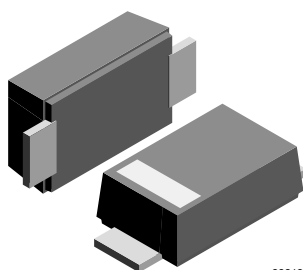
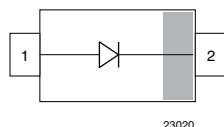


## Standard Recovery Rectifier, High Voltage Surface-Mount

### eSMP® Series



SMF (DO-219AB)



23020

### FEATURES

- For surface mounted applications
- Low profile package
- Ideal for automated placement
- Glass passivated
- High temperature soldering: 260 °C / 10 s at terminals
- Wave and reflow solderable
- 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

### 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), MOQ = 50K

GS08/3K per 7" reel (8 mm tape), MOQ = 30K

Circuit configuration: single

### LINKS TO ADDITIONAL RESOURCES



### PARTS TABLE

| PART  | ORDERING CODE            | MARKING | REMARKS       |
|-------|--------------------------|---------|---------------|
| S1FLB | S1FLB-GS18 or S1FLB-GS08 | FB      | Tape and reel |
| S1FLD | S1FLD-GS18 or S1FLD-GS08 | FD      | Tape and reel |
| S1FLG | S1FLG-GS18 or S1FLG-GS08 | FG      | Tape and reel |
| S1FLJ | S1FLJ-GS18 or S1FLJ-GS08 | FJ      | Tape and reel |
| S1FLK | S1FLK-GS18 or S1FLK-GS08 | FK      | Tape and reel |
| S1FLM | S1FLM-GS18 or S1FLM-GS08 | FM      | Tape and reel |

### ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

| PARAMETER                                               | TEST CONDITION                        | PART  | SYMBOL             | VALUE | UNIT |
|---------------------------------------------------------|---------------------------------------|-------|--------------------|-------|------|
| Maximum repetitive peak reverse voltage                 |                                       | S1FLB | V <sub>RRM</sub>   | 100   | V    |
|                                                         |                                       | S1FLD | V <sub>RRM</sub>   | 200   | V    |
|                                                         |                                       | S1FLG | V <sub>RRM</sub>   | 400   | V    |
|                                                         |                                       | S1FLJ | V <sub>RRM</sub>   | 600   | V    |
|                                                         |                                       | S1FLK | V <sub>RRM</sub>   | 800   | V    |
|                                                         |                                       | S1FLM | V <sub>RRM</sub>   | 1000  | V    |
| Maximum RMS voltage                                     |                                       | S1FLB | V <sub>RMS</sub>   | 70    | V    |
|                                                         |                                       | S1FLD | V <sub>RMS</sub>   | 140   | V    |
|                                                         |                                       | S1FLG | V <sub>RMS</sub>   | 280   | V    |
|                                                         |                                       | S1FLJ | V <sub>RMS</sub>   | 420   | V    |
|                                                         |                                       | S1FLK | V <sub>RMS</sub>   | 560   | V    |
|                                                         |                                       | S1FLM | V <sub>RMS</sub>   | 700   | V    |
| Maximum DC blocking voltage                             |                                       | S1FLB | V <sub>DC</sub>    | 100   | V    |
|                                                         |                                       | S1FLD | V <sub>DC</sub>    | 200   | V    |
|                                                         |                                       | S1FLG | V <sub>DC</sub>    | 400   | V    |
|                                                         |                                       | S1FLJ | V <sub>DC</sub>    | 600   | V    |
|                                                         |                                       | S1FLK | V <sub>DC</sub>    | 800   | V    |
|                                                         |                                       | S1FLM | V <sub>DC</sub>    | 1000  | V    |
| Maximum average forward rectified current               | T <sub>L</sub> = 75 °C                |       | I <sub>F(AV)</sub> | 1.5   | A    |
|                                                         | T <sub>A</sub> = 65 °C <sup>(1)</sup> |       | I <sub>F(AV)</sub> | 0.7   | A    |
| Peak forward surge current 8.3 ms single half sine-wave | T <sub>L</sub> = 25 °C                |       | I <sub>FSM</sub>   | 22    | 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          |                | $T_j, T_{stg}$ | -55 to +150 | $^{\circ}\text{C}$ |

