

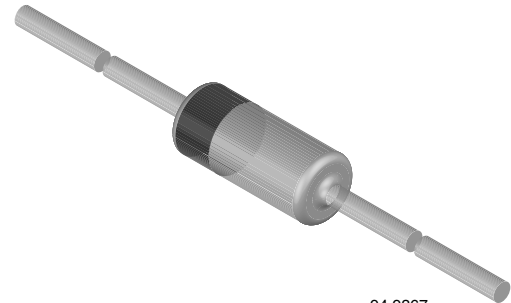
## Small Signal Schottky Diodes

### 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 <sup>1)</sup>	mA
Repetitive peak forward current	$t_p < 1\text{ s}, \delta < 0.5$	$I_{FRM}$	500 <sup>1)</sup>	mA
Surge forward current	$t_p < 10\text{ ms}$	$I_{FSM}$	4 <sup>1)</sup>	A
Power dissipation <sup>1)</sup>	$T_{amb} = 65\text{ }^{\circ}\text{C}$	$P_{tot}$	200 <sup>1)</sup>	mW

<sup>1)</sup> 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 <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	$^{\circ}\text{C}$

<sup>1)</sup> 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 <sup>1)</sup>	$V_R = 25\text{ V}$		$I_R$			0.5	$\mu\text{A}$
	$V_R = 25\text{ V}$ , $T_j = 100\text{ }^{\circ}\text{C}$		$I_R$			100	$\mu\text{A}$
Forward voltage <sup>1)</sup>	$I_F = 200\text{ mA}$		$V_F$			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	$R_L = 15\text{ k}\Omega$ , $C_L = 300\text{ pF}$ , $f = 45\text{ MHz}$ , $V_{RF} = 2\text{ V}$		$\eta_v$	80			%

<sup>1)</sup> 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

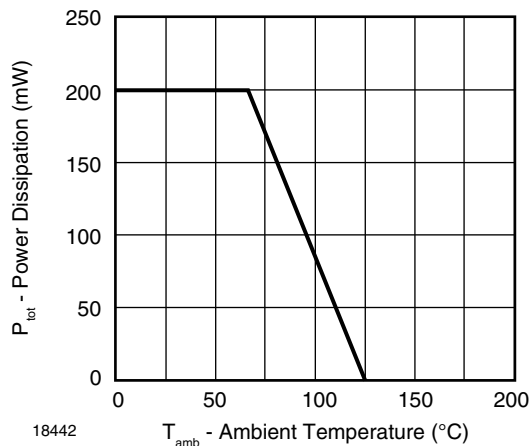


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

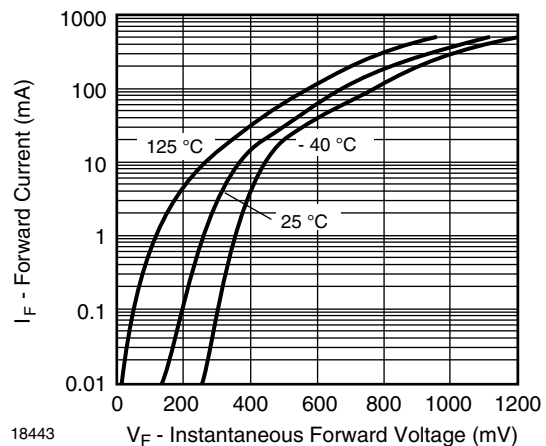


Figure 2. Typical Forward Characteristics

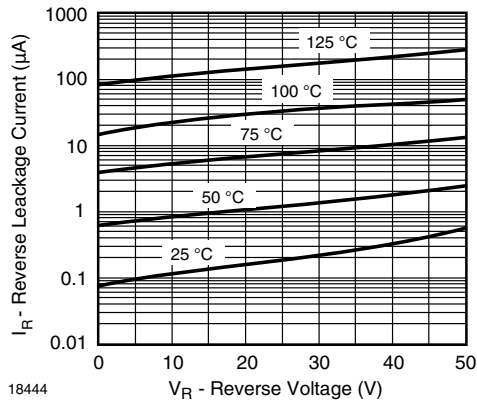


Figure 3. Typical Reverse Characteristics

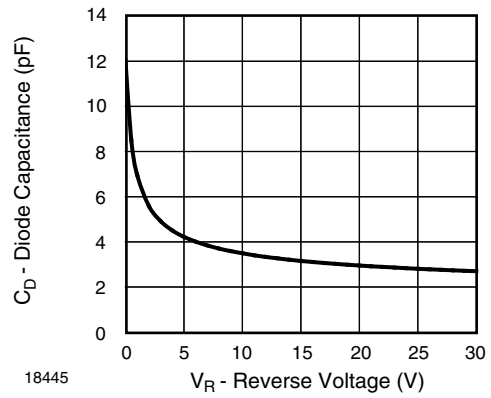
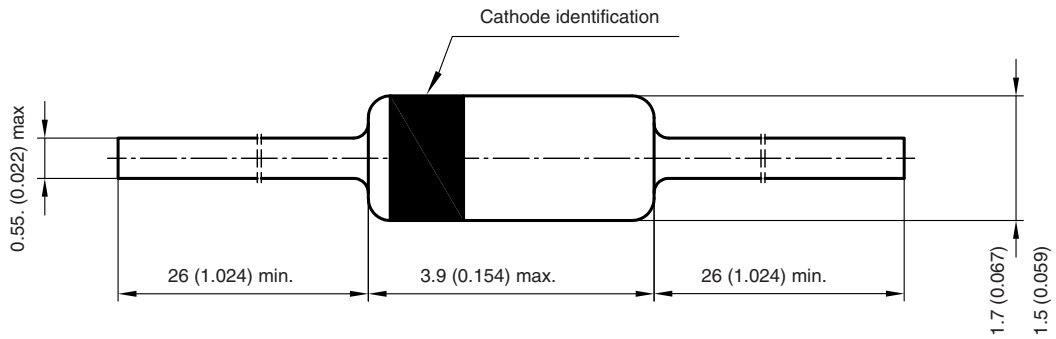


Figure 4. Typical Capacitance vs. Reverse Voltage

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



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 94 9366



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