



## Surface Mount Schottky Barrier Rectifier



DO-214AA (SMB)

## PRIMARY CHARACTERISTICS

|                    |                              |
|--------------------|------------------------------|
| $I_{F(AV)}$        | 2.0 A                        |
| $V_{RRM}$          | 20 V, 30 V, 40 V, 50 V, 60 V |
| $I_{FSM}$          | 75 A                         |
| $V_F$              | 0.50 V, 0.70 V               |
| $T_J \text{ max.}$ | 150 °C                       |
| Package            | DO-214AA (SMB)               |
| Diode variations   | Single                       |

## TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

## 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## MECHANICAL DATA

**Case:** DO-214AA (SMB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 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      | SS22        | SS23 | SS24 | SS25 | SS26 | UNIT       |
|------------------------------------------------------------------------------------------------------------|-------------|-------------|------|------|------|------|------------|
| Device marking code                                                                                        |             | S2          | S3   | S4   | S5   | S6   |            |
| Maximum repetitive peak reverse voltage                                                                    | $V_{RRM}$   | 20          | 30   | 40   | 50   | 60   | V          |
| Maximum RMS voltage                                                                                        | $V_{RMS}$   | 14          | 21   | 28   | 35   | 42   | V          |
| Maximum DC blocking voltage                                                                                | $V_{DC}$    | 20          | 30   | 40   | 50   | 60   | V          |
| Max. average forward rectified current at $T_L$ (fig. 1)                                                   | $I_{F(AV)}$ | 2.0         |      |      |      |      | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load                         | $I_{FSM}$   | 75          |      |      |      |      | A          |
| Non-repetitive avalanche energy at $T_A = 25\text{ °C}$ , $I_{AS} = 2.0\text{ A}$ , $L = 10\text{ mH}$     | $E_{AS}$    | 20          |      |      |      |      | mJ         |
| Electrostatic discharge capacitor voltage human body model: $C = 100\text{ pF}$ , $R = 1.5\text{ k}\Omega$ | $V_C$       | 8.0         |      |      |      |      | kV         |
| 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 ( $T_A = 25\text{ °C}$  unless otherwise noted)

| PARAMETER                                                              | TEST CONDITIONS         | SYMBOL         | SS22 | SS23 | SS24 | SS25 | SS26 | UNIT |
|------------------------------------------------------------------------|-------------------------|----------------|------|------|------|------|------|------|
| Maximum instantaneous forward voltage <sup>(1)</sup>                   | 2.0 A                   | V <sub>F</sub> | 0.5  |      |      | 0.7  |      | V    |
| Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup> | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 0.4  |      |      |      |      | mA   |
|                                                                        | T <sub>A</sub> = 100 °C |                | 10   |      |      |      |      |      |

## Note

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle



| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |      |      |      |      |      |      |
|-------------------------------------------------------------------------|------------------|------|------|------|------|------|------|
| PARAMETER                                                               | SYMBOL           | SS22 | SS23 | SS24 | SS25 | SS26 | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 75   |      |      |      |      | °C/W |
|                                                                         | R <sub>θJL</sub> | 17   |      |      |      |      |      |

**Note**

<sup>(1)</sup> PCB mounted with 0.55" x 0.55" (14 mm x 14 mm) copper pad areas

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS24-M3/52T                    | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| SS24-M3/5BT                    | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |

