel |
| S07J | S07J-GS18 or S07J-GS08 | SJ      | Tape and reel |
| S07M | S07M-GS18 or S07M-GS08 | SM      | Tape and reel |

## ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

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

## Note

<sup>(1)</sup> Averaged over any 20 ms period

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

| PARAMETER                                                 | TEST CONDITION | SYMBOL         | VALUE       | UNIT               |
|-----------------------------------------------------------|----------------|----------------|-------------|--------------------|
| Thermal resistance junction to ambient air <sup>(1)</sup> |                | $R_{thJA}$     | 180         | K/W                |
| Operating junction and storage temperature range          |                | $T_j, T_{stg}$ | -65 to +175 | $^{\circ}\text{C}$ |

**Note**

<sup>(1)</sup> Mounted on epoxy substrate with 3 mm x 3 mm Cu pads ( $\geq 40\text{ }\mu\text{m}$  thick)

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

| PARAMETER                                               | TEST CONDITION                                                 | PART | SYMBOL   | MIN. | TYP. | MAX. | UNIT          |
|---------------------------------------------------------|----------------------------------------------------------------|------|----------|------|------|------|---------------|
| Instantaneous forward voltage                           | $I_F = 1\text{ A}$ <sup>(1)</sup>                              | S07B | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S07D | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S07G | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S07J | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S07M | $V_F$    |      |      | 1.1  | V             |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^{\circ}\text{C}$                             | S07B | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S07D | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S07G | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S07J | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S07M | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         | $T_A = 125\text{ }^{\circ}\text{C}$                            | S07B | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S07D | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S07G | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S07J | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S07M | $I_R$    |      |      | 50   | $\mu\text{A}$ |
| Reverse recovery time                                   | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$ | S07B | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S07D | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S07G | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S07J | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S07M | $t_{rr}$ |      |      | 1800 | ns            |
| Typical capacitance                                     | 4 V, 1 MHz                                                     | S07B | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S07D | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S07G | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S07J | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S07M | $C_j$    |      | 4    |      | pF            |

