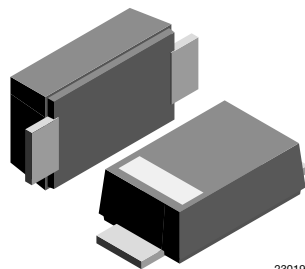
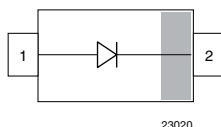


## Fast Rectifier Surface-Mount

### 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
- Base P/N-E3 - RoHS-compliant
- Base P/N-GS - 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:** 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       |
| RS07B       | RS07B-E3-18 or RS07B-E3-08 | YB      | Tape and reel |
|             | RS07B-GS18 or RS07B-GS08   | RB      |               |
| RS07D       | RS07D-E3-18 or RS07D-E3-08 | YD      | Tape and reel |
|             | RS07D-GS18 or RS07D-GS08   | RD      |               |
| RS07G       | RS07G-E3-18 or RS07G-E3-08 | YG      | Tape and reel |
|             | RS07G-GS18 or RS07G-GS08   | RG      |               |
| RS07J       | RS07J-E3-18 or RS07J-E3-08 | YJ      | Tape and reel |
|             | RS07J-GS18 or RS07J-GS08   | RJ      |               |
| RS07K       | RS07K-E3-18 or RS07K-E3-08 | YK      | Tape and reel |
|             | RS07K-GS18 or RS07K-GS08   | RK      |               |



| 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                                                         |                                    | RS07B | $V_{RRM}$   | 100   | V    |
|                                                                                                 |                                    | RS07D | $V_{RRM}$   | 200   | V    |
|                                                                                                 |                                    | RS07G | $V_{RRM}$   | 400   | V    |
|                                                                                                 |                                    | RS07J | $V_{RRM}$   | 600   | V    |
|                                                                                                 |                                    | RS07K | $V_{RRM}$   | 800   | V    |
| Maximum RMS voltage                                                                             |                                    | RS07B | $V_{RMS}$   | 70    | V    |
|                                                                                                 |                                    | RS07D | $V_{RMS}$   | 140   | V    |
|                                                                                                 |                                    | RS07G | $V_{RMS}$   | 280   | V    |
|                                                                                                 |                                    | RS07J | $V_{RMS}$   | 420   | V    |
|                                                                                                 |                                    | RS07K | $V_{RMS}$   | 560   | V    |
| Maximum DC blocking voltage                                                                     |                                    | RS07B | $V_{DC}$    | 100   | V    |
|                                                                                                 |                                    | RS07D | $V_{DC}$    | 200   | V    |
|                                                                                                 |                                    | RS07G | $V_{DC}$    | 400   | V    |
|                                                                                                 |                                    | RS07J | $V_{DC}$    | 600   | V    |
| Maximum average forward rectified current                                                       | $T_L = 65\text{ }^{\circ}\text{C}$ |       | $I_{F(AV)}$ | 1.4   | A    |
|                                                                                                 | $T_A = 45\text{ }^{\circ}\text{C}$ |       | $I_{F(AV)}$ | 0.5   | A    |
| Peak forward surge current 8.3 ms half sine-wave                                                | $T_L = 25\text{ }^{\circ}\text{C}$ |       | $I_{FSM}$   | 30    | A    |

| THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                |                |            |                    |
|------------------------------------------------------------------------------------------------|----------------|----------------|------------|--------------------|
| PARAMETER                                                                                      | TEST CONDITION | SYMBOL         | VALUE      | UNIT               |
| Thermal resistance junction to lead                                                            |                | $R_{thJL}$     | 30         | K/W                |
| 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 glass PCB 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                                                                     | $I_F = 0.7\text{ A}^{(1)}$                                     | RS07B | $V_F$    |      |      | 1.15 | V             |
|                                                                                                   |                                                                | RS07D | $V_F$    |      |      | 1.15 | V             |
|                                                                                                   |                                                                | RS07G | $V_F$    |      |      | 1.15 | V             |
|                                                                                                   |                                                                | RS07J | $V_F$    |      |      | 1.15 | V             |
|                                                                                                   | $I_F = 1\text{ A}^{(1)}$                                       | RS07K | $V_F$    |      |      | 1.3  | V             |
| Maximum DC reverse current at rated DC blocking voltage                                           | $T_A = 25\text{ }^{\circ}\text{C}$                             | RS07B | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07D | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07G | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07J | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07K | $I_R$    |      |      | 2    | $\mu\text{A}$ |
|                                                                                                   | $T_A = 125\text{ }^{\circ}\text{C}$                            | RS07B | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07D | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07G | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07J | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                                                                   |                                                                | RS07K | $I_R$    |      |      | 150  | $\mu\text{A}$ |
| Reverse recovery time                                                                             | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$ | RS07B | $t_{rr}$ |      |      | 150  | ns            |
|                                                                                                   |                                                                | RS07D | $t_{rr}$ |      |      | 150  | ns            |
|                                                                                                   |                                                                | RS07G | $t_{rr}$ |      |      | 150  | ns            |
|                                                                                                   |                                                                | RS07J | $t_{rr}$ |      |      | 250  | ns            |
|                                                                                                   |                                                                | RS07K | $t_{rr}$ |      |      | 300  | ns            |
| Typical capacitance                                                                               | 4 V, 1 MHz                                                     | RS07B | $C_j$    |      | 9    |      | pF            |
|                                                                                                   |                                                                | RS07D | $C_j$    |      | 9    |      | pF            |
|                                                                                                   |                                                                | RS07G | $C_j$    |      | 9    |      | pF            |
|                                                                                                   |                                                                | RS07J | $C_j$    |      | 9    |      | pF            |
|                                                                                                   |                                                                | RS07K | $C_j$    |      | 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)

