

## Low $V_F$ Surface Mount Schottky Rectifier



**DO-214AC (SMA)**

### 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
- 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.

### 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     |

### MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified  
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 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

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

### MAXIMUM RATINGS ( $T_A = 25$ °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 $T_L = 105$ °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         |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                      |                                     |        |       |      |
|------------------------------------------------------------------------------------------------|----------------------|-------------------------------------|--------|-------|------|
| PARAMETER                                                                                      | TEST CONDITIONS      |                                     | SYMBOL | SL12  | SL13 |
| Maximum instantaneous forward voltage at <sup>(1)</sup>                                        | $I_F = 0.1\text{ A}$ | $T_A = 125\text{ }^{\circ}\text{C}$ | $V_F$  | 0.230 |      |
|                                                                                                |                      | $T_A = 25\text{ }^{\circ}\text{C}$  |        | 0.360 |      |
|                                                                                                | $I_F = 1.0\text{ A}$ | $T_A = 125\text{ }^{\circ}\text{C}$ |        | 0.340 |      |
|                                                                                                |                      | $T_A = 25\text{ }^{\circ}\text{C}$  |        | 0.445 |      |
| Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>                         |                      |                                     | $I_R$  | 0.2   | mA   |
|                                                                                                |                      |                                     |        | 6.0   |      |

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

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                 |      |      |                      |
|---------------------------------------------------------------------------------------------|-----------------|------|------|----------------------|
| PARAMETER                                                                                   | SYMBOL          | SL12 | SL13 | UNIT                 |
| Maximum thermal resistance <sup>(1)</sup>                                                   | $R_{\theta JA}$ | 88   | 28   | $^{\circ}\text{C/W}$ |
|                                                                                             | $R_{\theta JL}$ | 28   |      |                      |

**Note**
<sup>(1)</sup> P.C.B. 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-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 |
| SL13HE3/61T <sup>(1)</sup>            | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SL13HE3/5AT <sup>(1)</sup>            | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |
| SL13HE3_A/H <sup>(1)</sup>            | 0.064           | H                      | 1800          | 7" diameter plastic tape and reel  |
| SL13HE3_A/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**

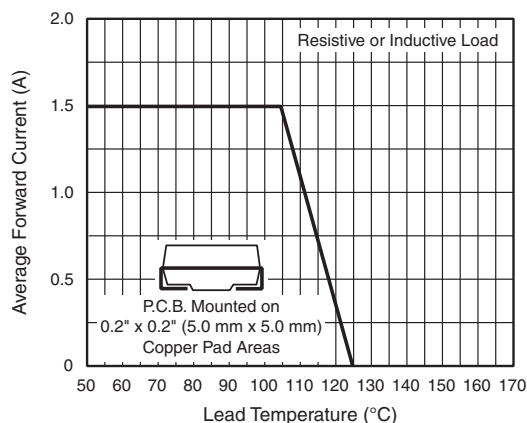
( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

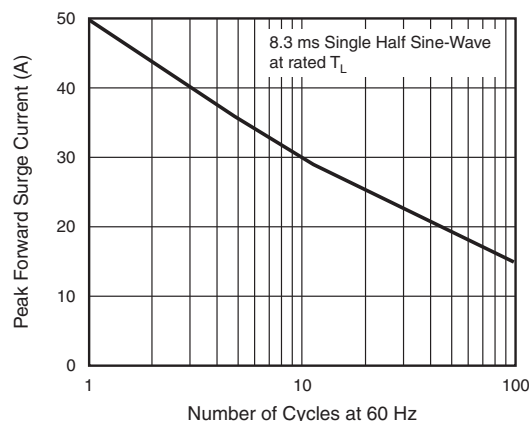


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

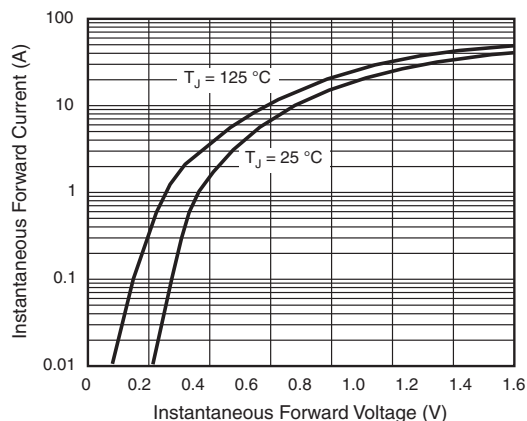


Fig. 3 - Typical Instantaneous Forward Characteristics

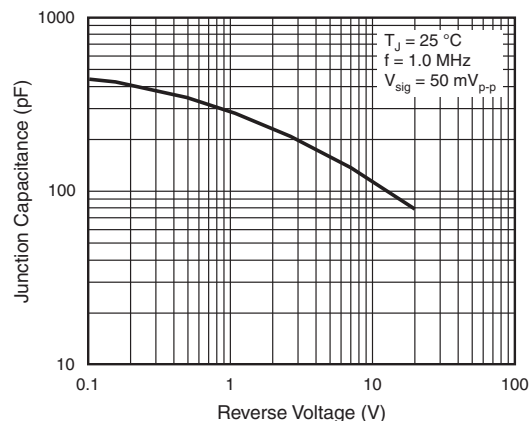


Fig. 5 - Typical Junction Capacitance

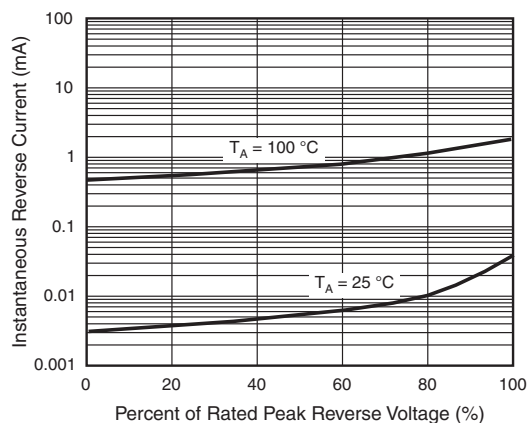
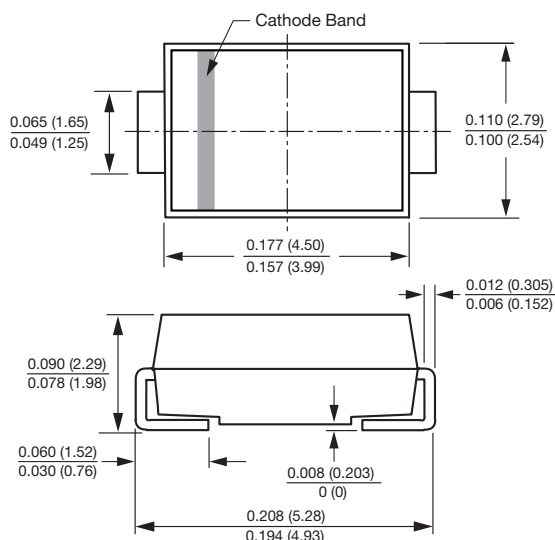


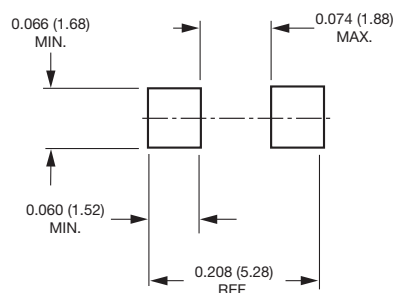
Fig. 4 - Typical Reverse Characteristics

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

## **DO-214AC (SMA)**



## **Mounting Pad Layout**





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