**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          |
|---------------------------------------------------------|----------------------------------------------------------------|-------|----------|------|------|------|---------------|
| Maximum instantaneous forward voltage                   | 1 A <sup>(1)</sup>                                             | S1FLB | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S1FLD | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S1FLG | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S1FLJ | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S1FLK | $V_F$    |      |      | 1.1  | V             |
|                                                         |                                                                | S1FLM | $V_F$    |      |      | 1.1  | V             |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^{\circ}\text{C}$                             | S1FLB | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLD | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLG | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLJ | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLK | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLM | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                         | $T_A = 125\text{ }^{\circ}\text{C}$                            | S1FLB | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLD | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLG | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLJ | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLK | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                                                | S1FLM | $I_R$    |      |      | 50   | $\mu\text{A}$ |
| Reverse recovery time                                   | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$ | S1FLB | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S1FLD | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S1FLG | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S1FLJ | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S1FLK | $t_{rr}$ |      |      | 1800 | ns            |
|                                                         |                                                                | S1FLM | $t_{rr}$ |      |      | 1800 | ns            |
| Typical capacitance                                     | 4 V, 1 MHz                                                     | S1FLB | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S1FLD | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S1FLG | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S1FLJ | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S1FLK | $C_j$    |      | 4    |      | pF            |
|                                                         |                                                                | S1FLM | $C_j$    |      | 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)

