

## High Voltage Surface Mount Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-214AC (SMA)

### FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
FREE

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

### MECHANICAL DATA

**Case:** DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes the cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| I <sub>F(AV)</sub>      | 1.0 A          |
| V <sub>RRM</sub>        | 90 V, 100 V    |
| I <sub>FSM</sub>        | 50 A           |
| V <sub>F</sub>          | 0.62 V         |
| I <sub>R</sub>          | 1.0 µA         |
| T <sub>J</sub> max.     | 175 °C         |
| Package                 | DO-214AC (SMA) |
| Diode variation         | Single die     |

### MAXIMUM RATINGS (T<sub>A</sub> = 25 °C unless otherwise noted)

| PARAMETER  | SYMBOL             | SS1H9       | SS1H10 | UNIT |
|--|--------------------|-------------|--------|------|
| Device marking code  |                    | S9          | S10    |      |
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>   | 90          | 100    | V    |
| Working peak reverse voltage   | V <sub>RWM</sub>   | 90          | 100    | V    |
| Maximum DC blocking voltage  | V <sub>DC</sub>    | 90          | 100    | V    |
| Maximum average forward rectified current (fig. 1)                                 | I <sub>F(AV)</sub> | 1.0         |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>   | 50          |        | A    |
| Peak repetitive reverse surge current at t <sub>p</sub> = 2.0 µs, 1 kHz            | I <sub>RRM</sub>   | 1.0         |        | A    |
| Storage temperature range  | T <sub>STG</sub>   | -65 to +175 |        | °C   |
| Maximum operating temperature  | T <sub>J</sub>     | 175         |        | °C   |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |                       |                           |             |       |               |
|--|-----------------------|---------------------------|-------------|-------|---------------|
| PARAMETER  | TEST CONDITIONS       |                           | SYMBOL      | SS1H9 | SS1H10        |
| Maximum instantaneous forward voltage  | $I_F = 1.0 \text{ A}$ | $T_J = 25^\circ\text{C}$  | $V_F^{(1)}$ | 0.77  | V             |
|  |                       | $T_J = 125^\circ\text{C}$ |             | 0.62  |               |
|  | $I_F = 2.0 \text{ A}$ | $T_J = 25^\circ\text{C}$  |             | 0.86  |               |
|  |                       | $T_J = 125^\circ\text{C}$ |             | 0.70  |               |
| Maximum reverse current at rated $V_R$   |                       | $T_J = 25^\circ\text{C}$  | $I_R^{(2)}$ | 1.0   | $\mu\text{A}$ |
|  |                       | $T_J = 125^\circ\text{C}$ |             | 0.5   | mA            |

**Notes**

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

(2) Pulse test: Pulse width  $\leq 40 \text{ ms}$

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |                       |        |       |        |                    |
|---|-----------------------|--------|-------|--------|--------------------|
| PARAMETER   |                       | SYMBOL | SS1H9 | SS1H10 | UNIT               |
| Maximum thermal resistance  | $R_{\theta JA}^{(1)}$ |        | 88    | 30     | $^\circ\text{C/W}$ |
|   | $R_{\theta JL}^{(1)}$ |        |       |        |                    |

**Note**

(1) PCB mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS1H10-M3/61T                         | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SS1H10-M3/5AT                         | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |

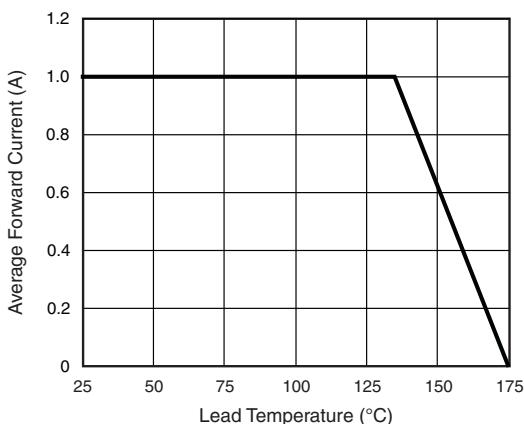
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

