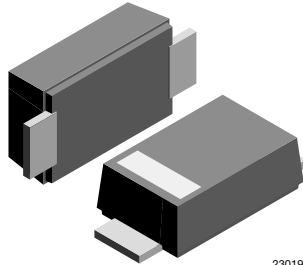


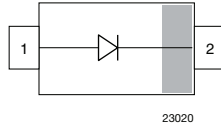


## Standard Recovery Rectifier High Voltage Surface-Mount

### eSMP® Series



SMF (DO-219AB)



### 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### DESIGN SUPPORT TOOLS

[click logo to get started](#)



### 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 <sub>amb</sub> = 25 °C, unless otherwise specified) |  |        |                    |       |      |
|---|--|--------|--------------------|-------|------|
| PARAMETER   | TEST CONDITION                         | PART   | SYMBOL             | VALUE | UNIT |
| Maximum repetitive peak reverse voltage   |  | S07B-M | V <sub>RRM</sub>   | 100   | V    |
|   |  | S07D-M | V <sub>RRM</sub>   | 200   | V    |
|   |  | S07G-M | V <sub>RRM</sub>   | 400   | V    |
|   |  | S07J-M | V <sub>RRM</sub>   | 600   | V    |
|   |  | S07M-M | V <sub>RRM</sub>   | 1000  | V    |
| Maximum RMS voltage   |  | S07B-M | V <sub>RMS</sub>   | 70    | V    |
|   |  | S07D-M | V <sub>RMS</sub>   | 140   | V    |
|   |  | S07G-M | V <sub>RMS</sub>   | 280   | V    |
|   |  | S07J-M | V <sub>RMS</sub>   | 420   | V    |
|   |  | S07M-M | V <sub>RMS</sub>   | 700   | V    |
| Maximum DC blocking voltage   |  | S07B-M | V <sub>DC</sub>    | 100   | V    |
|   |  | S07D-M | V <sub>DC</sub>    | 200   | V    |
|   |  | S07G-M | V <sub>DC</sub>    | 400   | V    |
|   |  | S07J-M | V <sub>DC</sub>    | 600   | V    |
|   |  | S07M-M | V <sub>DC</sub>    | 1000  | V    |
| Maximum average forward rectified current                                       | T <sub>L</sub> = 110 °C <sup>(1)</sup> |        | 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>   | 25    | A    |

### Note

<sup>(1)</sup> 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<sub>amb</sub> = 25 °C, unless otherwise specified)

