

# High Current Density Surface Mount Schottky Rectifier


**DO-214AC (SMA)**

**RoHS**  
COMPLIANT

**FEATURES**

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- 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)

**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-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 cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 2.0 A          |
| $V_{RRM}$               | 30 V, 40 V     |
| $I_{FSM}$               | 60 A           |
| $E_{AS}$                | 11.25 mJ       |
| $V_F$                   | 0.38 V, 0.42 V |
| $T_J \text{ max.}$      | 150 °C         |
| Package                 | DO-214AC (SMA) |
| Diode variations        | Single die     |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)   |             |             |       |            |
|--|-------------|-------------|-------|------------|
| PARAMETER  | SYMBOL      | SSA23L      | SSA24 | UNIT       |
| Device marking code  |             | 23L         | S24   | V          |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 30          | 40    | V          |
| Maximum RMS voltage  | $V_{RMS}$   | 21          | 28    | V          |
| Maximum DC blocking voltage  | $V_{DC}$    | 30          | 40    | V          |
| Maximum average forward rectified current at $T_L$ (fig. 1)  | $I_{F(AV)}$ | 2.0         |       | A          |
| Peak forward surge current 8.3 ms single halfsine-wave superimposed on rated load                      | $I_{FSM}$   | 60          |       | A          |
| Non-repetitive avalanche energy at $T_A = 25\text{ °C}$ , $I_{AS} = 1.5\text{ A}$ , $L = 10\text{ mH}$ | $E_{AS}$    | 11.25       |       | mJ         |
| Voltage rate of change (rated $V_R$ )  | $dV/dt$     | 10 000      |       | V/ $\mu$ s |
| Operating junction temperature range   | $T_J$       | -65 to +150 |       | °C         |
| Storage temperature range  | $T_{STG}$   | -65 to +150 |       | °C         |



| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |                                   |        |        |      |       |      |      |
|---|-----------------|-----------------------------------|--------|--------|------|-------|------|------|
| PARAMETER   | TEST CONDITIONS |                                   | SYMBOL | SSA23L |      | SSA24 |      | UNIT |
|   |                 |                                   |        | TYP.   | MAX. | TYP.  | MAX. |      |
| Maximum instantaneous forward voltage <sup>(1)</sup>                                  | 2.0 A           | $T_J = 25\text{ }^\circ\text{C}$  | $V_F$  | 0.43   | 0.45 | 0.45  | 0.49 | V    |
|   |                 | $T_J = 125\text{ }^\circ\text{C}$ |        | 0.32   | 0.38 | 0.36  | 0.42 |      |
| Maximum reverse current at rated $V_R$ <sup>(2)</sup>                                 |                 | $T_J = 25\text{ }^\circ\text{C}$  | $I_R$  | -      | 0.5  | -     | 0.2  | mA   |
|   |                 | $T_J = 125\text{ }^\circ\text{C}$ |        | 15     | 25   | 12    | 20   |      |

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |        |       |                    |
|--|-----------------|--------|-------|--------------------|
| PARAMETER  | SYMBOL          | SSA23L | SSA24 | UNIT               |
| Typical thermal resistance <sup>(1)</sup>  | $R_{\theta JA}$ | 110    |       | $^\circ\text{C/W}$ |
|  | $R_{\theta JL}$ | 28     |       |                    |

**Note**

- (1) Aluminum substrate mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SSA23L-E3/61T                  | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SSA23L-E3/5AT                  | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |
| SSA23LHE3_A/H <sup>(1)</sup>   | 0.064           | H                      | 1800          | 7" diameter plastic tape and reel  |
| SSA23LHE3_A/I <sup>(1)</sup>   | 0.064           | I                      | 7500          | 13" diameter plastic tape and reel |

