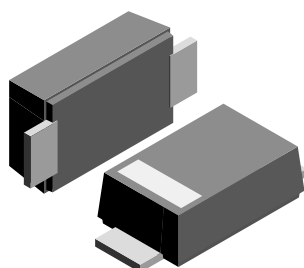


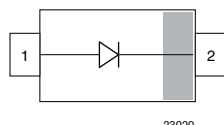


## Standard Recovery Rectifier, High Voltage Surface Mount

### 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  
HALOGEN  
**FREE**

### 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), MOQ = 50K

08/3K per 7" reel (8 mm tape), MOQ = 30K

**Circuit configuration:** single

### LINKS TO ADDITIONAL RESOURCES



### PARTS TABLE

| PART    | ORDERING CODE            | MARKING | REMARKS       |
|---------|--------------------------|---------|---------------|
| S1FLB-M | S1FLB-M-18 or S1FLB-M-08 | HB      | Tape and reel |
| S1FLD-M | S1FLD-M-18 or S1FLD-M-08 | HD      | Tape and reel |
| S1FLG-M | S1FLG-M-18 or S1FLG-M-08 | HG      | Tape and reel |
| S1FLJ-M | S1FLJ-M-18 or S1FLJ-M-08 | HJ      | Tape and reel |
| S1FLK-M | S1FLK-M-18 or S1FLK-M-08 | HK      | Tape and reel |
| S1FLM-M | S1FLM-M-18 or S1FLM-M-08 | HM      | 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-M | V <sub>RRM</sub> | 100   | V    |
|                                         |                | S1FLD-M | V <sub>RRM</sub> | 200   | V    |
|                                         |                | S1FLG-M | V <sub>RRM</sub> | 400   | V    |
|                                         |                | S1FLJ-M | V <sub>RRM</sub> | 600   | V    |
|                                         |                | S1FLK-M | V <sub>RRM</sub> | 800   | V    |
|                                         |                | S1FLM-M | V <sub>RRM</sub> | 1000  | V    |
| Maximum RMS voltage                     |                | S1FLB-M | V <sub>RMS</sub> | 70    | V    |
|                                         |                | S1FLD-M | V <sub>RMS</sub> | 140   | V    |
|                                         |                | S1FLG-M | V <sub>RMS</sub> | 280   | V    |
|                                         |                | S1FLJ-M | V <sub>RMS</sub> | 420   | V    |
|                                         |                | S1FLK-M | V <sub>RMS</sub> | 560   | V    |
|                                         |                | S1FLM-M | V <sub>RMS</sub> | 700   | V    |


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

| PARAMETER                                        | TEST CONDITION                                                                   | PART    | SYMBOL      | VALUE | UNIT |
|--------------------------------------------------|----------------------------------------------------------------------------------|---------|-------------|-------|------|
| Maximum DC blocking voltage                      |                                                                                  | S1FLB-M | $V_{DC}$    | 100   | V    |
|                                                  |                                                                                  | S1FLD-M | $V_{DC}$    | 200   | V    |
|                                                  |                                                                                  | S1FLG-M | $V_{DC}$    | 400   | V    |
|                                                  |                                                                                  | S1FLJ-M | $V_{DC}$    | 600   | V    |
|                                                  |                                                                                  | S1FLK-M | $V_{DC}$    | 800   | V    |
|                                                  |                                                                                  | S1FLM-M | $V_{DC}$    | 1000  | V    |
| Maximum average forward rectified current        | $T_L = 75\text{ }^{\circ}\text{C}$ <sup>(1)</sup>                                |         | $I_{F(AV)}$ | 1.5   | A    |
|                                                  | $T_A = 25\text{ }^{\circ}\text{C}$ <sup>(1)</sup> at $R_{thJA} < 110\text{ K/W}$ |         | $I_{F(AV)}$ | 1     | A    |
|                                                  | $T_A = 65\text{ }^{\circ}\text{C}$ <sup>(1)</sup>                                |         | $I_{F(AV)}$ | 0.7   | A    |
| Peak forward surge current 8.3 ms half sine-wave | $T_L = 25\text{ }^{\circ}\text{C}$                                               |         | $I_{FSM}$   | 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          |
|---------------------------------------------------------|-------------------------------------|---------|--------|------|------|------|---------------|
| Instantaneous forward voltage                           | 1 A <sup>(1)</sup>                  | S1FLB-M | $V_F$  |      |      | 1.1  | V             |
|                                                         |                                     | S1FLD-M | $V_F$  |      |      | 1.1  | V             |
|                                                         |                                     | S1FLG-M | $V_F$  |      |      | 1.1  | V             |
|                                                         |                                     | S1FLJ-M | $V_F$  |      |      | 1.1  | V             |
|                                                         |                                     | S1FLK-M | $V_F$  |      |      | 1.1  | V             |
|                                                         |                                     | S1FLM-M | $V_F$  |      |      | 1.1  | V             |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^{\circ}\text{C}$  | S1FLB-M | $I_R$  |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                     | S1FLD-M | $I_R$  |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                     | S1FLG-M | $I_R$  |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                     | S1FLJ-M | $I_R$  |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                     | S1FLK-M | $I_R$  |      |      | 10   | $\mu\text{A}$ |
|                                                         |                                     | S1FLM-M | $I_R$  |      |      | 10   | $\mu\text{A}$ |
|                                                         | $T_A = 125\text{ }^{\circ}\text{C}$ | S1FLB-M | $I_R$  |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                     | S1FLD-M | $I_R$  |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                     | S1FLG-M | $I_R$  |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                     | S1FLJ-M | $I_R$  |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                     | S1FLK-M | $I_R$  |      |      | 50   | $\mu\text{A}$ |
|                                                         |                                     | S1FLM-M | $I_R$  |      |      | 50   | $\mu\text{A}$ |