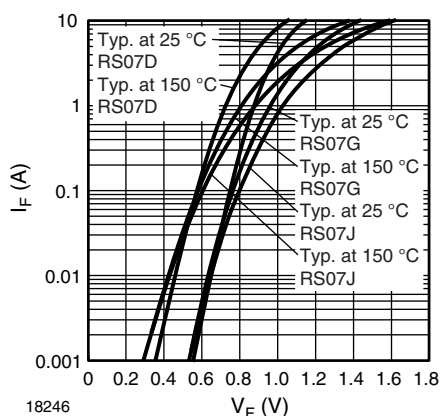


Fig. 1 - Typical Forward Characteristics

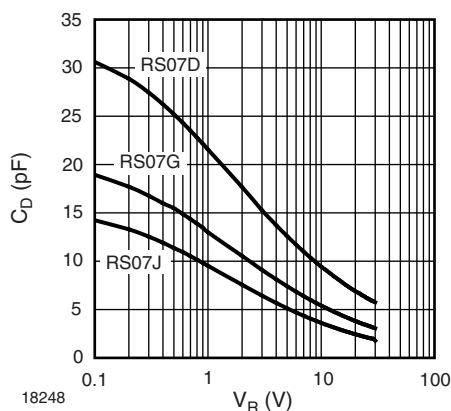


Fig. 4 - Typical Diode Capacitance vs. Reverse Voltage

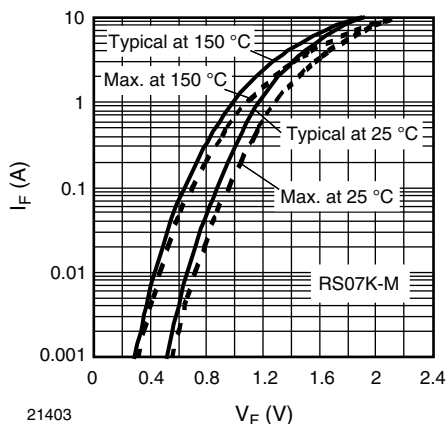


Fig. 2 - Typical Forward Characteristics

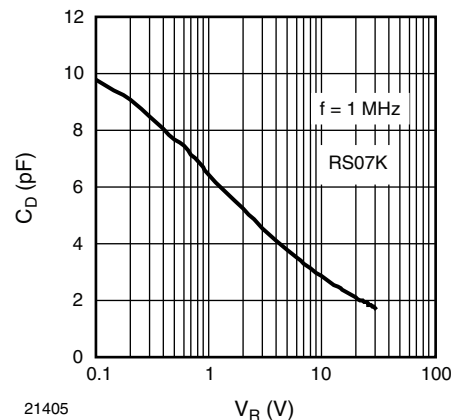


Fig. 5 - Typical Diode Capacitance vs. Reverse Voltage

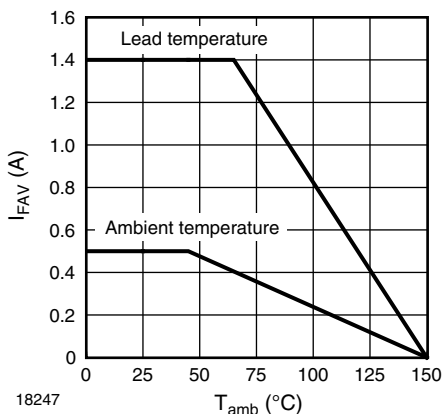


Fig. 3 - Forward Current Derating Curve

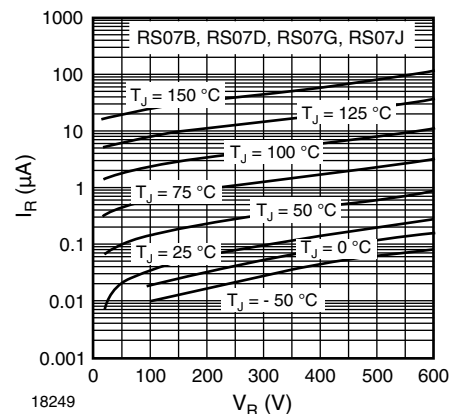


Fig. 6 - Typical Reverse Characteristics

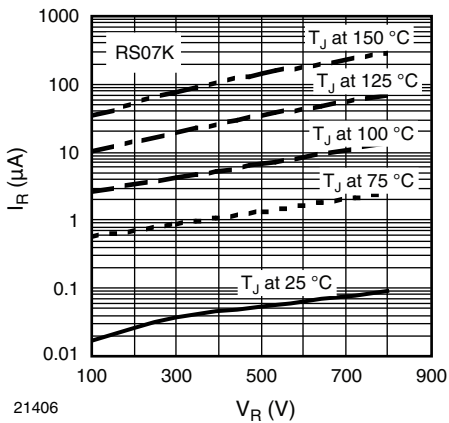