**Note**

- (1) AEC-Q101 qualified

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

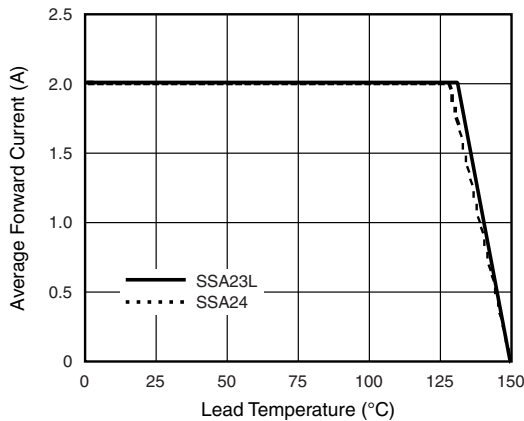


Fig. 1 - Forward Current Derating Curve

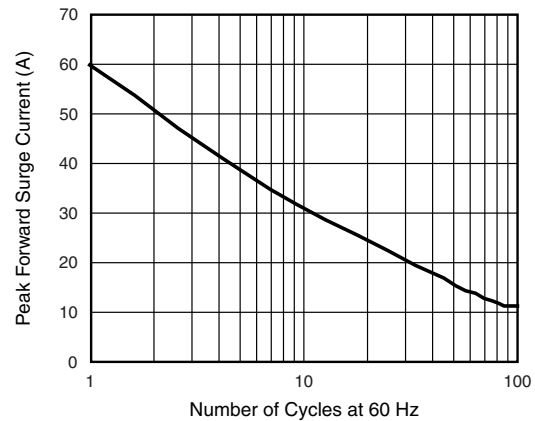


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

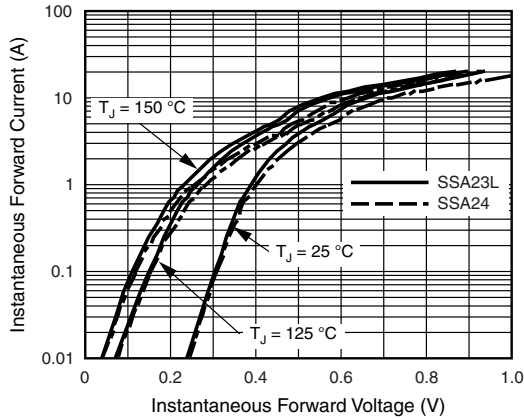


Fig. 3 - Typical Instantaneous Forward Characteristics

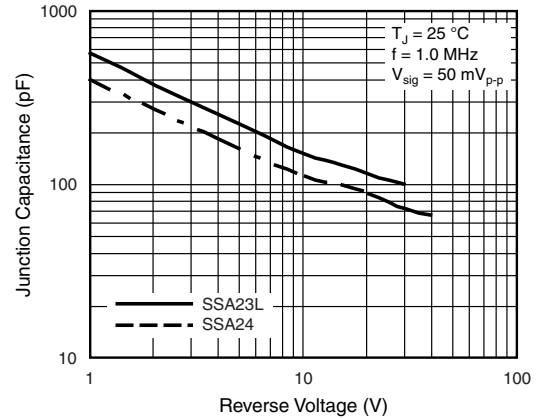


Fig. 5 - Typical Junction Capacitance

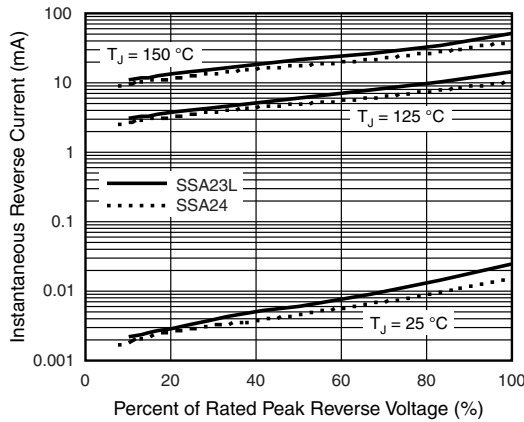
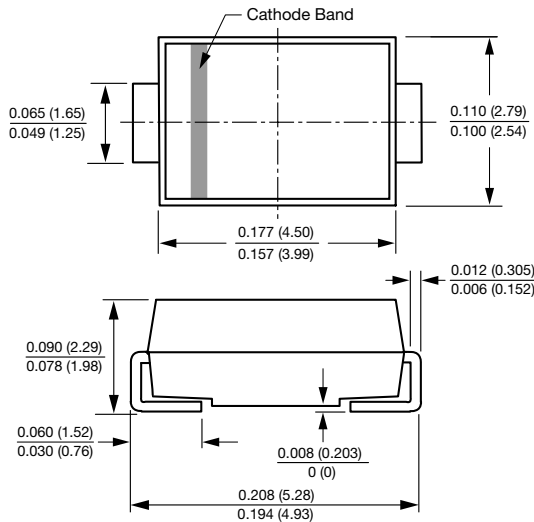
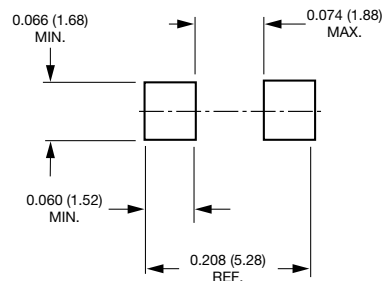


Fig. 4 - Typical Reverse Characteristics

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



**Mounting Pad Layout**





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