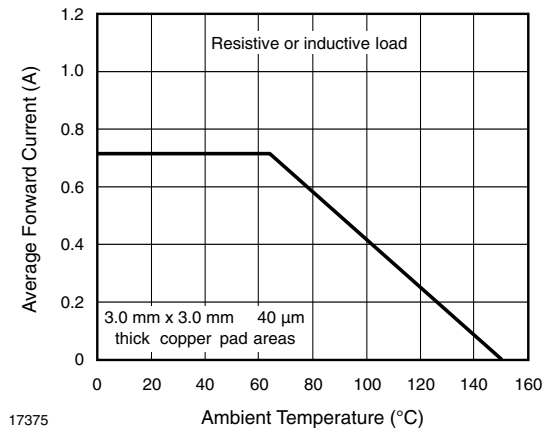


Fig. 1 - Forward Current Derating Curve

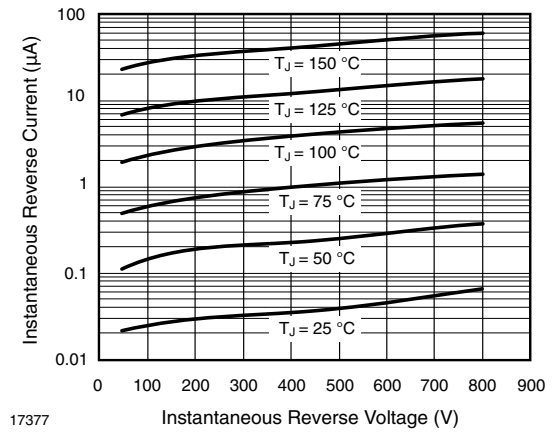


Fig. 3 - Typical Instantaneous Reverse Characteristics

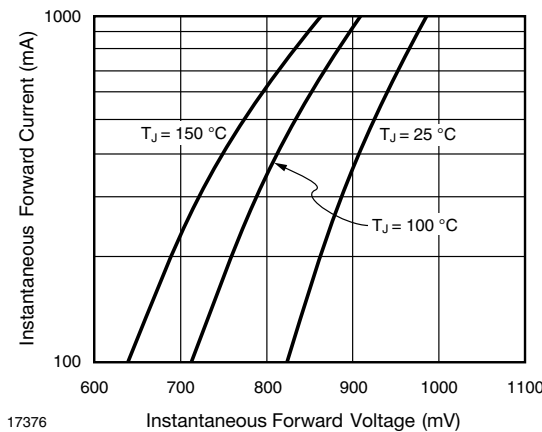


Fig. 2 - Typical Instantaneous Forward Characteristics

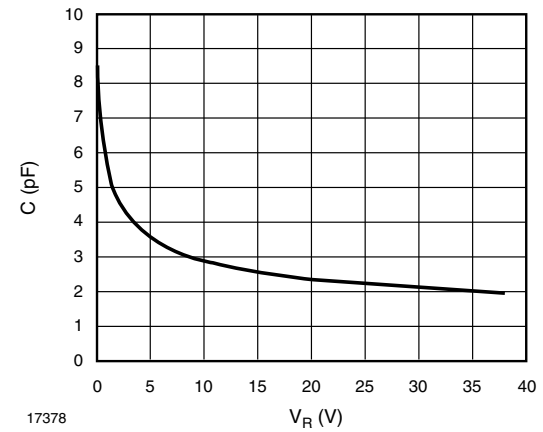
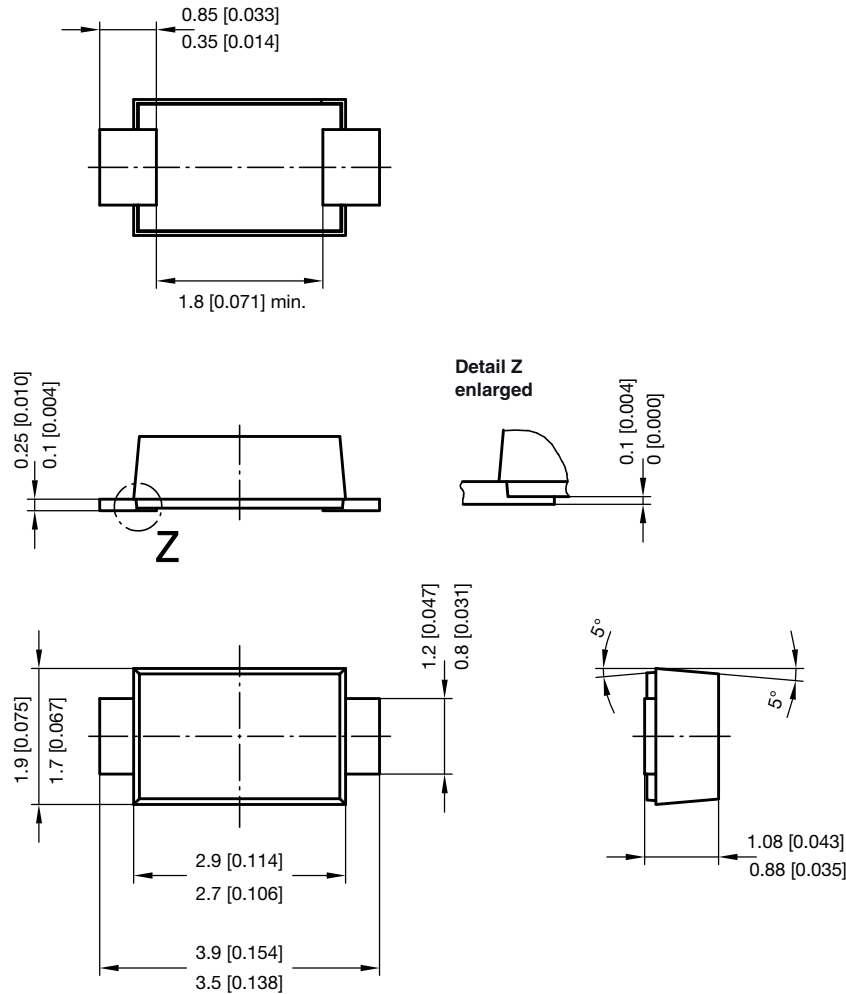


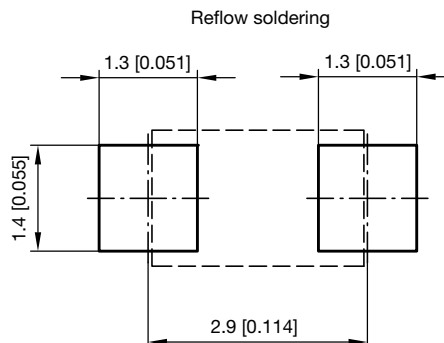
Fig. 4 - Capacitance vs. Reverse Voltage



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



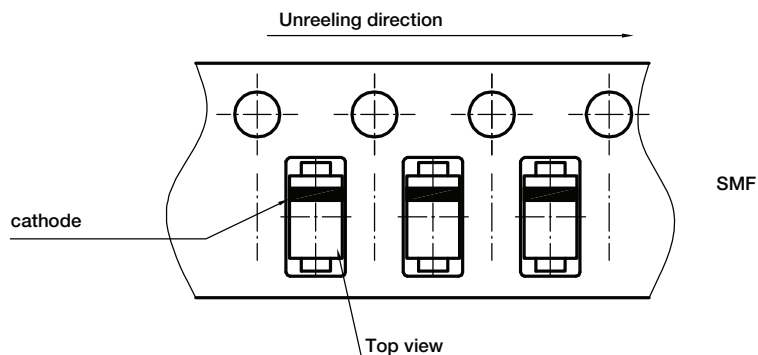
foot print recommendation:



Created - Date: 15. February 2005  
Rev. 6 - Date: 24.Feb.2021  
Document no.: S8-V-3915.01-001 (4)  
22989



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



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



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.