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

| PARAMETER             | TEST CONDITION                                                       | PART    | SYMBOL   | MIN. | TYP. | MAX. | UNIT |
|-----------------------|----------------------------------------------------------------------|---------|----------|------|------|------|------|
| Reverse recovery time | $I_F = 0.5\text{ A}$ , $I_R = 1\text{ A}$ , $I_{rr} = 0.25\text{ A}$ | S1FLB-M | $t_{rr}$ |      |      | 1800 | ns   |
|                       |                                                                      | S1FLD-M | $t_{rr}$ |      |      | 1800 | ns   |
|                       |                                                                      | S1FLG-M | $t_{rr}$ |      |      | 1800 | ns   |
|                       |                                                                      | S1FLJ-M | $t_{rr}$ |      |      | 1800 | ns   |
|                       |                                                                      | S1FLK-M | $t_{rr}$ |      |      | 1800 | ns   |
|                       |                                                                      | S1FLM-M | $t_{rr}$ |      |      | 1800 | ns   |
| Typical capacitance   | 4 V, 1 MHz                                                           | S1FLB-M | $C_j$    |      | 4    |      | pF   |
|                       |                                                                      | S1FLD-M | $C_j$    |      | 4    |      | pF   |
|                       |                                                                      | S1FLG-M | $C_j$    |      | 4    |      | pF   |
|                       |                                                                      | S1FLJ-M | $C_j$    |      | 4    |      | pF   |
|                       |                                                                      | S1FLK-M | $C_j$    |      | 4    |      | pF   |
|                       |                                                                      | S1FLM-M | $C_j$    |      | 4    |      | pF   |

