

## Low $V_F$ Surface-Mount Schottky Rectifier


**SMA (DO-214AC)**

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 1.5 A          |
| $V_{RRM}$               | 20 V, 30 V     |
| $I_{FSM}$               | 50 A           |
| $V_F$                   | 0.34 V         |
| $T_J$ max.              | 125 °C         |
| Package                 | SMA (DO-214AC) |
| Circuit configuration   | Single         |

### 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
- AEC-Q101 qualified available
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified ("X" denotes revision code e.g. A, B, ....)

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

E3 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

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

| 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                              | TEST CONDITIONS        |                         | SYMBOL         | SL12  | SL13 | UNIT |
|------------------------------------------------------------------------|------------------------|-------------------------|----------------|-------|------|------|
| Maximum instantaneous forward voltage at <sup>(1)</sup>                | I <sub>F</sub> = 0.1 A | T <sub>A</sub> = 125 °C | V <sub>F</sub> | 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 <sup>(1)</sup> |                        | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 0.2   |      | mA   |
|                                                                        |                        | T <sub>A</sub> = 100 °C |                | 6.0   |      |      |

**Note**

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

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

| PARAMETER                                 | SYMBOL           | SL12 | SL13 | UNIT |
|-------------------------------------------|------------------|------|------|------|
| Maximum thermal resistance <sup>(1)</sup> | R <sub>θJA</sub> | 88   |      | °C/W |
|                                           | R <sub>θJL</sub> | 28   |      |      |

**Note**

<sup>(1)</sup> PCB mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

**ORDERING INFORMATION** (Example)

| PREFERRED P/N              | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|----------------------------|-----------------|------------------------|---------------|------------------------------------|
| SL13-E3/61T                | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SL13-E3/5AT                | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |
| SL13HE3_B/H <sup>(1)</sup> | 0.064           | H                      | 1800          | 7" diameter plastic tape and reel  |
| SL13HE3_B/I <sup>(1)</sup> | 0.064           | I                      | 7500          | 13" diameter plastic tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified

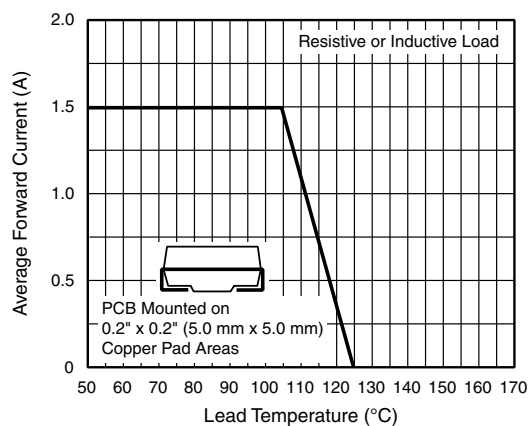
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

