

Small Signal Schottky Diodes

Features

- These diodes feature very low turn-on voltage and fast switching. These devices are protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- These diodes are also available in the DO-35 case with the type designations BAT42 to BAT43 and in MiniMELF SOD-80 case with the type designations LL42 to LL43
- For general purpose applications
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT



17431

Mechanical Data

Case: SOD-123

Weight: approx. 10.3 mg

Packaging Codes/Options:

GS18/10 k per 13" reel (8 mm tape), 10 k/box

GS08/3 k per 7" reel (8 mm tape), 15 k/box

Parts Table

Part	Ordering code	Type Marking	Remarks
BAT42W-V	BAT42W-V-GS18 or BAT42W-V-GS08	L2	Tape and Reel
BAT43W-V	BAT43W-V-GS18 or BAT43W-V-GS08	L3	Tape and Reel

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 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 ¹⁾	K/W
Junction temperature		T_j	125	$^{\circ}\text{C}$
Ambient operating temperature range		T_{amb}	- 55 to + 125	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	- 55 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	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
	$I_F = 10\text{ mA}$	BAT42W-V	V_F			400	mV
	$I_F = 50\text{ mA}$	BAT42W-V	V_F			650	mV
	$I_F = 2\text{ mA}$	BAT43W-V	V_F	260		330	mV
	$I_F = 15\text{ mA}$	BAT43W-V	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

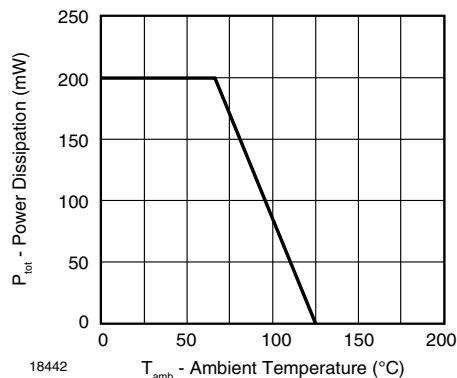


Figure 1. Admissible Power Dissipation vs. Ambient Temperature

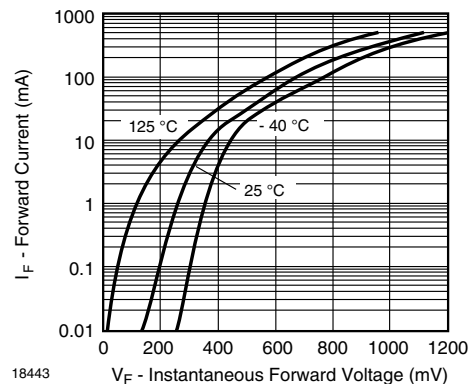


Figure 2. Typical Forward Characteristics

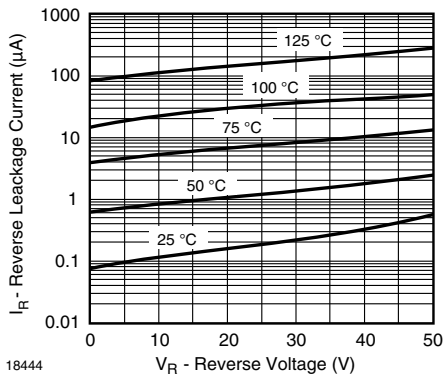


Figure 3. Typical Reverse Characteristics

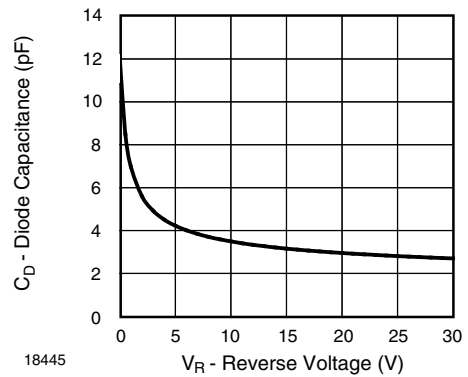
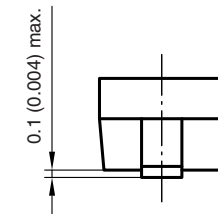
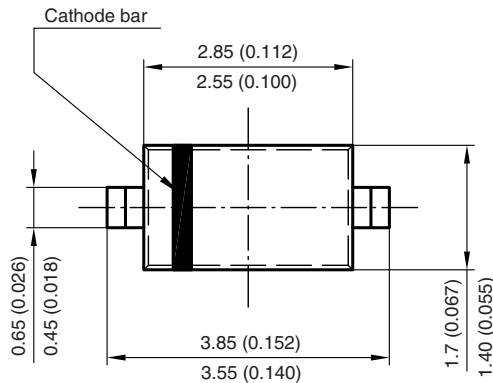
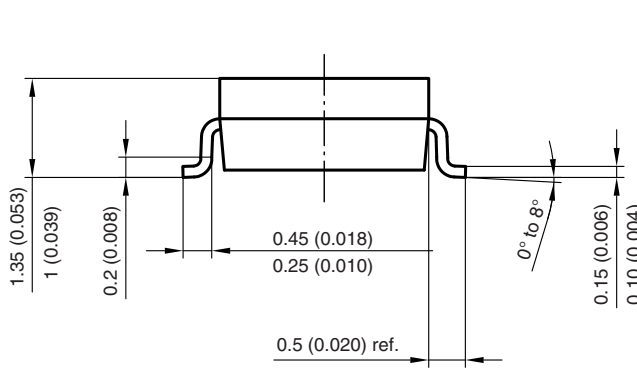
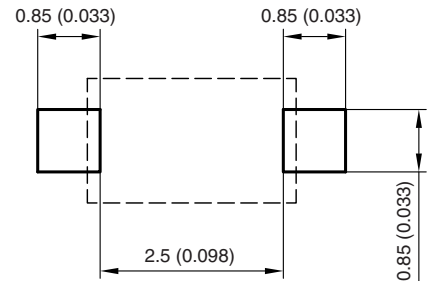


Figure 4. Typical Capacitance vs. Reverse Voltage

Package Dimensions in millimeters (inches): SOD-123



Mounting Pad Layout



Rev. 4 - Date: 24. Sep. 2009
 Document no.: S8-V-3910.01-001 (4)
 17432



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