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# SL12 & SL13

Vishay General Semiconductor

## 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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency inverters, freewheeling, dc-to-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 |
| $T_J$ max. | 125 °C |

### MECHANICAL DATA

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

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), 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/µs |
| Operating junction temperature range | $T_J$ | - 55 to + 125 | | °C |
| Storage temperature range | $T_{STG}$ | - 55 to + 150 | | °C |

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| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SL12 | SL13 | UNIT |
| Maximum instantaneous forward voltage at (1) | $I_F$ = 0.1 A<br>$I_F$ = 0.1 A<br>$I_F$ = 1.0 A<br>$I_F$ = 1.0 A | $T_A$ = 125 °C<br>$T_A$ = 25 °C<br>$T_A$ = 125 °C<br>$T_A$ = 25 °C | $V_F$ | 0.230<br>0.360<br>0.340<br>0.445 | | V |
| Maximum DC reverse current at rated DC blocking voltage (1) | | $T_A$ = 25 °C<br>$T_A$ = 100 °C | $I_R$ | 0.2<br>6.0 | | mA |

**Note:**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

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

**Note:**

(1) P.C.B. mounted on 0.2 x 0.2" (5.0 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 |
| SL13HE3/61T (1) | 0.064 | 61T | 1800 | 7" diameter plastic tape and reel |
| SL13HE3/5AT (1) | 0.064 | 5AT | 7500 | 13" diameter plastic tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

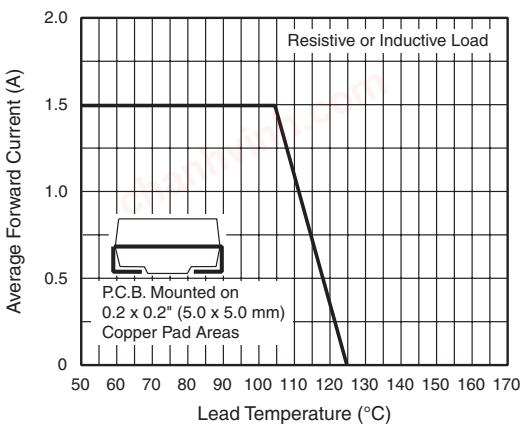



Figure 1. Forward Current Derating Curve

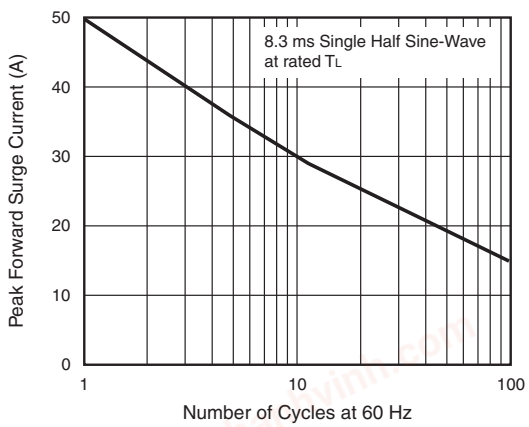



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current


For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

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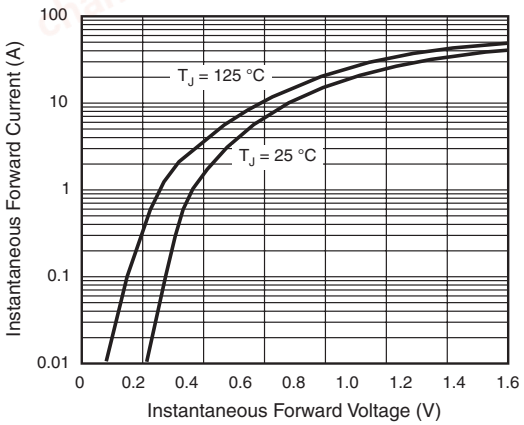



Figure 3. Typical Instantaneous Forward Characteristics

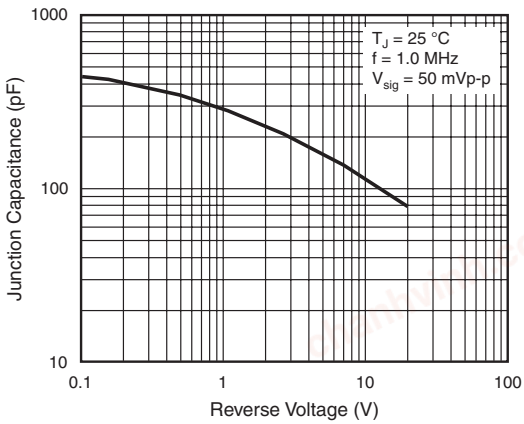



Figure 5. Typical Junction Capacitance

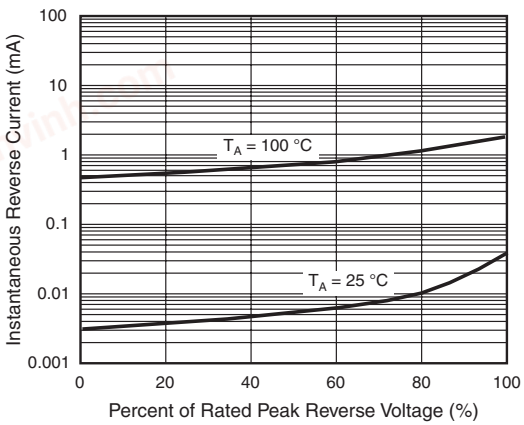
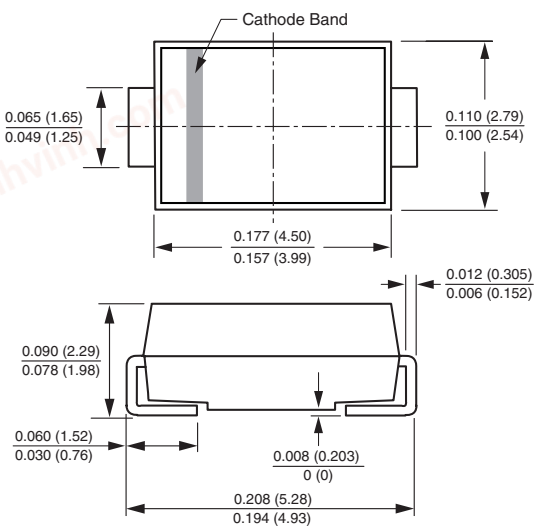


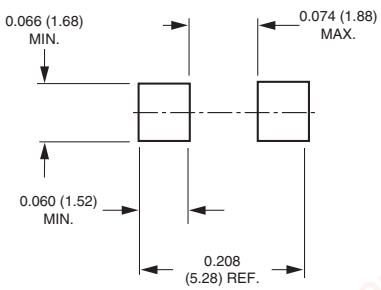

Figure 4. Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

**DO-214AC (SMA)**




**Mounting Pad Layout**



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