



Small Signal Schottky Diode



FEATURES

- For general purpose applications
- These diodes feature very low turn-on voltage and fast guard ring against excessive voltage, such as electrostatic discharges
- These diodes are also available in the SOD-123 case with the type designations BAT42W-V to BAT43W-V and in MiniMELF SOD-80 case with the type designations LL42 to LL43
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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MECHANICAL DATA

Case: DO-35 (DO-204AH)

Weight: approx. 125 mg

Cathode band color: black

Packaging codes/options:

TR/10K per 13" reel (52 mm tape), 50K/box

TAP/10K per ammo tape (52 mm tape), 50K/box

| PARTS TABLE | | | | |
|-------------|-----------------------|-----------------------|--------------|------------------------|
| PART | ORDERING CODE | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS |
| BAT42 | BAT42-TR or BAT42-TAP | Single | BAT42 | Tape and reel/ammopack |
| BAT43 | BAT43-TR or BAT43-TAP | Single | BAT43 | Tape and reel/ammopack |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---|-------------------------------|------------------|-------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Repetitive peak reverse voltage | | V _{RRM} | 30 | V |
| Forward continuous current ⁽¹⁾ | | I _F | 200 | mA |
| Repetitive peak forward current ⁽¹⁾ | t _p < 1 s, δ < 0.5 | I _{FRM} | 500 | mA |
| Surge forward current ⁽¹⁾ | t _p < 10 ms | I _{FSM} | 4 | A |
| Power dissipation ⁽¹⁾ | T _{amb} = 65 °C | P _{tot} | 200 | mW |

Note

⁽¹⁾ Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

| THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|--|----------------|-------------------|-------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Thermal resistance junction to ambient air ⁽¹⁾ | | R _{thJA} | 300 | K/W |
| Junction temperature | | T _j | 125 | °C |
| Ambient operating temperature range | | T _{amb} | -65 to +125 | °C |
| Storage temperature range | | T _{stg} | -65 to +150 | °C |

Note

⁽¹⁾ Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|--|---|-------|------------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Reverse breakdown voltage | $I_R = 100\text{ }\mu\text{A}$ (pulsed) | | $V_{(BR)}$ | 30 | | | V |
| Leakage current ⁽¹⁾ | $V_R = 25\text{ V}$ | | I_R | | | 0.5 | μA |
| | $V_R = 25\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$ | | I_R | | | 100 | μA |
| Forward voltage ⁽¹⁾ | $I_F = 200\text{ mA}$ | | V_F | | | 1000 | mV |
| | $I_F = 10\text{ mA}$ | BAT42 | V_F | | | 400 | mV |
| | $I_F = 50\text{ mA}$ | BAT42 | V_F | | | 650 | mV |
| | $I_F = 2\text{ mA}$ | BAT43 | V_F | 260 | | 330 | mV |
| | $I_F = 15\text{ mA}$ | BAT43 | V_F | | | 450 | mV |
| Diode capacitance | $V_R = 1\text{ V}, f = 1\text{ MHz}$ | | C_D | | 7 | | pF |
| Reverse recovery time | $I_F = 10\text{ mA}, I_R = 10\text{ mA},$ $i_R = 1\text{ mA}, R_L = 100\text{ }\Omega$ | | t_{rr} | | | 5 | ns |
| Rectification efficiency | $R_L = 15\text{ k}\Omega, C_L = 300\text{ pF},$ $f = 45\text{ MHz}, V_{RF} = 2\text{ V}$ | | η_v | 80 | | | % |

Note

⁽¹⁾ Pulse test; $t_p < 300\text{ }\mu\text{s}$, $t_p/T < 0.02$

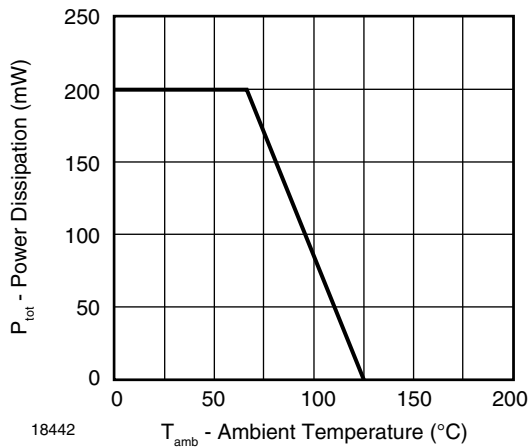
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

