

## Low $V_F$ Surface Mount Schottky Rectifier



**DO-214AC (SMA)**



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

### FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Very low forward voltage drop
- 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)

### 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 |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 1.5 A          |
| $V_{RRM}$               | 20 V, 30 V     |
| $I_{FSM}$               | 50 A           |
| $V_F$                   | 0.34 V         |
| $T_J \text{ max.}$      | 125 °C         |
| Package                 | DO-214AC (SMA) |
| Diode variation         | Single die     |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |             |             |      |            |
|------------------------------------------------------------------------------------|-------------|-------------|------|------------|
| PARAMETER                                                                          | SYMBOL      | SL12        | SL13 | UNIT       |
| Device marking code                                                                |             | SL2         | SL3  |            |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$   | 20          | 30   | V          |
| Maximum RMS voltage                                                                | $V_{RMS}$   | 14          | 21   | V          |
| Maximum DC blocking voltage                                                        | $V_{DC}$    | 20          | 30   | V          |
| Maximum average forward rectified current at $T_L = 105\text{ °C}$ (fig. 1)        | $I_{F(AV)}$ | 1.5         |      | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$   | 50          |      | A          |
| Voltage rate of change (rated $V_R$ )                                              | $dV/dt$     | 10 000      |      | V/ $\mu$ s |
| Operating junction temperature range                                               | $T_J$       | -55 to +125 |      | °C         |
| Storage temperature range                                                          | $T_{STG}$   | -55 to +150 |      | °C         |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                        |                         |                               |       |      |      |
|----------------------------------------------------------------------------|------------------------|-------------------------|-------------------------------|-------|------|------|
| PARAMETER                                                                  | TEST CONDITIONS        |                         | SYMBOL                        | SL12  | SL13 | UNIT |
| Maximum instantaneous forward voltage                                      | I <sub>F</sub> = 0.1 A | T <sub>A</sub> = 125 °C | V <sub>F</sub> <sup>(1)</sup> | 0.230 |      | V    |
|                                                                            |                        | T <sub>A</sub> = 25 °C  |                               | 0.360 |      |      |
|                                                                            | I <sub>F</sub> = 1.0 A | T <sub>A</sub> = 125 °C |                               | 0.340 |      |      |
|                                                                            |                        | T <sub>A</sub> = 25 °C  |                               | 0.445 |      |      |
| Maximum DC reverse current at rated DC blocking voltage                    |                        |                         | I <sub>R</sub> <sup>(1)</sup> | 0.2   |      | mA   |
|                                                                            |                        |                         |                               | 6.0   |      |      |

**Note**

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

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |      |      |      |
|-------------------------------------------------------------------------|---------------------------------|------|------|------|
| PARAMETER                                                               | SYMBOL                          | SL12 | SL13 | UNIT |
| Maximum thermal resistance                                              | R <sub>θJA</sub> <sup>(1)</sup> | 88   |      | °C/W |
|                                                                         | R <sub>θJL</sub> <sup>(1)</sup> | 28   |      |      |

**Note**

(1) PCB mounted on 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                      |
| SL13-M3/61T                           | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SL13-M3/5AT                           | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |

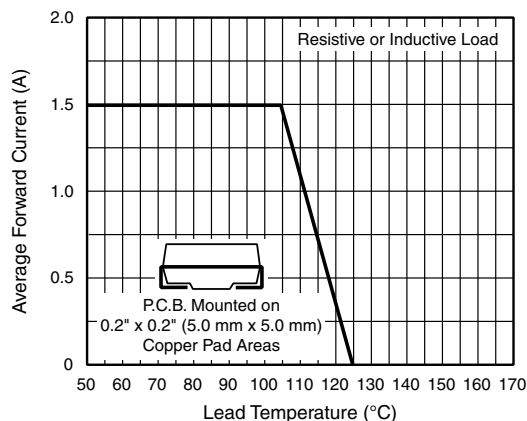
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

