

High Current Density Surface Mount Schottky Rectifier


DO-214AC (SMA)

| 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 |

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


RoHS
COMPLIANT

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

| 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/ μ 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 °C unless otherwise noted) | | | | | | | | |
|--|-----------------|-------------------------|----------------|--------|------|-------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | SSA23L | | SSA24 | | UNIT |
| | | | | TYP. | MAX. | TYP. | MAX. | |
| Maximum instantaneous forward voltage ⁽¹⁾ | 2.0 A | T _J = 25 °C | V _F | 0.43 | 0.45 | 0.45 | 0.49 | V |
| | | T _J = 125 °C | | 0.32 | 0.38 | 0.36 | 0.42 | |
| Maximum reverse current at rated V _R ⁽²⁾ | | T _J = 25 °C | I _R | - | 0.5 | - | 0.2 | mA |
| | | T _J = 125 °C | | 15 | 25 | 12 | 20 | |

Notes

- ⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle
- ⁽²⁾ Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|------------------|--------|-------|------|
| PARAMETER | SYMBOL | SSA23L | SSA24 | UNIT |
| Typical thermal resistance ⁽¹⁾ | R _{θJA} | 110 | | °C/W |
| | R _{θJL} | 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 ⁽¹⁾ | 0.064 | H | 1800 | 7" diameter plastic tape and reel |
| SSA23LHE3_A/I ⁽¹⁾ | 0.064 | I | 7500 | 13" diameter plastic tape and reel |

Note

- ⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

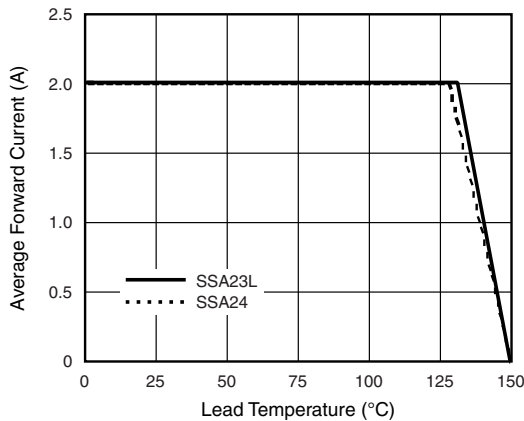


Fig. 1 - Forward Current Derating Curve

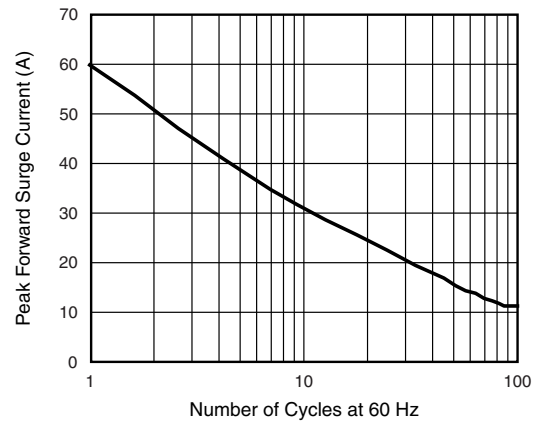


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

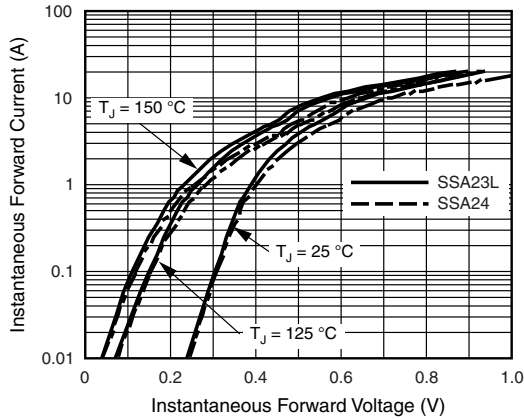


Fig. 3 - Typical Instantaneous Forward Characteristics

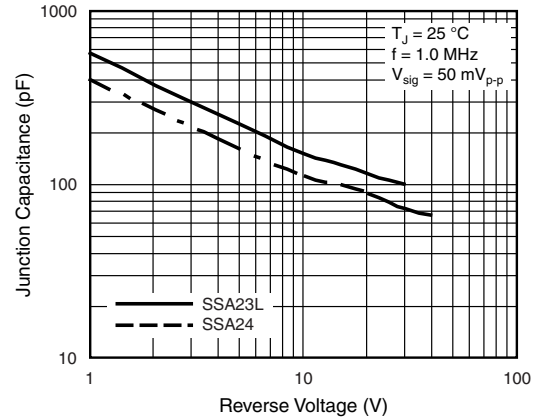


Fig. 5 - Typical Junction Capacitance

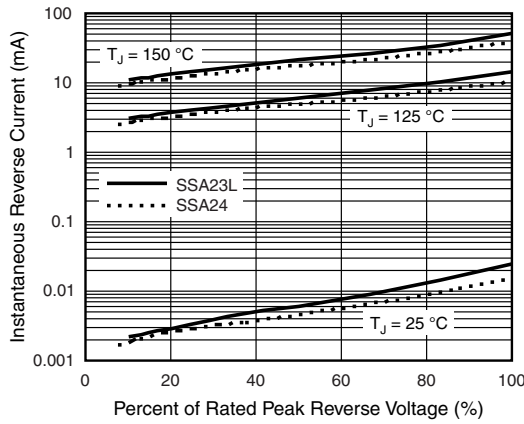
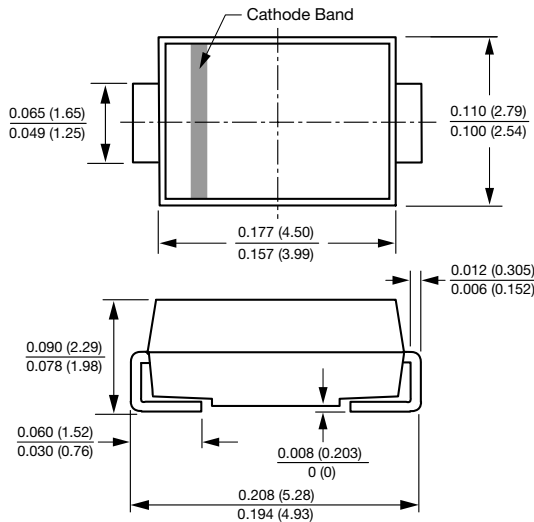
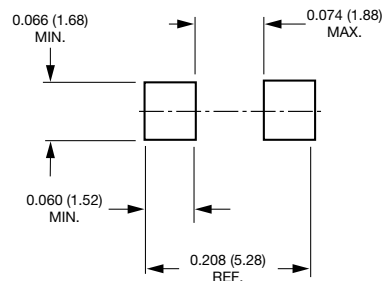


Fig. 4 - Typical Reverse Characteristics

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



Mounting Pad Layout





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