

Surface Mount Schottky Barrier Rectifier


DO-214AC (SMA)

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 20 V, 30 V, 40 V |
| I_{FSM} | 40 A |
| V_F at $I_F = 2.0$ A | 0.517 V |
| T_J max. | 150 °C |
| Package | DO-214AC (SMA) |
| Diode variations | Single |

FEATURES

- Low profile package
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Not recommended for PCB bottom side wave mounting
- 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 the cathode end

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | |
|-----------------------------------------------------------------------------------|----------------|-------------|-------|-------|------------|
| PARAMETER | SYMBOL | SS22S | SS23S | SS24S | UNIT |
| Device marking code | | 22S | 23S | 24S | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 2.0 | | | A |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 40 | | | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|----------------------------------------------------------------------------------------------|--------------------|-----------------------------------|-------------|-------|------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage | $I_F = 1\text{ A}$ | $T_J = 25\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | 0.436 | - | V |
| | $I_F = 2\text{ A}$ | | | 0.517 | 0.55 | |
| Reverse current | Rated V_R | $T_J = 25\text{ }^\circ\text{C}$ | $I_R^{(2)}$ | 13 | 200 | μA |
| | | $T_J = 100\text{ }^\circ\text{C}$ | | 1.65 | 8 | mA |
| Typical junction capacitance | 4.0 V, 1 MHz | | C_J | 130 | - | pF |

Notes

- (1) Pulse test: 300 μs 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 | SS22S | SS23S | SS24S | UNIT |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 75 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | 25 | | | |

Note

- (1) PCB mounted with 0.4" x 0.4" (10 mm x 10 mm) copper pad areas

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SS24S-E3/61T | 0.064 | 61T | 1800 | 7" diameter plastic tape and reel |
| SS24S-E3/5AT | 0.064 | 5AT | 7500 | 13" diameter plastic tape and reel |
| SS24SHE3_A/H ⁽¹⁾ | 0.064 | H | 1800 | 7" diameter plastic tape and reel |
| SS24SHE3_A/I ⁽¹⁾ | 0.064 | I | 7500 | 13" diameter plastic tape and reel |

Note

- (1) AEC-Q101 qualified

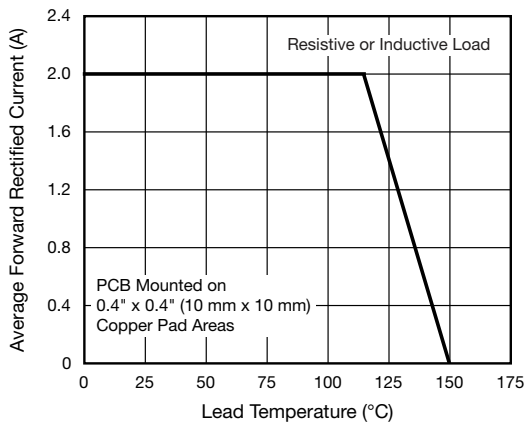
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