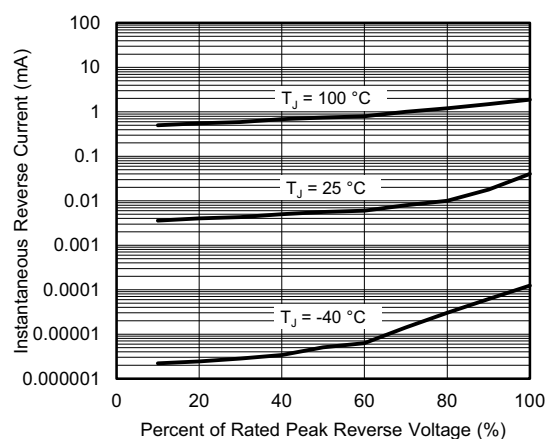


Fig. 4 - Typical Reverse Characteristics

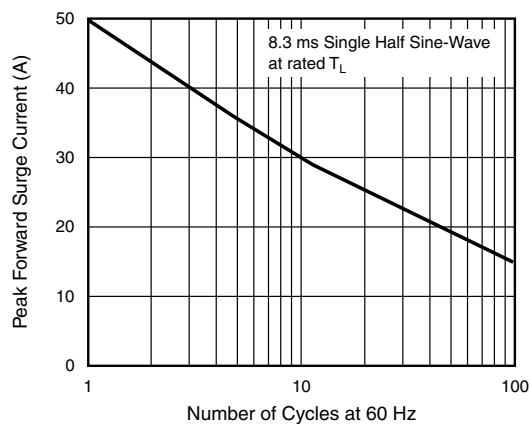


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

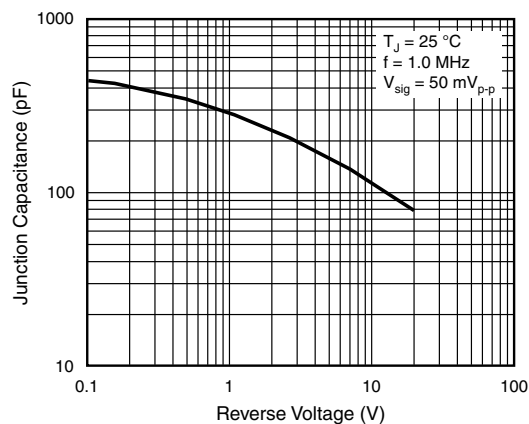


Fig. 5 - Typical Junction Capacitance

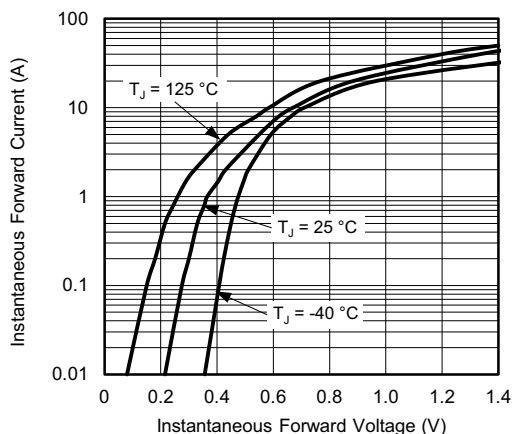
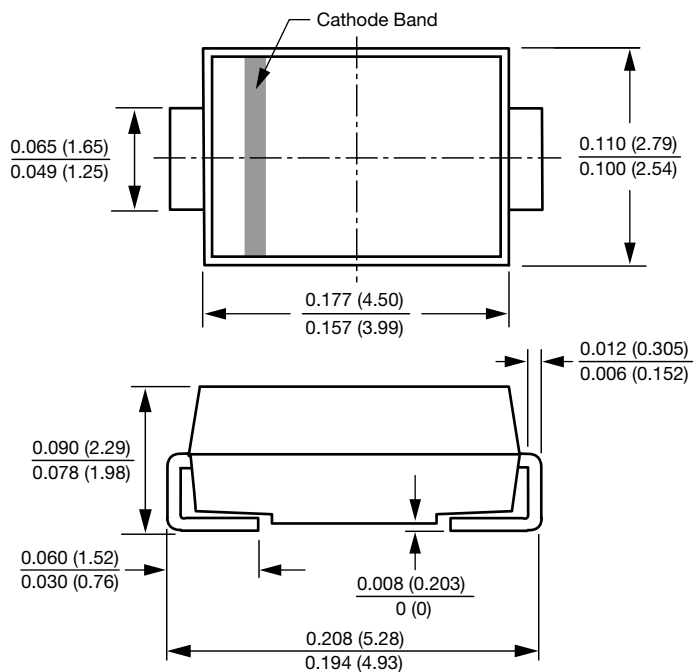


Fig. 3 - Typical Instantaneous Forward Characteristics

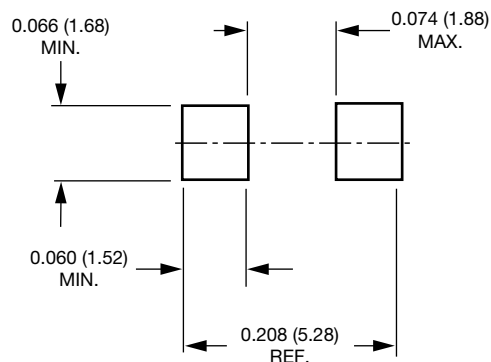


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**SMA (DO-214AC)**



**Mounting Pad Layout**





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