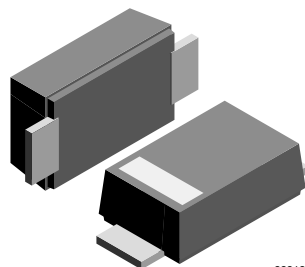
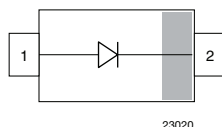


# Schottky Rectifier Surface-Mount

## eSMP® Series



SMF (DO-219AB)



23020

## FEATURES

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Low power loss, high efficiency
- 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 available
- Base P/N-E3 - RoHS-compliant and commercial grade
- Base P/N-HE3 - RoHS-compliant and 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:** color 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

## TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, DC/DC converters, and polarity protection in commercial, industrial, and automotive applications.

## PARTS TABLE

| PART | ORDERING CODE                                            | MARKING | REMARKS       |
|------|----------------------------------------------------------|---------|---------------|
| SL04 | SL04-E3-18 or SL04-E3-08<br>SL04-HE3_A18 or SL04-HE3_A08 | S4      | Tape and reel |

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

| PARAMETER                                                                                  | TEST CONDITION | SYMBOL             | VALUE | UNIT |
|--------------------------------------------------------------------------------------------|----------------|--------------------|-------|------|
| Maximum repetitive peak reverse voltage                                                    |                | V <sub>RRM</sub>   | 40    | V    |
| Maximum average forward rectified current (fig. 4)                                         |                | I <sub>F(AV)</sub> | 1.1   | A    |
| Peak forward surge current 8.3 ms single half sine-wave<br>T <sub>J(initial)</sub> = 25 °C |                | I <sub>FSM</sub>   | 40    | A    |

## THERMAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

| PARAMETER                                                       | TEST CONDITION | SYMBOL            | VALUE       | UNIT |
|-----------------------------------------------------------------|----------------|-------------------|-------------|------|
| Thermal resistance junction to lead                             |                | R <sub>thJL</sub> | 22          | K/W  |
| Thermal resistance junction to ambient air <sup>(1)</sup>       |                | R <sub>thJA</sub> | 180         | K/W  |
| Junction temperature in DC forward current without reverse bias |                | T <sub>j</sub>    | 175         | °C   |
| Storage temperature range                                       |                | T <sub>stg</sub>  | -55 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 CONDITIONS               |                         | SYMBOL                        | TYP. | MAX. | UNIT |
| Instantaneous forward voltage                                                     | I <sub>F</sub> = 0.5 A        | T <sub>J</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.41 | 0.47 | V    |
|                                                                                   | I <sub>F</sub> = 1.1 A        |                         |                               | 0.48 | 0.54 |      |
|                                                                                   | I <sub>F</sub> = 0.5 A        | T <sub>J</sub> = 100 °C |                               | 0.34 | -    |      |
|                                                                                   | I <sub>F</sub> = 1.1 A        |                         |                               | 0.43 | -    |      |
|                                                                                   | I <sub>F</sub> = 0.5 A        | T <sub>J</sub> = 125 °C |                               | 0.31 | -    |      |
|                                                                                   | I <sub>F</sub> = 1.1 A        |                         |                               | 0.42 | -    |      |
| Reverse current                                                                   | V <sub>R</sub> = 40 V         | T <sub>J</sub> = 25 °C  | I <sub>R</sub>                | 10   | 20   | μA   |
|                                                                                   |                               | T <sub>J</sub> = 100 °C |                               | 1.2  | 2.6  | mA   |
|                                                                                   |                               | T <sub>J</sub> = 125 °C |                               | 4.5  | 13   | mA   |
| Typical junction capacitance                                                      | V <sub>R</sub> = 4.0 V, 1 MHz |                         | C <sub>D</sub>                | 65   | -    | pF   |