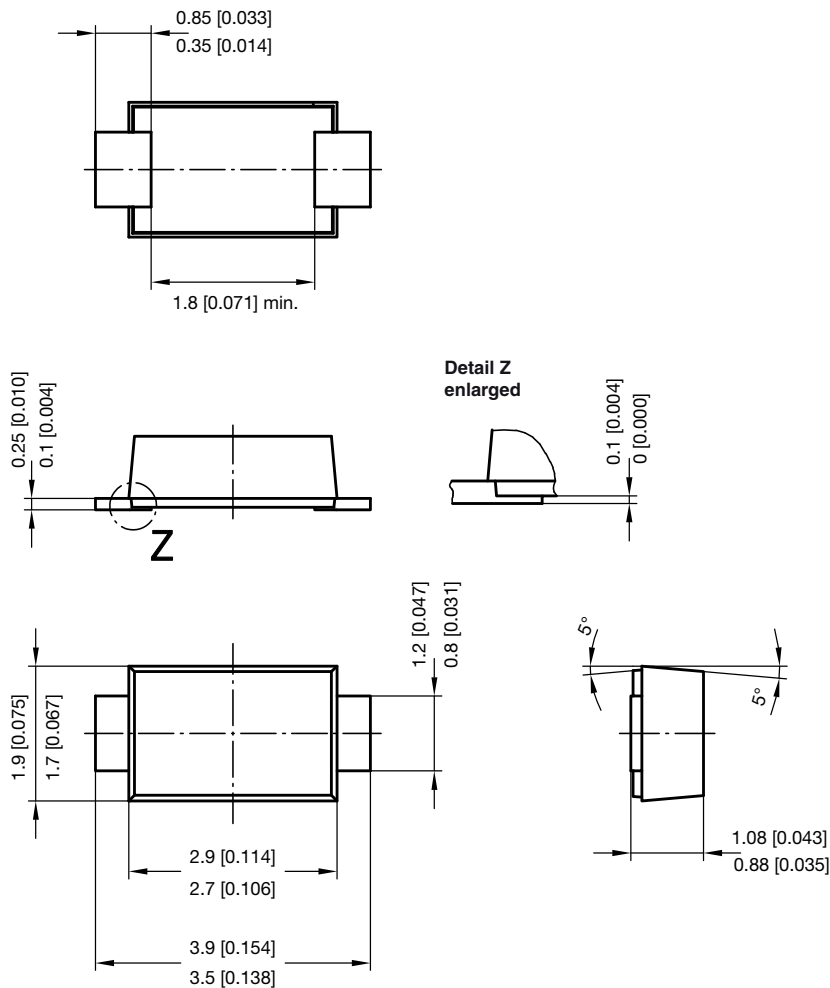


Fig. 7 - Typical Reverse Characteristics

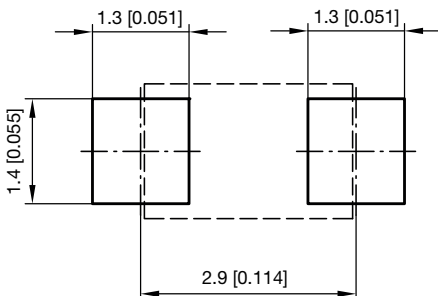


**PACKAGE DIMENSIONS** in millimeters (inches): **SMF (DO-219AB)**



foot print recommendation:

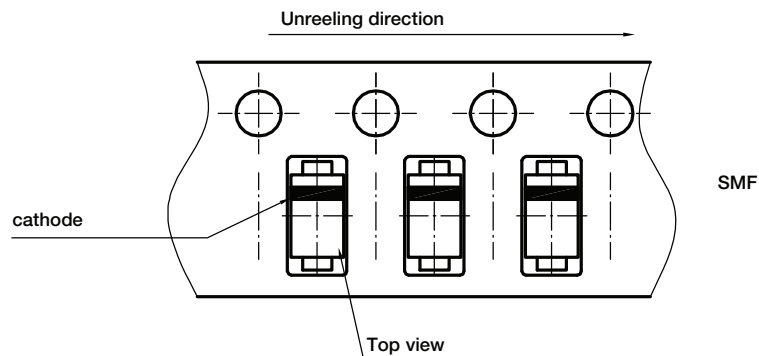
Reflow soldering



Created - Date: 15. February 2005  
Rev. 6 - Date: 24.Feb.2021  
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22989



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



Document no.: S8-V-3717.02-003 (4)

Created - Date: 09. Feb. 2010

22670



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