

200mA, 120-250V High Voltage SMD Switching Diode

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

| KEY PARAMETERS | | |
|----------------------|------------|------|
| PARAMETER | VALUE | UNIT |
| $I_{F(AV)}$ | 200 | mA |
| V_{RRM} | 120-250 | V |
| I_{FSM} | 2.5 | A |
| V_F at $I_F=200mA$ | 1.25 | V |
| T_J MAX. | 150 | °C |
| Package | SOD-323F | |
| Configuration | Single die | |



MECHANICAL DATA

- Case: SOD-323F
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 4.5 ± 0.5 mg (approximately)



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|---|-------------|---------|---------|------|
| PARAMETER | SYMBOL | BAV19WS | BAV20WS | BAV21WS | UNIT |
| Marking code on the device | | S5 | S6 | S7 | |
| Power dissipation | P_D | 200 | | | mW |
| Average forward current | I_F | 200 | | | mA |
| Repetitive peak reverse voltage | V_{RRM} | 120 | 200 | 250 | V |
| Peak forward surge current | Pulse Width = 1 s , Square Wave | 0.5 | | | A |
| | Pulse Width = 1 μs , Square Wave | 2.5 | | | |
| Junction temperature range | T_J | -65 to +150 | | | °C |
| Storage temperature range | T_{STG} | -65 to +150 | | | °C |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|---------|--|---------------|------------|------------|-------------|
| PARAMETER | | CONDITIONS | SYMBOL | MIN | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | | $I_F = 100\text{mA}, T_J = 25^\circ\text{C}$ | V_F | - | 1.00 | V |
| | | $I_F = 200\text{mA}, T_J = 25^\circ\text{C}$ | | - | 1.25 | |
| Reverse voltage | BAV19WS | $I_R = 100\mu\text{A}, T_J = 25^\circ\text{C}$ | V_R | 120 | - | V |
| | BAV20WS | | | 200 | - | |
| | BAV21WS | | | 250 | - | |
| Reverse current ⁽²⁾ | BAV19WS | $V_R = 100\text{V}, T_J = 25^\circ\text{C}$ | I_R | - | 100 | nA |
| | BAV20WS | $V_R = 150\text{V}, T_J = 25^\circ\text{C}$ | | | | |
| | BAV21WS | $V_R = 200\text{V}, T_J = 25^\circ\text{C}$ | | | | |
| Junction capacitance | | 1 MHz, $V_R = 0\text{V}$ | C_J | - | 5 | pF |
| Reverse recovery time | | $I_F = I_R = 30\text{mA}, R_L = 100\Omega,$ $I_{RR} = 3\text{mA}$ | t_{rr} | - | 50 | ns |

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

| ORDERING INFORMATION | | |
|-----------------------------|----------------|----------------|
| PART NO. | PACKAGE | PACKING |
| BAV19WS RRG | SOD-323F | 3K / 7" Reel |
| BAV19WS RR | SOD-323F | 3K / 7" Reel |
| BAV19WS R9G | SOD-323F | 10K / 13" Reel |
| BAV19WS R9 | SOD-323F | 10K / 13" Reel |
| BAV20WS RRG | SOD-323F | 3K / 7" Reel |
| BAV20WS RR | SOD-323F | 3K / 7" Reel |
| BAV20WS R9G | SOD-323F | 10K / 13" Reel |
| BAV20WS R9 | SOD-323F | 10K / 13" Reel |
| BAV21WS RRG | SOD-323F | 3K / 7" Reel |
| BAV21WS RR | SOD-323F | 3K / 7" Reel |
| BAV21WS R9G | SOD-323F | 10K / 13" Reel |
| BAV21WS R9 | SOD-323F | 10K / 13" Reel |