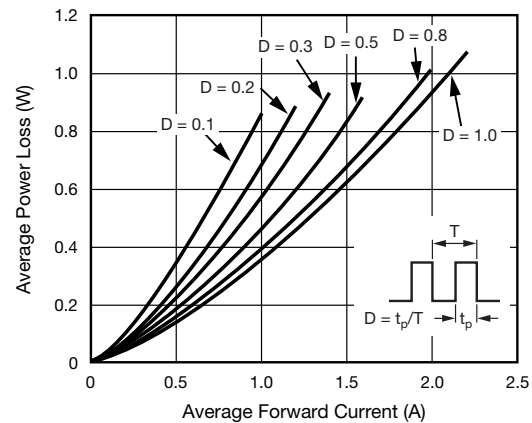


Fig. 2 - Forward Power Loss Characteristics

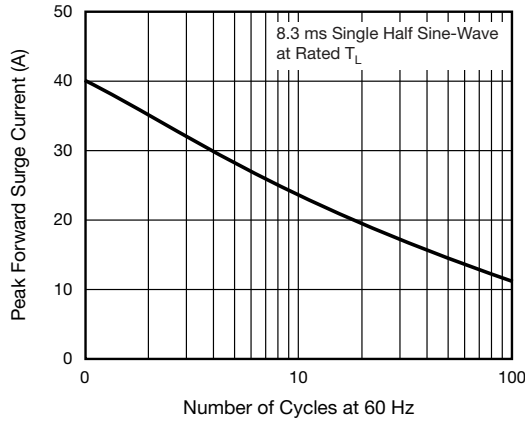


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

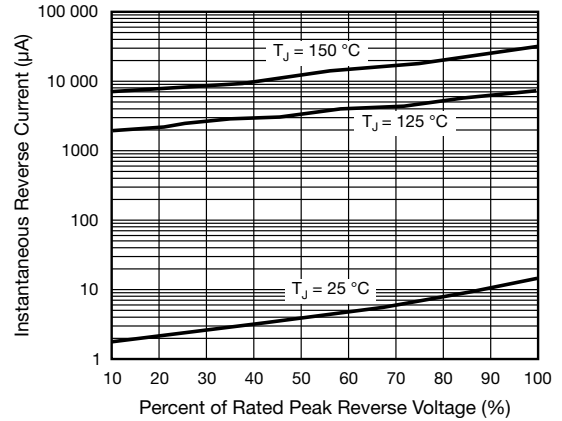


Fig. 5 - Typical Reverse Leakage Characteristics

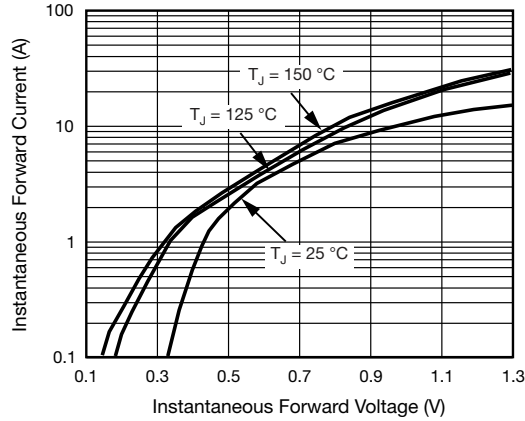


Fig. 4 - Typical Instantaneous Forward Characteristics

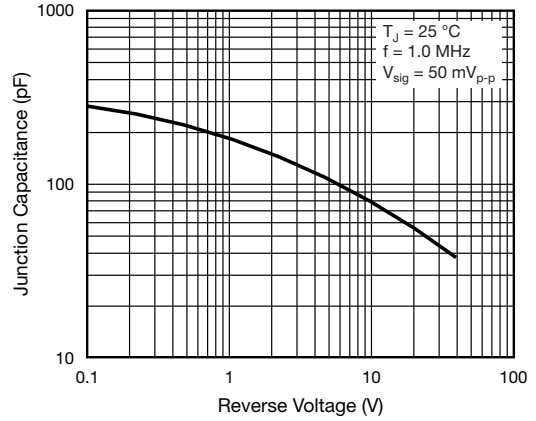
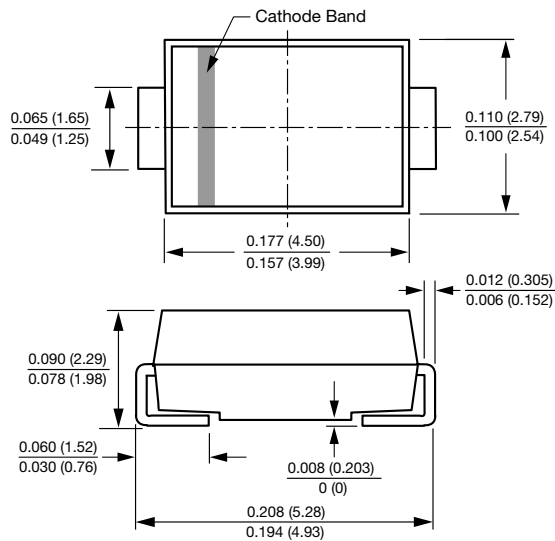


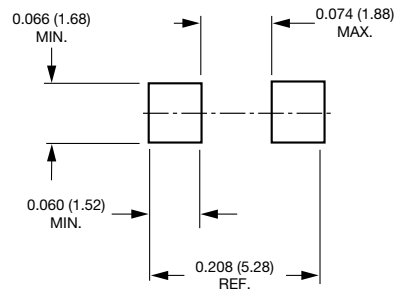
Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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