

## Small Signal Schottky Diode

### Features

- For general purpose applications.
- This diode features very low turn-on voltage and fast switching. This device is protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- This diode is also available in the SOD-123 case with type designation BAT46W-V and in the MiniMELF case with type designations LL46.
- 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



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 Ammopack (52 mm tape), 50 k/box

### Parts Table

Part	Ordering code	Type Marking	Remarks
BAT46	BAT46-TR or BAT46-TAP	BAT46	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		$V_{RRM}$	100	V
Forward continuous current		$I_F$	150 <sup>1)</sup>	mA
Repetitive peak forward current	$t_p < 1\text{ s}, \delta < 0.5$	$I_{FRM}$	350 <sup>1)</sup>	mA
Surge forward current	$t_p < 10\text{ ms}$	$I_{FSM}$	750 <sup>1)</sup>	mA
Power dissipation <sup>1)</sup>	$T_{amb} = 80\text{ }^{\circ}\text{C}$	$P_{tot}$	150 <sup>1)</sup>	mW

1) Valid provided that electrodes 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 <sup>1)</sup>	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 electrodes are kept at ambient temperature

### Electrical Characteristics

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

Parameter	Test condition	Symbol	Min.	Typ.	Max.	Unit
Reverse breakdown voltage	$I_R = 100\text{ }\mu\text{A}$ (pulsed)	$V_{(BR)}$	100			V
Leakage current <sup>2)</sup>	$V_R = 1.5\text{ V}$	$I_R$			0.5	$\mu\text{A}$
	$V_R = 1.5\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$	$I_R$			5	$\mu\text{A}$
	$V_R = 10\text{ V}$	$I_R$			0.8	$\mu\text{A}$
	$V_R = 10\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$	$I_R$			7.5	$\mu\text{A}$
	$V_R = 50\text{ V}$	$I_R$			2	$\mu\text{A}$
	$V_R = 50\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$	$I_R$			15	$\mu\text{A}$
	$V_R = 75\text{ V}$	$I_R$			5	$\mu\text{A}$
	$V_R = 75\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$	$I_R$			20	$\mu\text{A}$
Forward voltage <sup>2)</sup>	$I_F = 0.1\text{ mA}$	$V_F$			250	mV
	$I_F = 10\text{ mA}$	$V_F$			450	mV
	$I_F = 250\text{ mA}$	$V_F$			1000	mV
Diode capacitance	$V_R = 0\text{ V}, f = 1\text{ MHz}$	$C_D$		10		pF
	$V_R = 1\text{ V}, f = 1\text{ MHz}$	$C_D$		6		pF

2) Pulse test  $t_p < 300\text{ }\mu\text{s}$ ,  $\delta < 2\%$

### Typical Characteristics

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

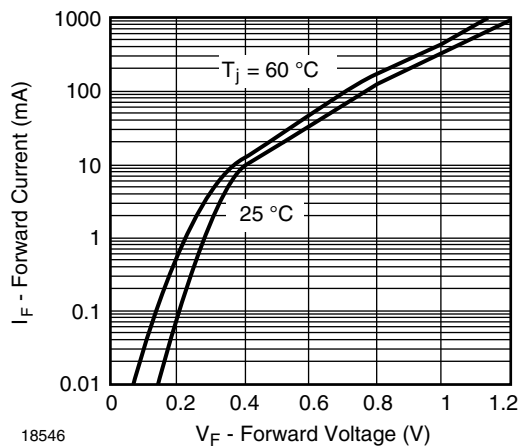


Figure 1. Typical Instantaneous Forward Characteristics

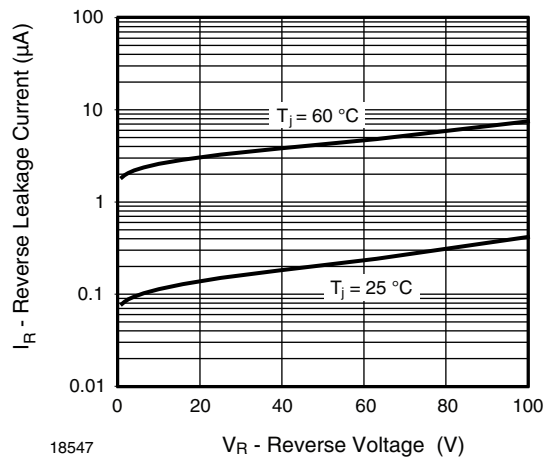


Figure 2. Typical Reverse Characteristics

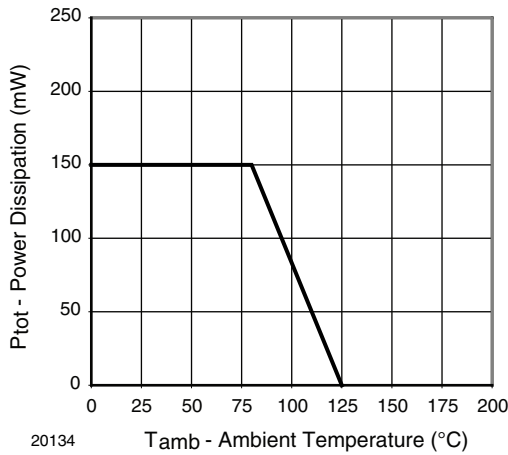
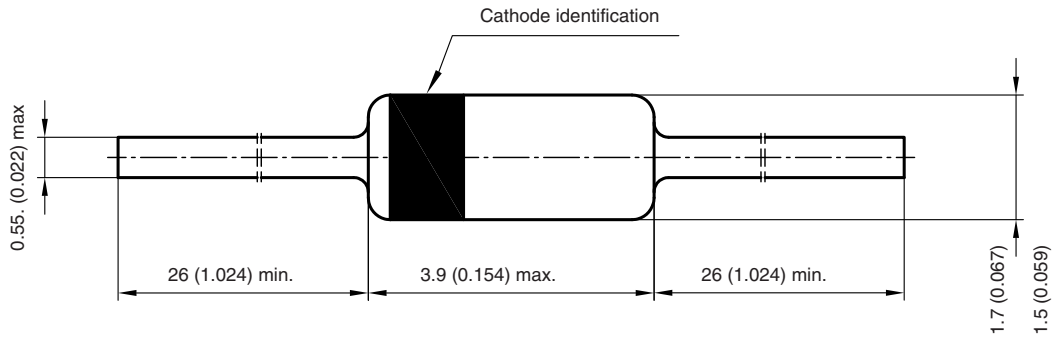


Figure 3. Admissible Power Dissipation vs. Ambient Temperature

### Package Dimensions in millimeters (inches): DO-35



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