

150mA, 85V Switching Diode

FEATURES

- Fast switching device ($t_{rr} < 4\text{ns}$)
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- For switching power supply

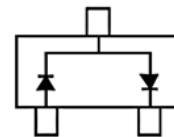
MECHANICAL DATA

- Case: SOT-323
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 5.00mg (approximately)

| KEY PARAMETERS | | |
|-------------------|---------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 150 | mA |
| V_{RRM} | 85 | V |
| I_{FSM} | 4 | A |
| $T_{J\text{MAX}}$ | 150 | °C |
| Package | SOT-323 | |



SOT-323



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | |
|---|--------------------|-------------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Repetitive peak reverse voltage | V_{RRM} | 85 | V |
| Reverse voltage | V_R | 75 | V |
| Forward current | Single diode | 150 | mA |
| | Dual diodes | 130 | mA |
| Power dissipation | P_D | 200 | mW |
| Non-Repetitive peak forward surge current | $t = 1\mu\text{s}$ | 4 | A |
| | $t = 1\text{ms}$ | 1 | A |
| | $t = 1\text{s}$ | 0.5 | A |
| Repetitive peak forward current | I_{FRM} | 500 | mA |
| Junction temperature range | T_J | -55 to +150 | °C |
| Storage temperature range | T_{STG} | -55 to +150 | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|-----|------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 625 | °C/W |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|--|----------|-----|-------|------|
| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | $I_F = 1\text{mA}, T_J = 25^\circ\text{C}$ | V_F | - | 0.715 | V |
| | $I_F = 10\text{mA}, T_J = 25^\circ\text{C}$ | | - | 0.855 | V |
| | $I_F = 50\text{mA}, T_J = 25^\circ\text{C}$ | | - | 1.000 | V |
| | $I_F = 150\text{mA}, T_J = 25^\circ\text{C}$ | | - | 1.250 | V |
| Reverse current per diode ⁽²⁾ | $V_R = 25\text{V}, T_J = 25^\circ\text{C}$ | I_R | - | 30 | nA |
| | $V_R = 75\text{V}, T_J = 25^\circ\text{C}$ | | - | 1 | μA |
| | $V_R = 25\text{V}, T_J = 150^\circ\text{C}$ | | - | 30 | μA |
| | $V_R = 75\text{V}, T_J = 150^\circ\text{C}$ | | - | 50 | μA |
| Junction capacitance | $V_R = 0\text{V}, f = 1.0\text{MHz}$ | C_J | - | 1.5 | pF |
| Reverse Recovery Time | $I_F = I_R = 10\text{mA}, R_L = 100\Omega,$ $I_{rr} = 1\text{mA}$ | t_{rr} | - | 4 | ns |

Notes:

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

| ORDERING AND MARKING INFORMATION | | | |
|---|---------|---------|--------------|
| ORDERING CODE ⁽¹⁾ | MARKING | PACKAGE | PACKING |
| BAV99W RF | A7 | SOT-323 | 3K / 7" Reel |
| BAV99W RFG | A7 | SOT-323 | 3K / 7" Reel |

Notes:

1. "G" means green compound (halogen free)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