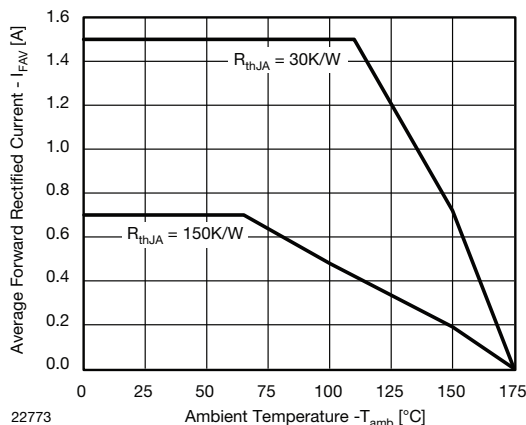


Fig. 1 - Forward Current Derating Curve

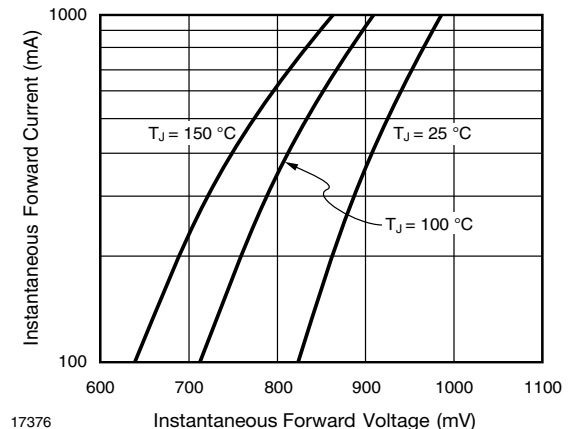


Fig. 2 - Typical Instantaneous Forward Characteristics

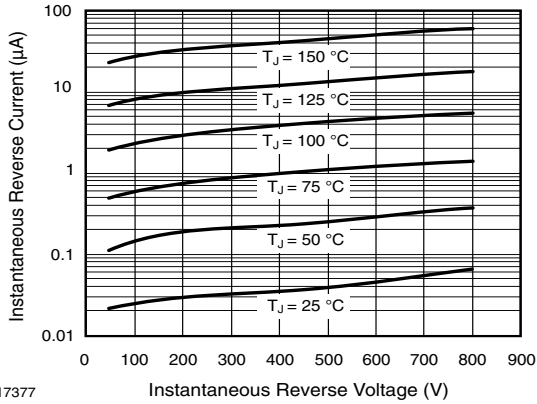


Fig. 3 - Typical Instantaneous Reverse Characteristics

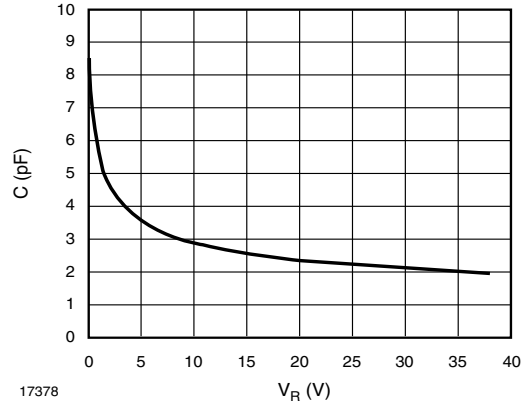
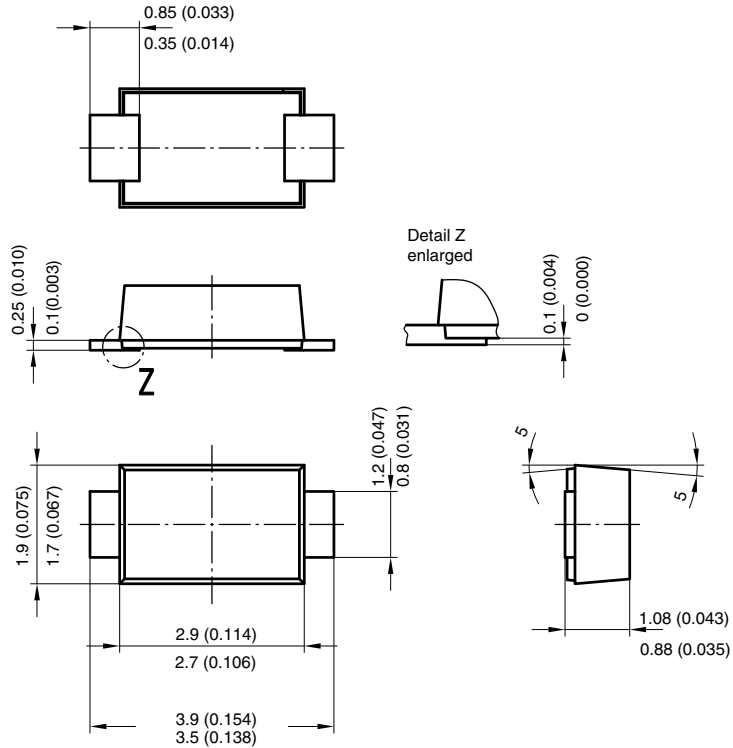
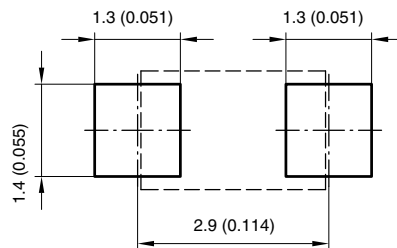