CHARACTERISTICS CURVES

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

Fig.1 Typical Forward Characteristics

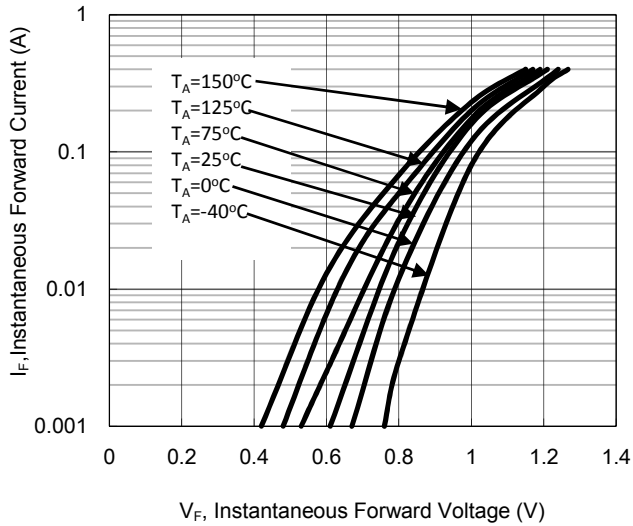


Fig.2 Typical Reverse Characteristics

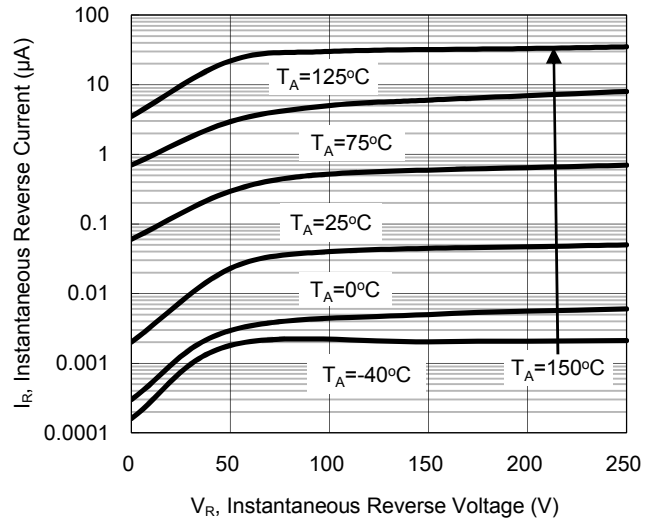


Fig.3 Typical Capacitance VS. Reverse Voltage

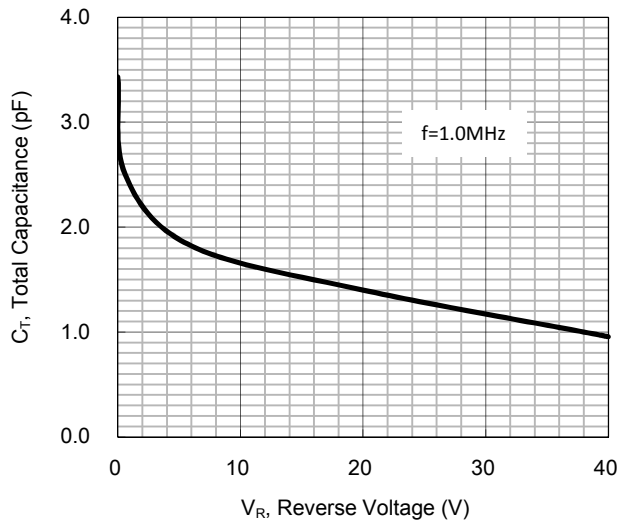
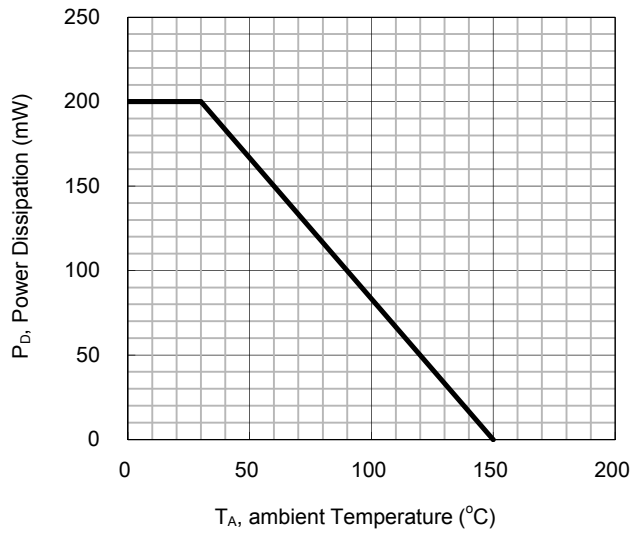
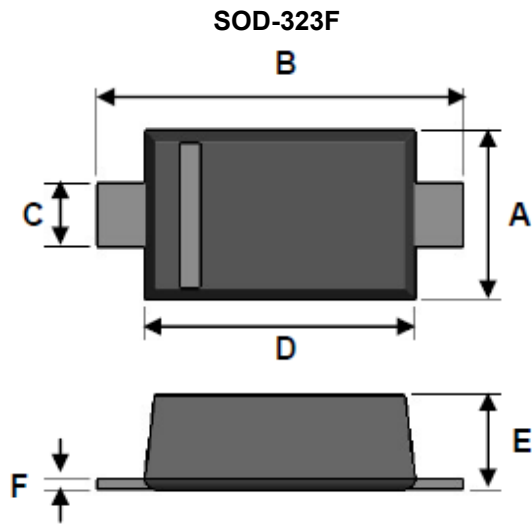


Fig.3 Power Derating Curve

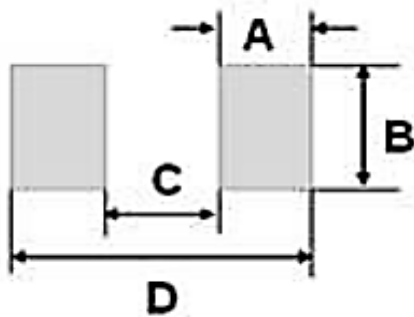


PACKAGE OUTLINE DIMENSION



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| A | 1.15 | 1.35 | 0.045 | 0.053 |
| B | 2.30 | 2.80 | 0.091 | 0.110 |
| C | 0.25 | 0.40 | 0.010 | 0.016 |
| D | 1.60 | 1.80 | 0.063 | 0.071 |
| E | 0.80 | 1.10 | 0.031 | 0.043 |
| F | 0.05 | 0.25 | 0.002 | 0.010 |

SUGGEST PAD LAYOUT



| DIM. | Unit (mm) | Unit (inch) |
|------|-----------|-------------|
| | Typ. | Typ. |
| A | 0.63 | 0.025 |
| B | 0.83 | 0.033 |
| C | 1.60 | 0.063 |
| D | 2.86 | 0.113 |

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