**Note**

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

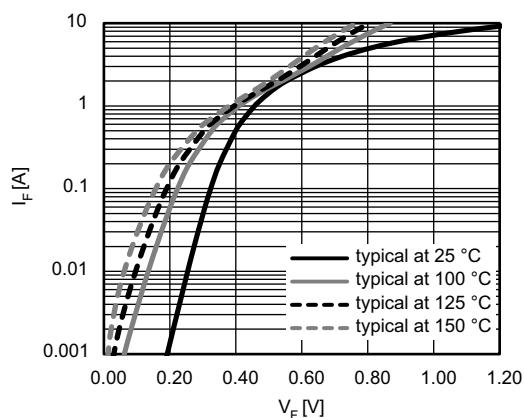
**RATINGS AND CHARACTERISTICS CURVES** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Typical Forward Characteristics

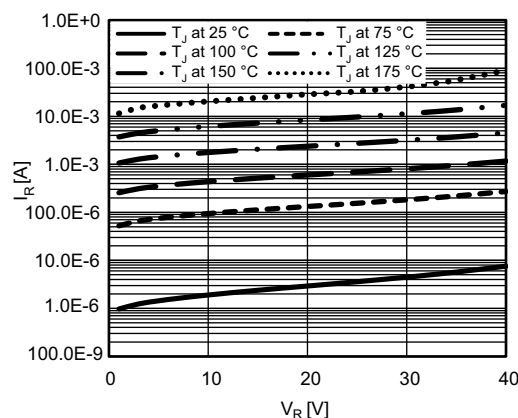


Fig. 3 - Typical Reverse Characteristics

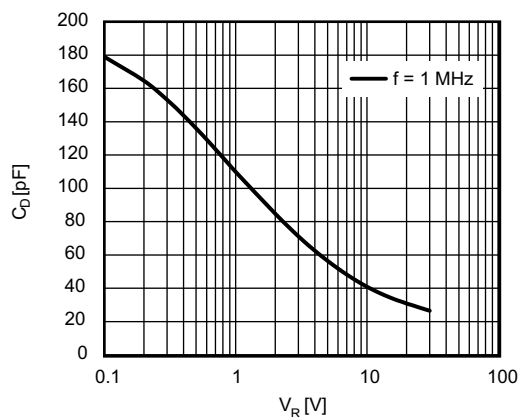


Fig. 2 - Typical Diode Capacitance vs. Reverse Voltage

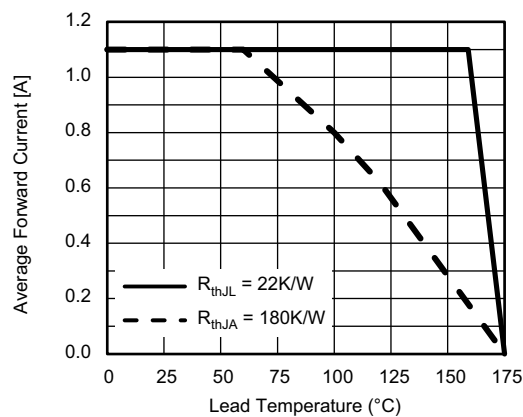


Fig. 4 - Forward Current Derating Curve

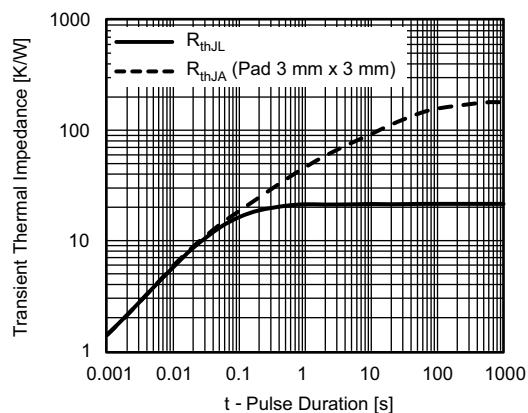