Fig. 4 - Capacitance vs. Reverse Voltage

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



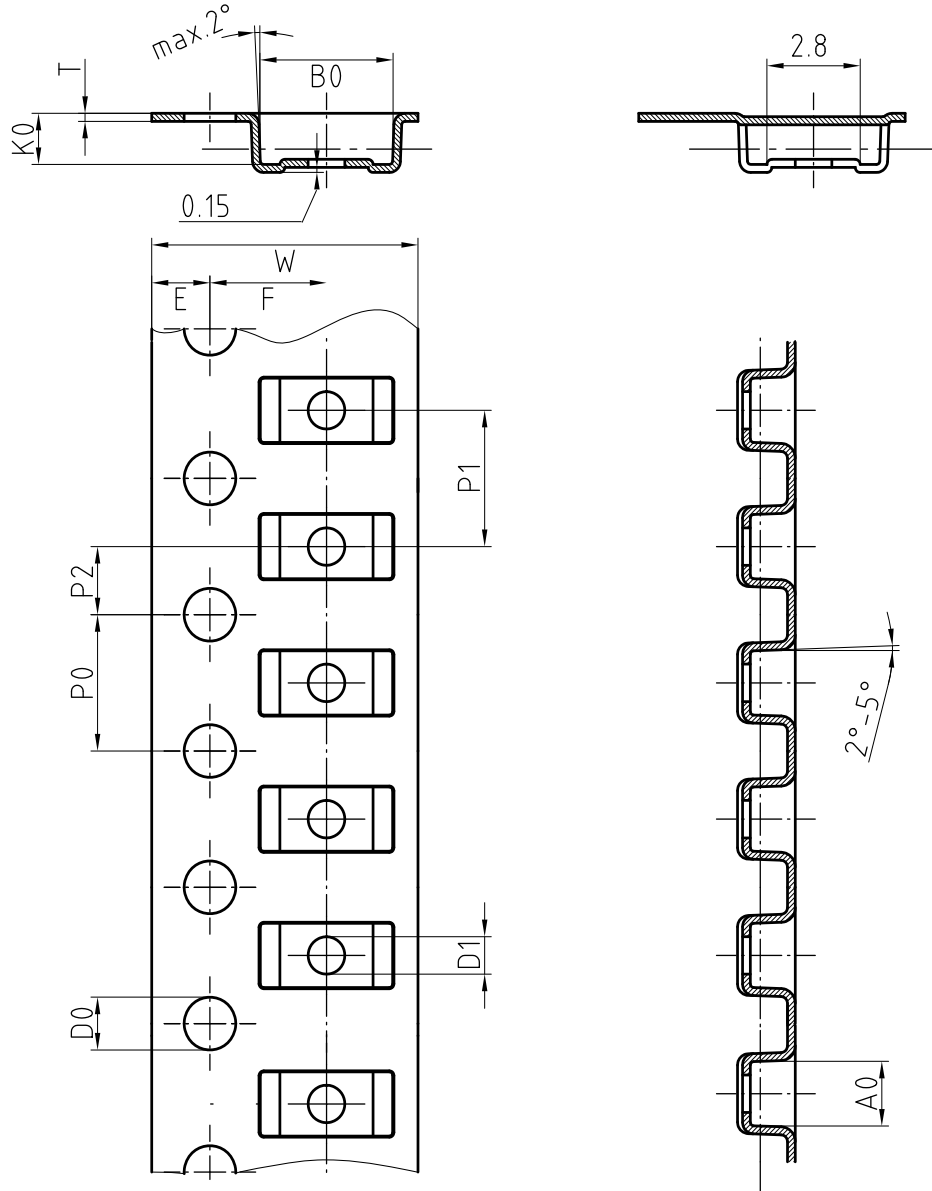
Foot print recommendation:



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



**BLISTER TAPE DIMENSIONS** in millimeters: **SMF (DO-219AB)**



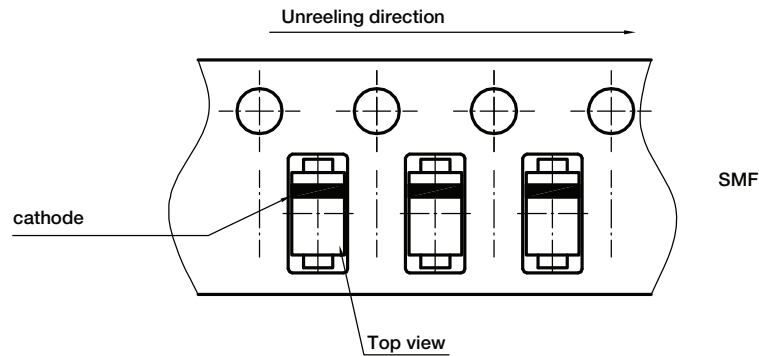
| Mat: | A0  | B0  | K0  | W   | T     | P0  | P2  | P1  | D0  | D1 | E    | F   |
|------|-----|-----|-----|-----|-------|-----|-----|-----|-----|----|------|-----|
| PS   | 1.9 | 4.0 | 1.5 | 8.0 | 0.235 | 4.0 | 2.0 | 4.0 | 1.5 | 1  | 1.75 | 3.5 |

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



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Created - Date: 09. Feb. 2010  
22670



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