

Low V_F 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
- 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

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 the cathode end

| 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 |
| Package | DO-214AC |
| Diode variations | Single |

| 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/ μ 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 ⁽¹⁾ | $I_F = 0.1\text{ A}$ | $T_A = 125\text{ }^\circ\text{C}$ | V_F | 0.230 | | V |
| | | $T_A = 25\text{ }^\circ\text{C}$ | | 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 ⁽¹⁾ | | | I_R | 0.2 | | mA |
| | | | | 6.0 | | |

Note
⁽¹⁾ Pulse test: 300 μs 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 ⁽¹⁾ | $R_{\theta JA}$ | 88 | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}$ | 28 | | |

Note
⁽¹⁾ 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_A/H ⁽¹⁾ | 0.064 | H | 1800 | 7" diameter plastic tape and reel |
| SL13HE3_A/I ⁽¹⁾ | 0.064 | I | 7500 | 13" diameter plastic tape and reel |

Note
⁽¹⁾ AEC-Q101 qualified

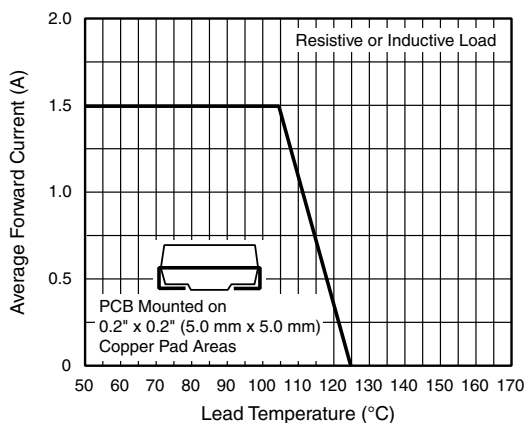
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

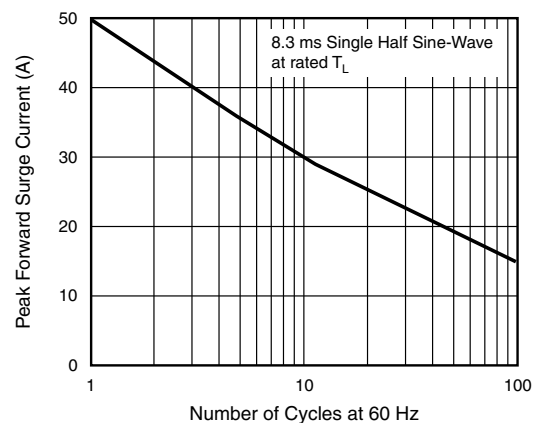


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

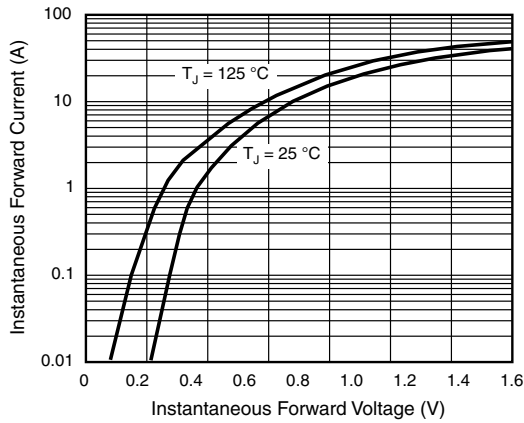


Fig. 3 - Typical Instantaneous Forward Characteristics

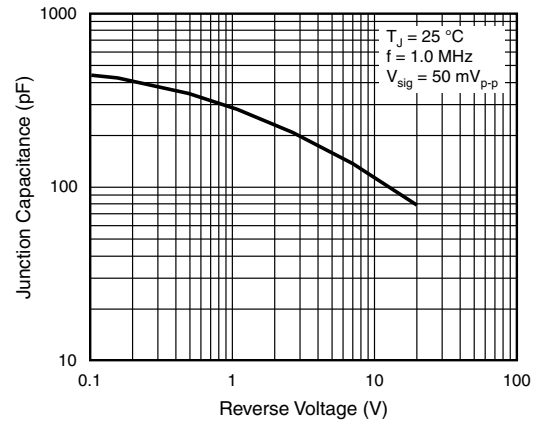


Fig. 5 - Typical Junction Capacitance

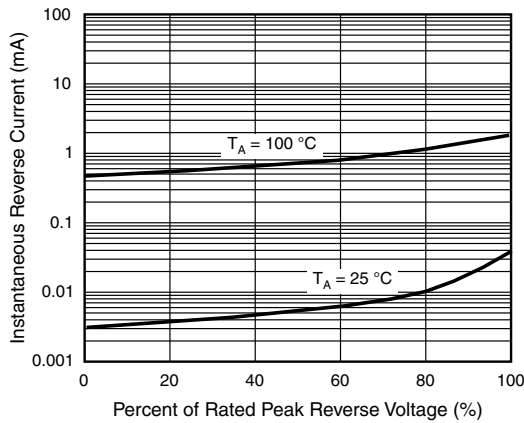
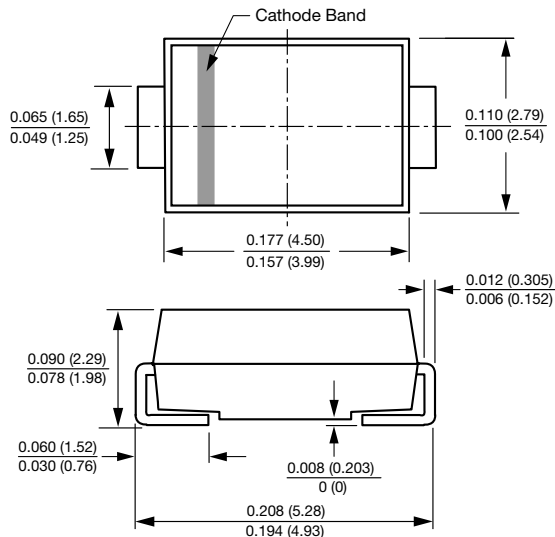


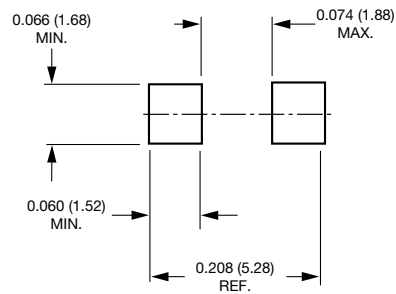
Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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