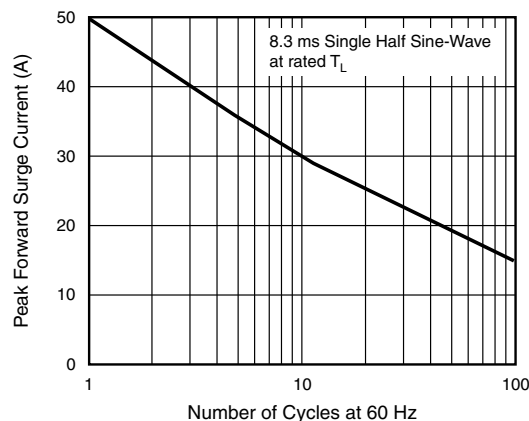


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

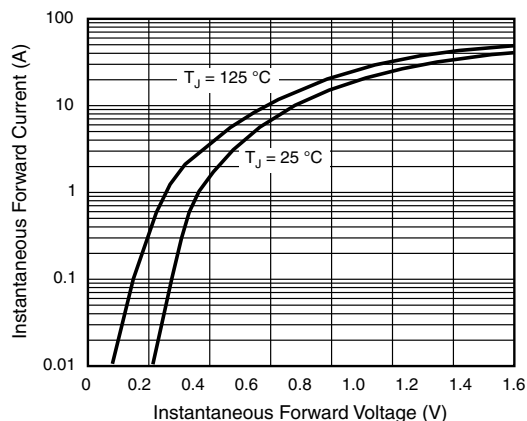


Fig. 3 - Typical Instantaneous Forward Characteristics

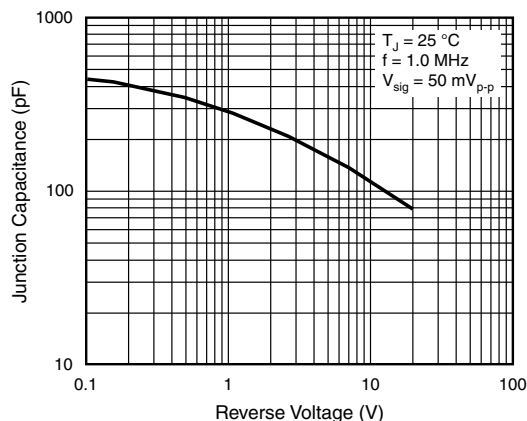


Fig. 5 - Typical Junction Capacitance

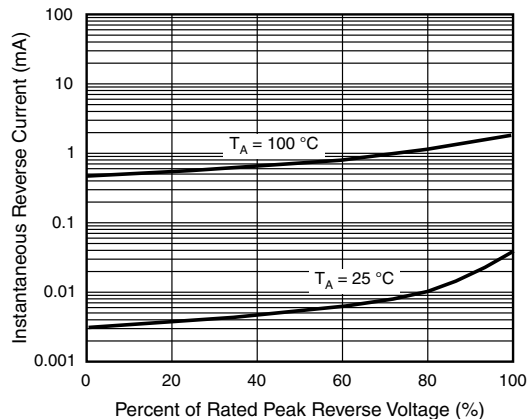
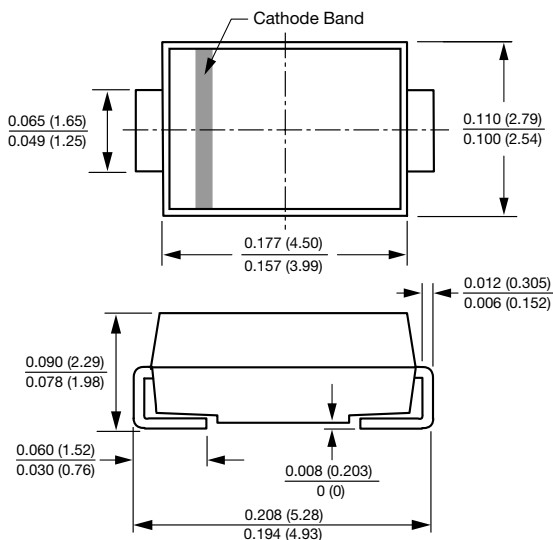
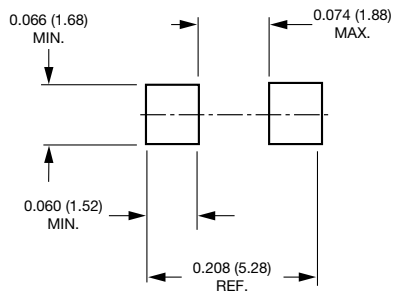


Fig. 4 - Typical Reverse Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214AC (SMA)**

**Mounting Pad Layout**




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