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle



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

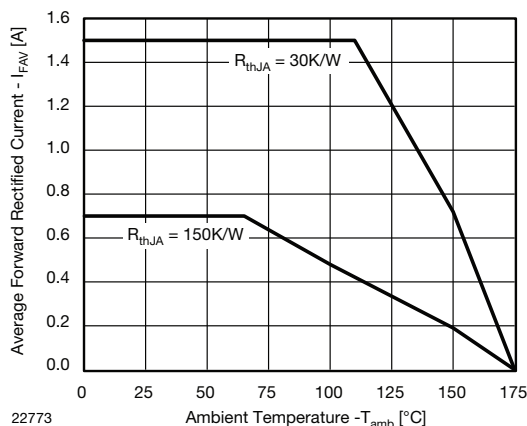


Fig. 1 - Forward Current Derating Curve

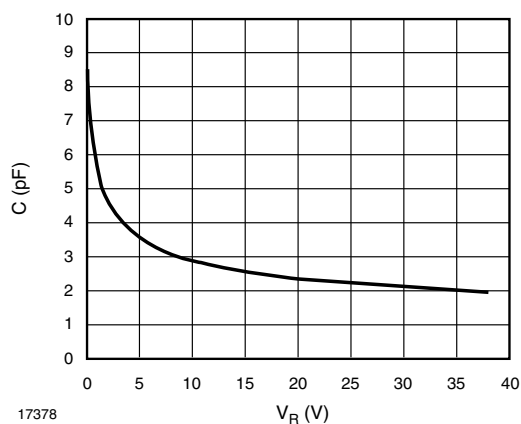


Fig. 4 - Capacitance vs. Reverse Voltage

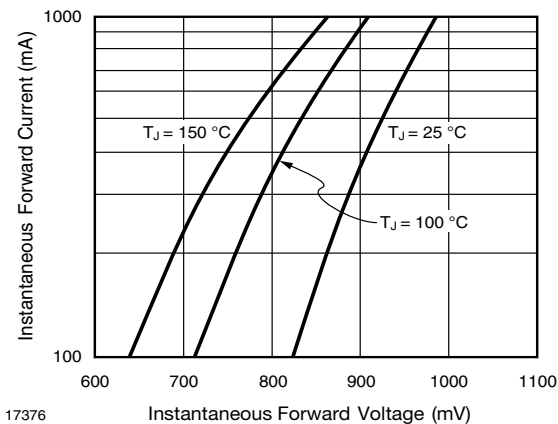


Fig. 2 - Typical Instantaneous Forward Characteristics

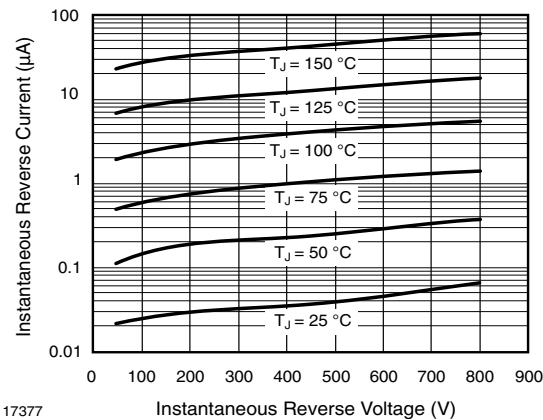
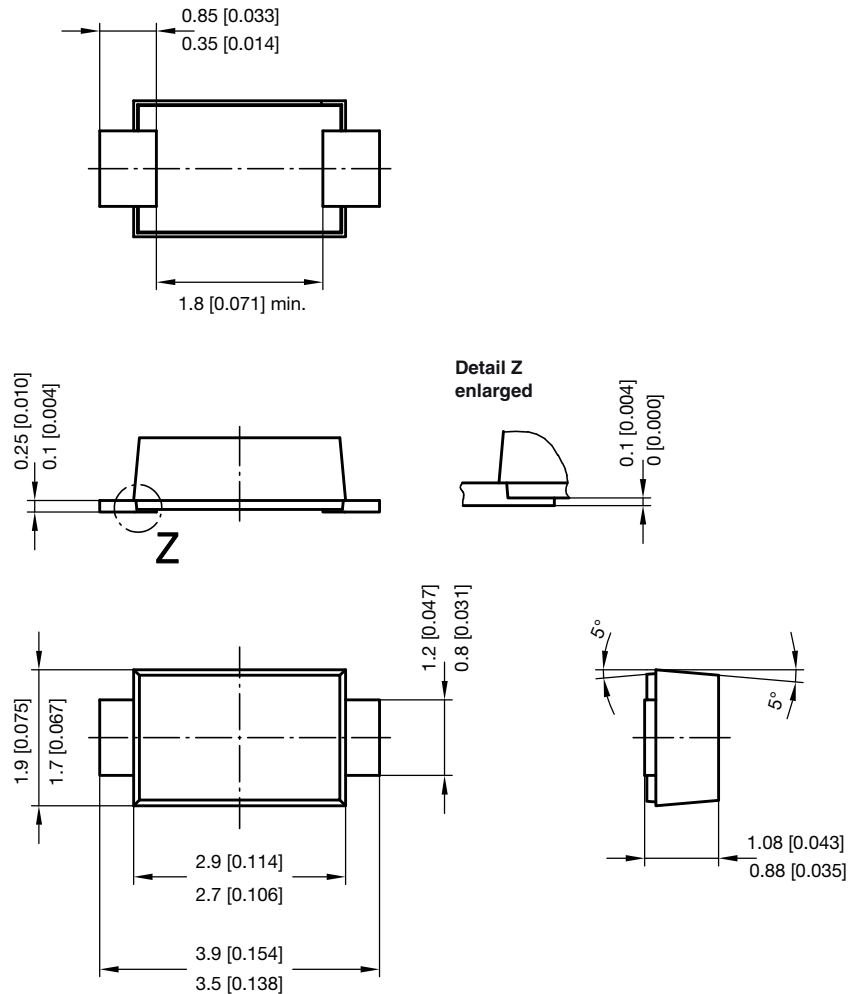


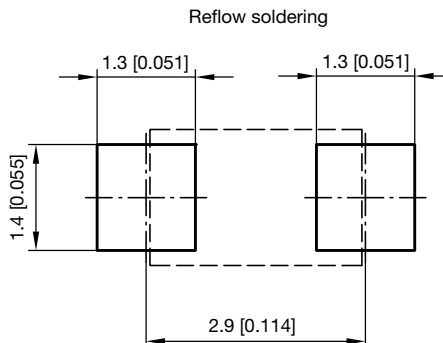
Fig. 3 - Typical Instantaneous Reverse Characteristics



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

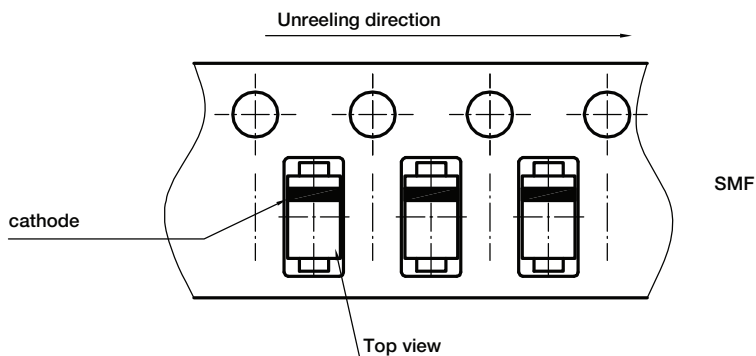


foot print recommendation:





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



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