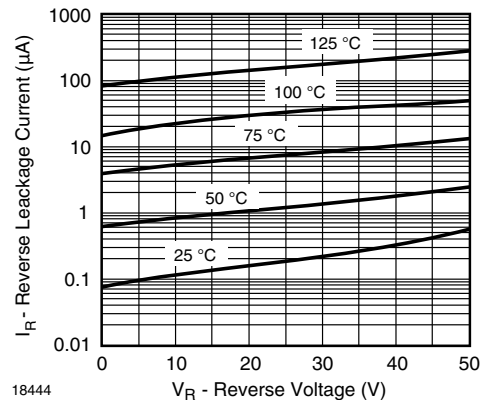


Fig. 3 - Typical Reverse Characteristics

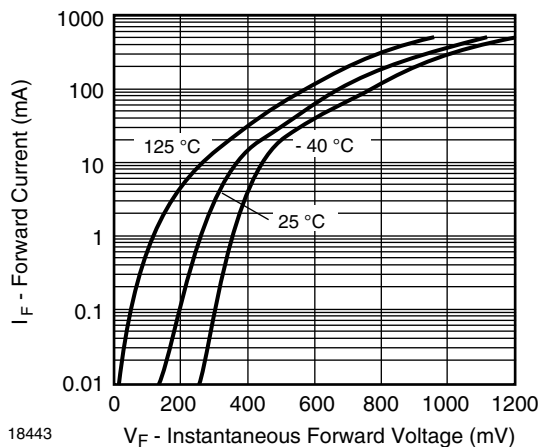


Fig. 2 - Typical Forward Characteristics

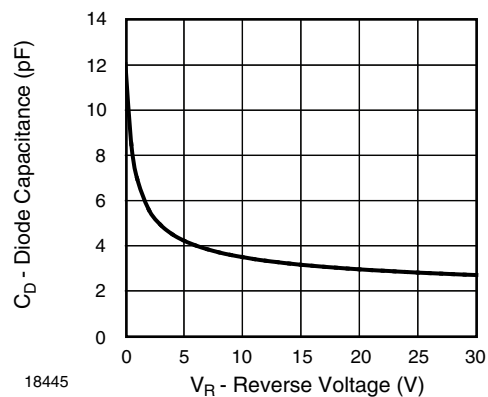
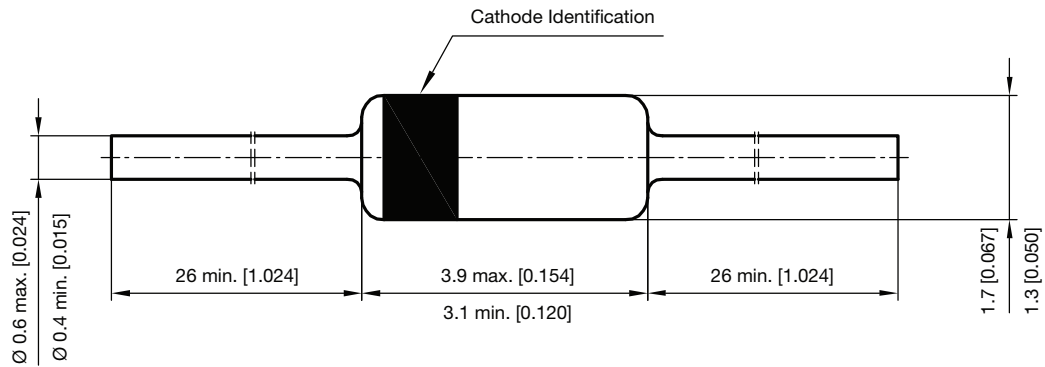


Fig. 4 - Typical Capacitance vs. Reverse Voltage



PACKAGE DIMENSIONS in millimeters (inches): **DO-35 (DO-204AH)**



Rev. 6 - Date: 19. December 2011
Document no.: SB-V-3906.04-031(4)
94 9366



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