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

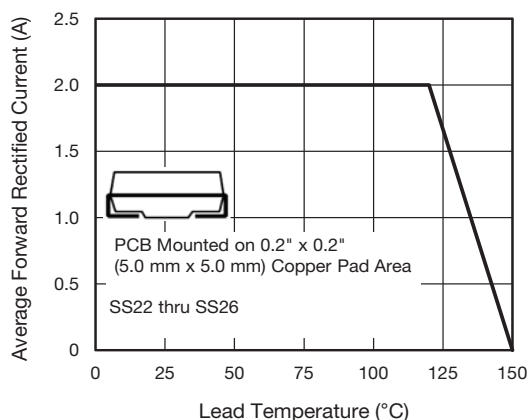


Fig. 1 - Forward Current Derating Curve

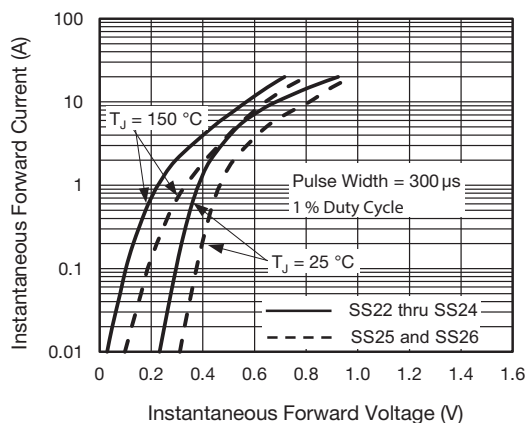


Fig. 3 - Typical Instantaneous Forward Characteristics

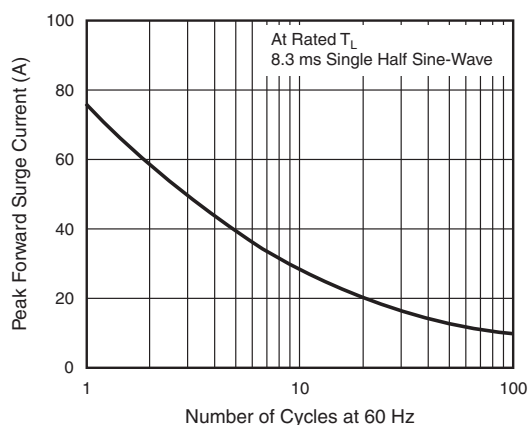


Fig. 2 - Maximum Non-Repetitive Surge Current

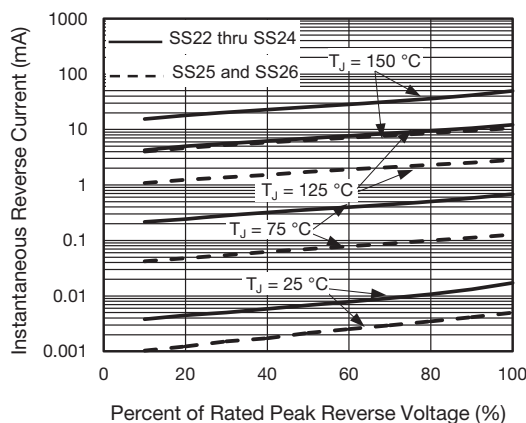


Fig. 4 - Typical Reverse Current Characteristics

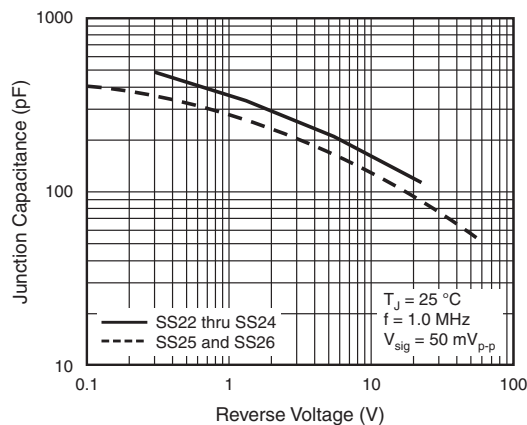
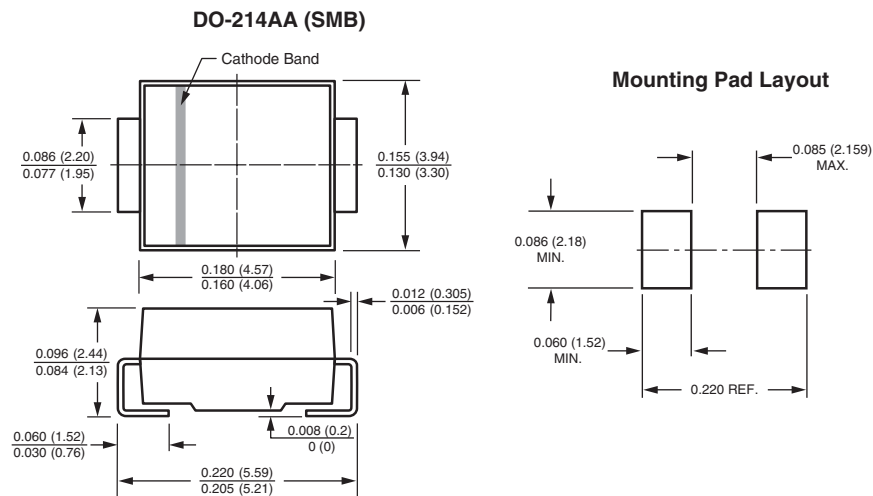


Fig. 5 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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