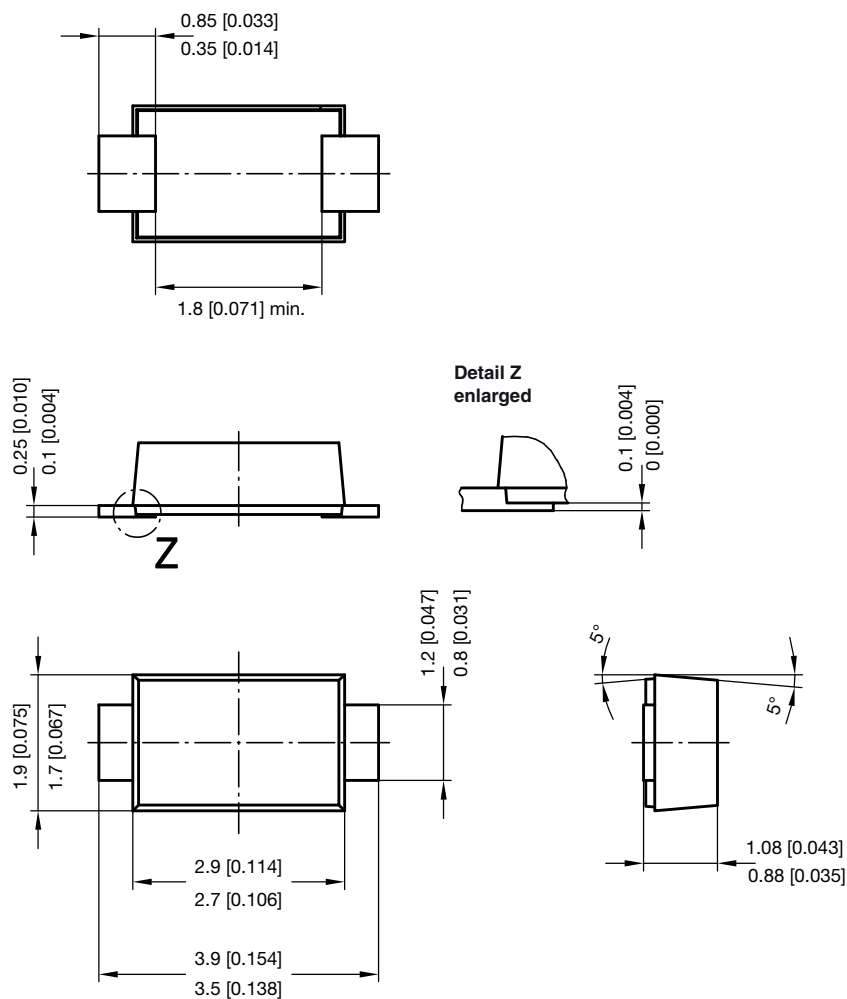
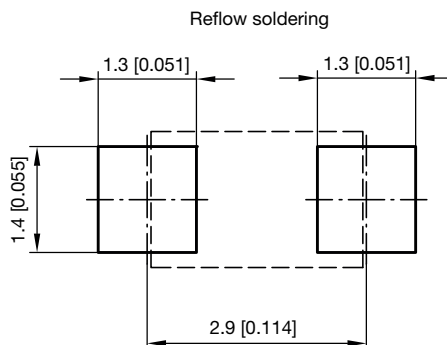


Fig. 5 - Typical Transient Thermal Impedance

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


foot print recommendation:



Created - Date: 15. February 2005

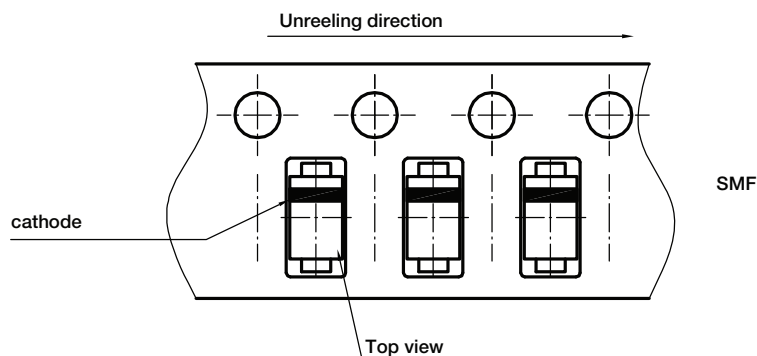
Rev. 6 - Date: 24.Feb.2021

Document no.: S8-V-3915.01-001 (4)

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**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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