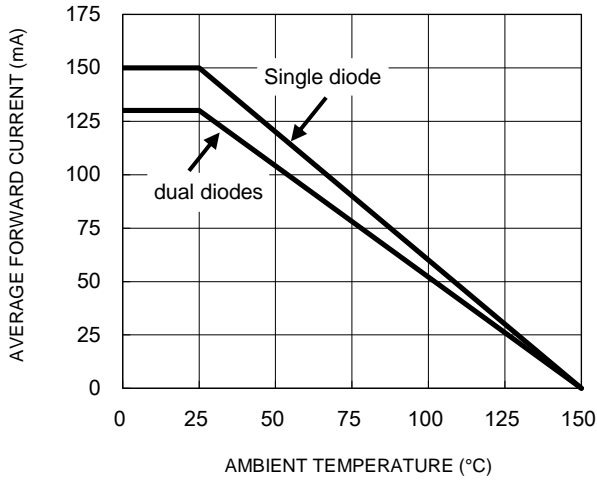


Fig.2 Typical Junction Capacitance

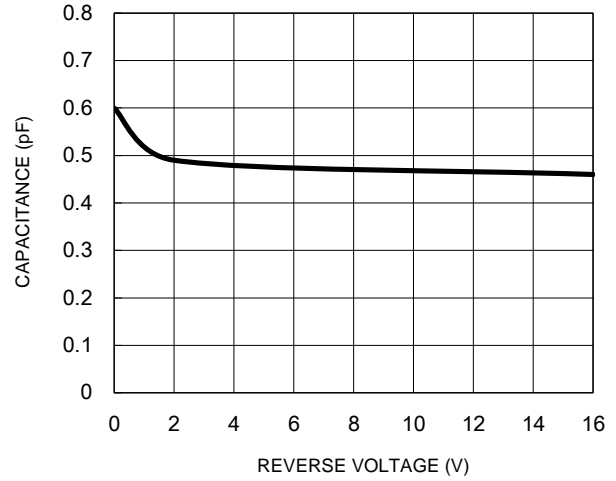


Fig.3 Typical Reverse Characteristics

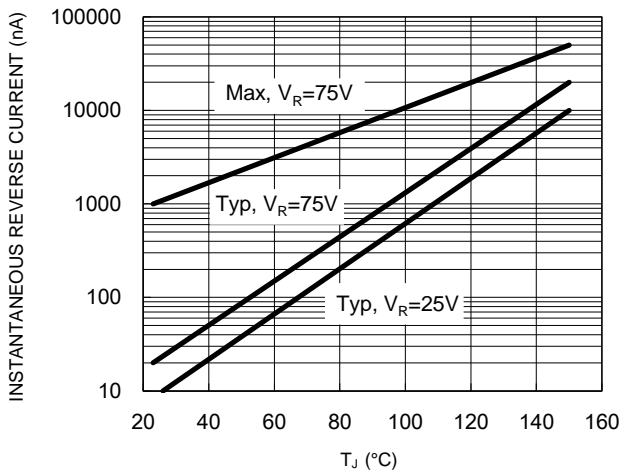


Fig.4 Typical Forward Characteristics

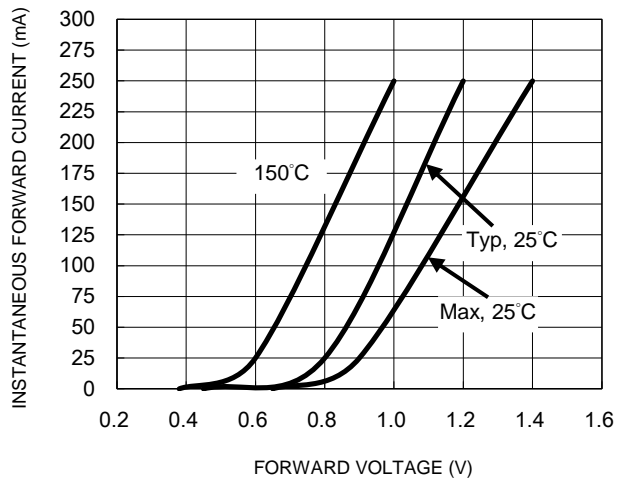
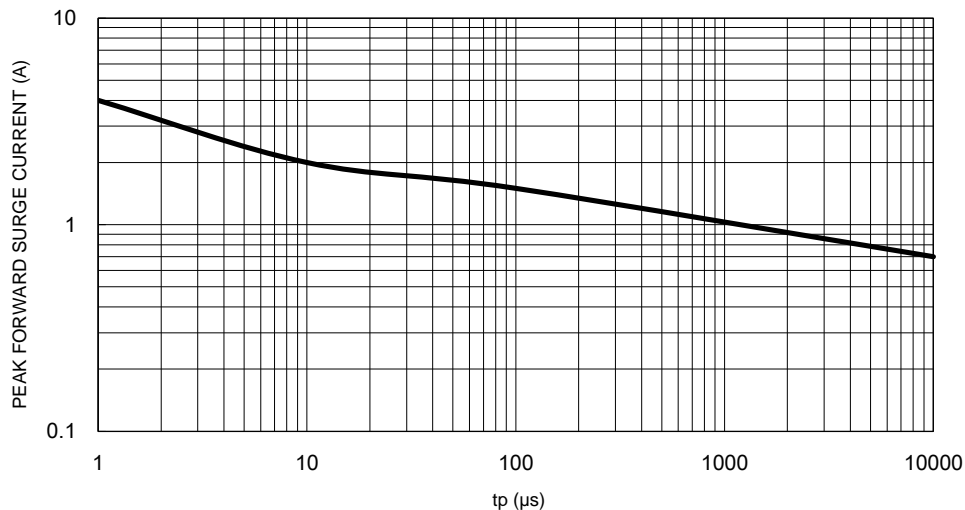
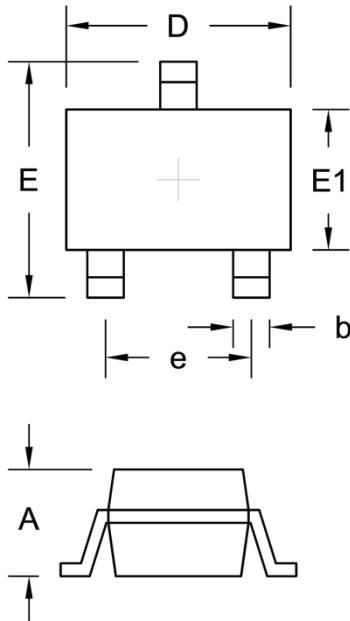


Fig.5 Maximum Non-Repetitive Forward Surge Current



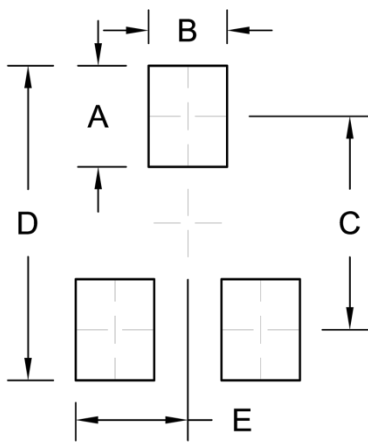
PACKAGE OUTLINE DIMENSIONS

SOT-323



| DIM. | Unit (mm) | | Unit (inch) | |
|------|------------|------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.80 | 1.10 | 0.031 | 0.043 |
| b | 0.25 | 0.40 | 0.010 | 0.016 |
| D | 1.80 | 2.20 | 0.071 | 0.087 |
| E | 1.80 | 2.40 | 0.071 | 0.094 |
| E1 | 1.15 | 1.35 | 0.045 | 0.053 |
| e | 1.30 (TYP) | | 0.051 (TYP) | |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 0.90 | 0.035 |
| B | 0.70 | 0.028 |
| C | 1.90 | 0.075 |
| D | 2.80 | 0.110 |
| E | 1.00 | 0.039 |

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