

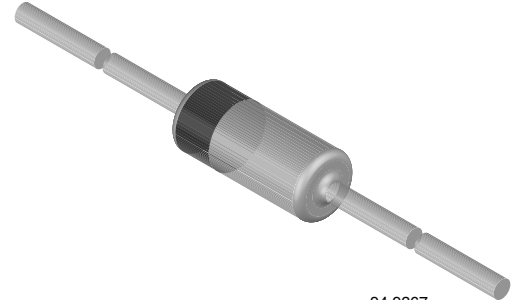
Small Signal Schottky Diodes

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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE



94 9367

Mechanical Data

Case: DO-35

Weight: approx. 125 mg

Cathode Band Color: black

Packaging Codes/Options:

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

TAP/10 k per Ammo tape (52 mm tape), 50 k/box

Parts Table

| Part | Ordering code | Type Marking | Remarks |
|-------|-----------------------|--------------|------------------------|
| BAT42 | BAT42-TR or BAT42-TAP | BAT42 | Tape and Reel/Ammopack |
| BAT43 | BAT43-TR or BAT43-TAP | BAT43 | Tape and Reel/Ammopack |

Absolute Maximum Ratings

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

| Parameter | Test condition | Symbol | Value | Unit |
|---------------------------------|--|-----------|-------------------|------|
| Repetitive peak reverse voltage | | V_{RRM} | 30 | V |
| Forward continuous current | | I_F | 200 ¹⁾ | mA |
| Repetitive peak forward current | $t_p < 1\text{ s}, \delta < 0.5$ | I_{FRM} | 500 ¹⁾ | mA |
| Surge forward current | $t_p < 10\text{ ms}$ | I_{FSM} | 4 ¹⁾ | A |
| Power dissipation ¹⁾ | $T_{amb} = 65\text{ }^{\circ}\text{C}$ | P_{tot} | 200 ¹⁾ | mW |

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

Thermal Characteristics

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

| Parameter | Test condition | Symbol | Value | Unit |
|--|----------------|------------|-------------------|--------------------|
| Thermal resistance junction to ambient air | | R_{thJA} | 300 ¹⁾ | K/W |
| Junction temperature | | T_j | 125 | $^{\circ}\text{C}$ |
| Ambient operating temperature range | | T_{amb} | - 65 to + 125 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | - 65 to +150 | $^{\circ}\text{C}$ |

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 | | | % |

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

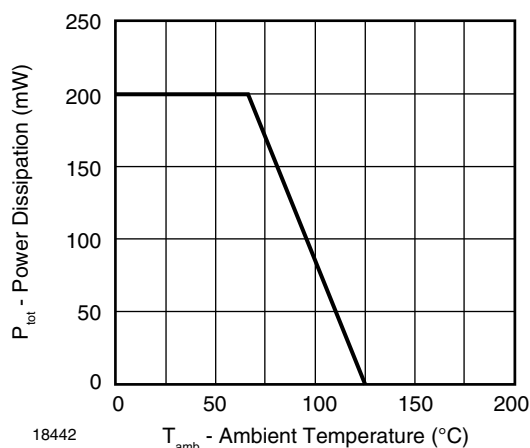


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

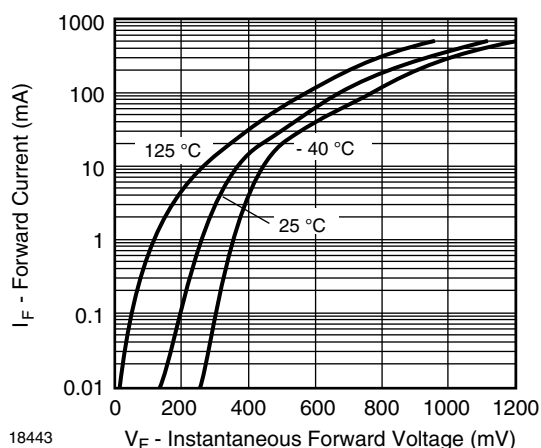


Figure 2. Typical Forward Characteristics

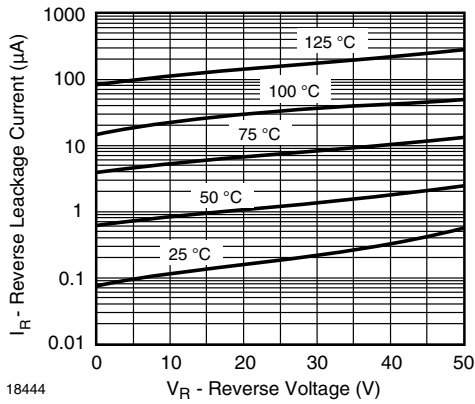


Figure 3. Typical Reverse Characteristics

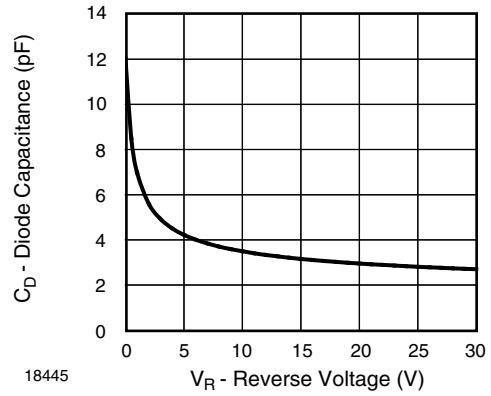
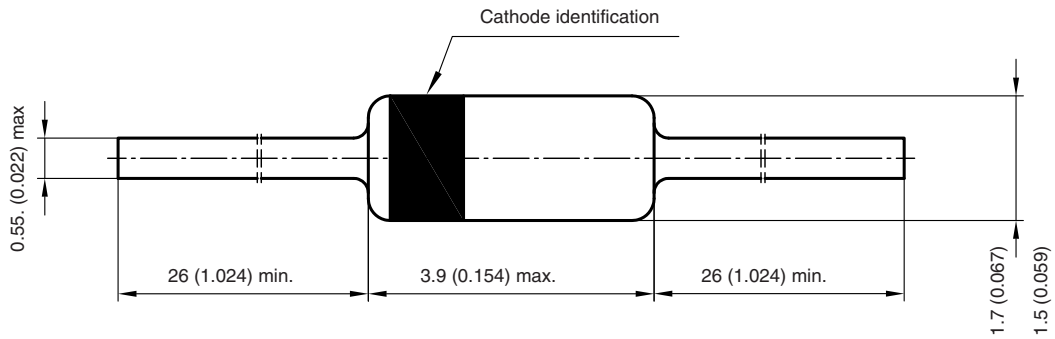


Figure 4. Typical Capacitance vs. Reverse Voltage

Package Dimensions in millimeters (inches): DO-35



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