**Note**

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



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

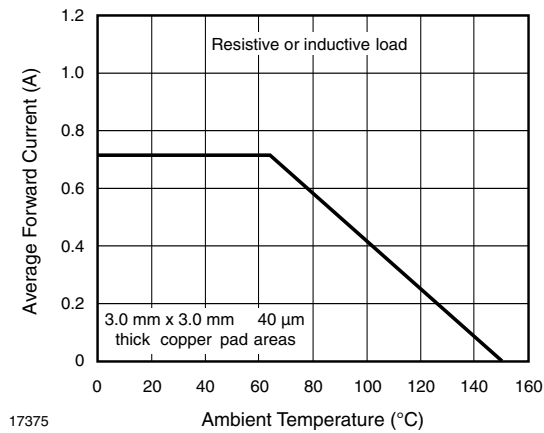


Fig. 1 - Forward Current Derating Curve

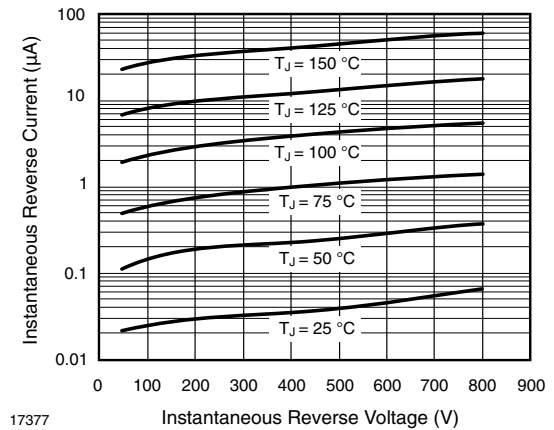


Fig. 3 - Typical Instantaneous Reverse Characteristics

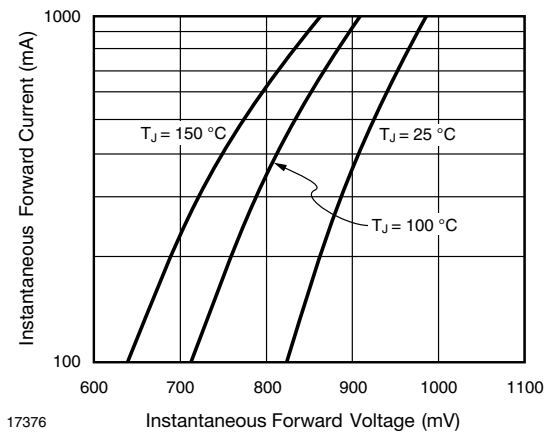


Fig. 2 - Typical Instantaneous Forward Characteristics

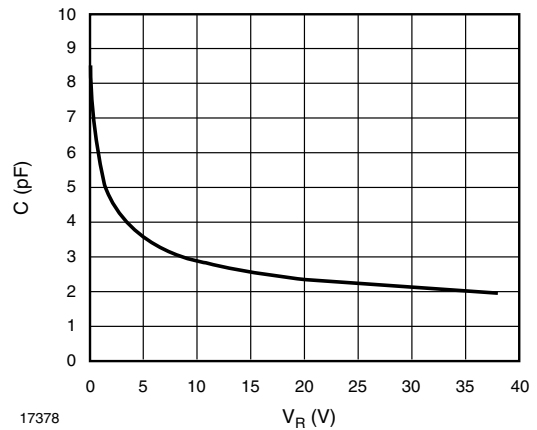
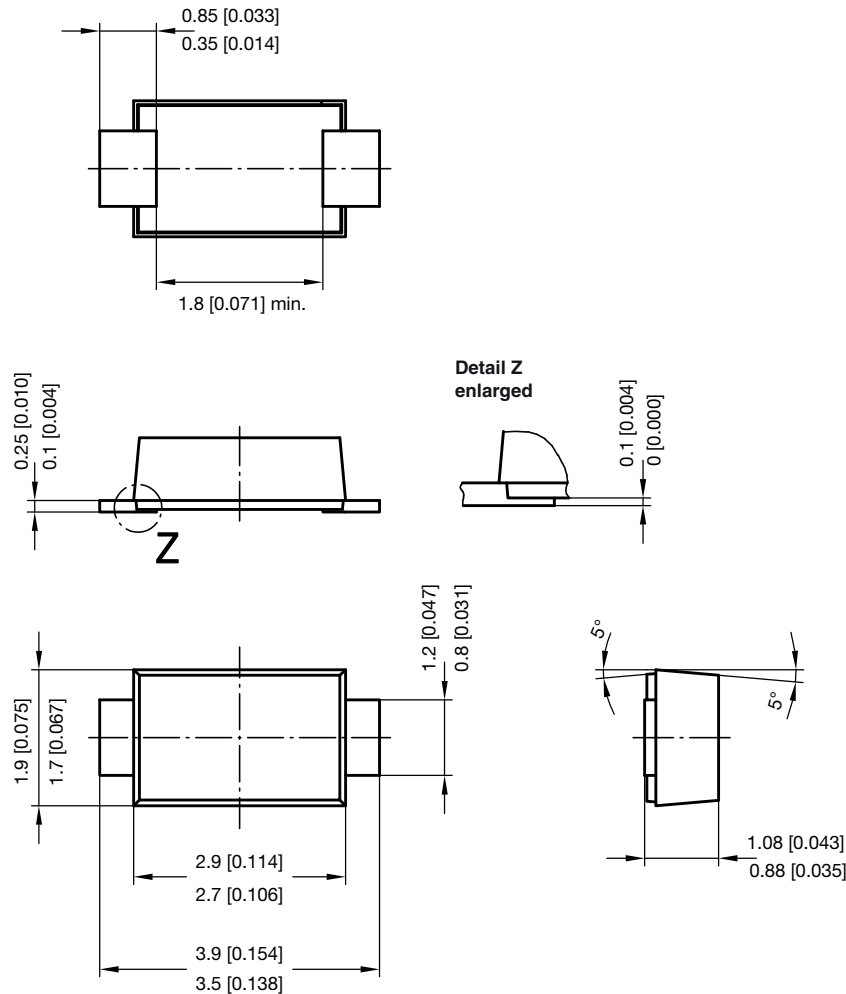


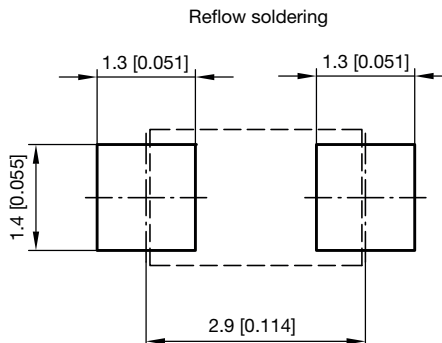
Fig. 4 - Capacitance vs. Reverse Voltage



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



foot print recommendation:



Created - Date: 15. February 2005

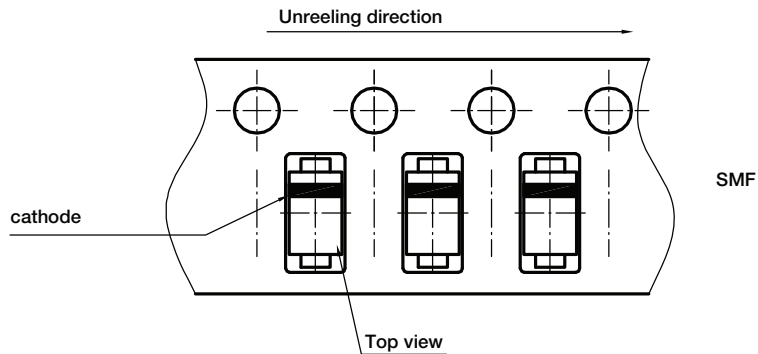
Rev. 6 - Date: 24.Feb.2021

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



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22670



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