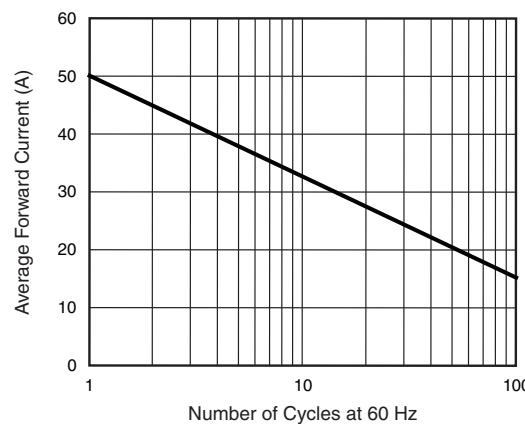


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

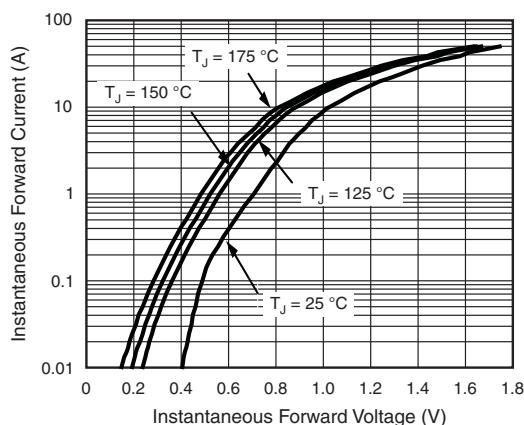


Fig. 3 - Typical Instantaneous Forward Characteristics

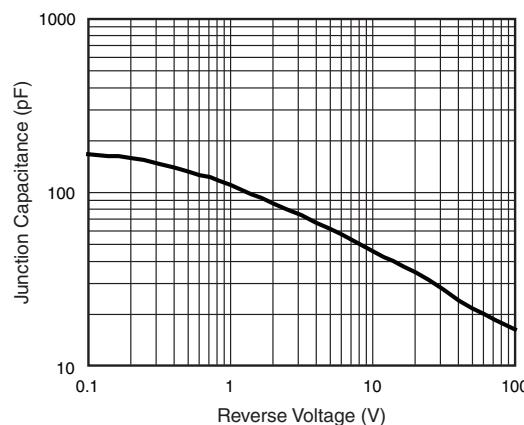


Fig. 5 - Typical Junction Capacitance

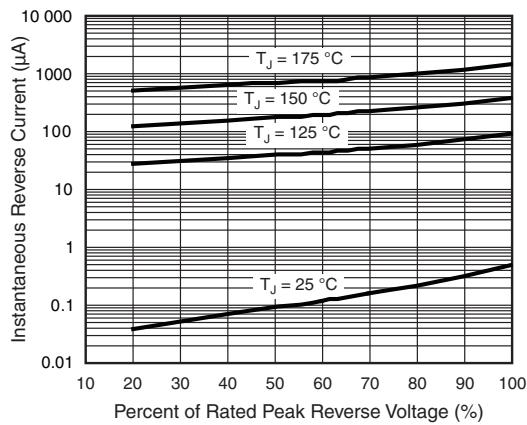


Fig. 4 - Typical Reverse Characteristics

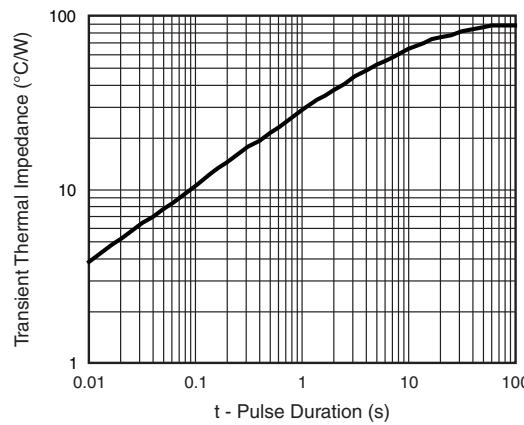
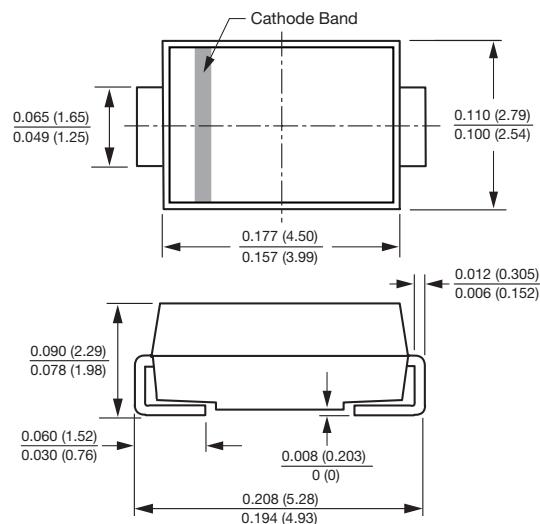
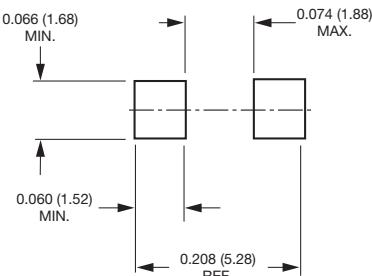


Fig. 6 - Typical Transient Thermal

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)  
DO-214AC (SMA)



**Mounting Pad Layout**



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