



# 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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### MECHANICAL DATA

Case: DO-35

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	INTERNAL CONSTRUCTION	TYPE MARKING	REMARKS
BAT42	BAT42-TR or BAT42-TAP	Single diode	BAT42	Tape and reel/ammopack
BAT43	BAT43-TR or BAT43-TAP	Single diode	BAT43	Tape and reel/ammopack

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

**Note**

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

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

**Note**

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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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			%

**Note**

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

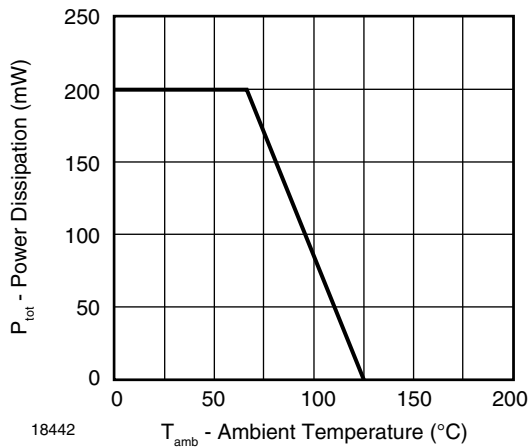
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

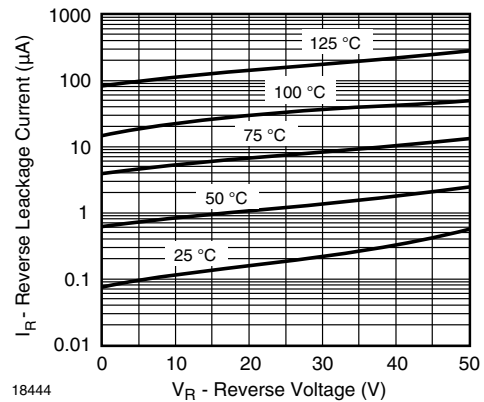


Fig. 3 - Typical Reverse Characteristics

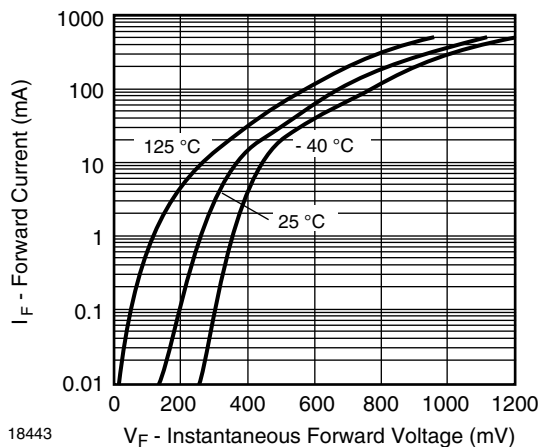


Fig. 2 - Typical Forward Characteristics

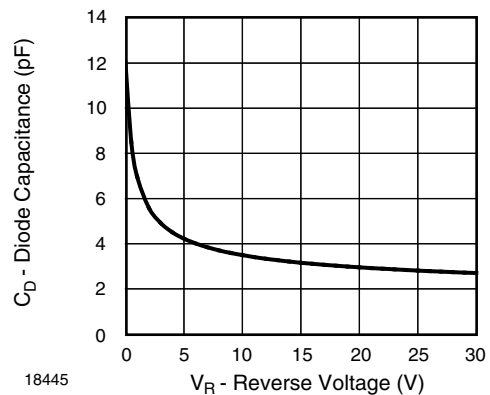
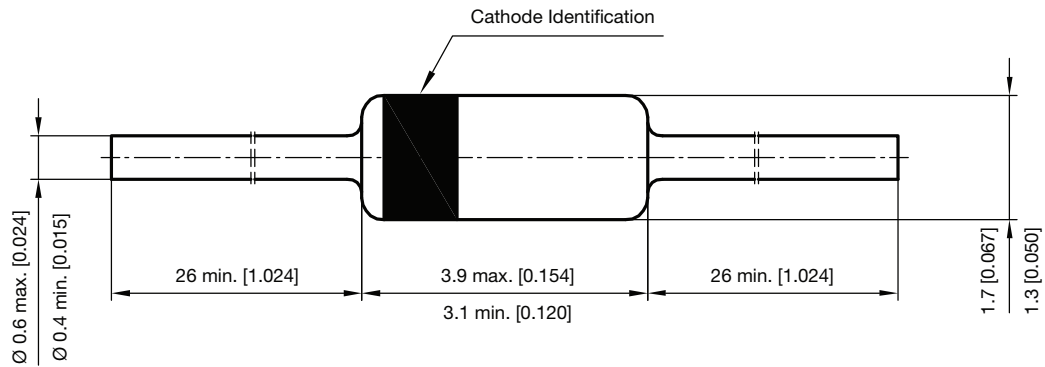


Fig. 4 - Typical Capacitance vs. Reverse Voltage



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



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