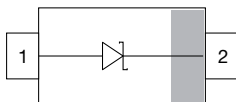


## Small Signal Schottky Diode



### 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
- For general purpose applications
- AEC-Q101 qualified available
- Molding compound meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level (MSL) 1
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### LINKS TO ADDITIONAL RESOURCES



### MECHANICAL DATA

**Case:** SOD-123

**Weight:** approx. 10.6 mg

**Packaging codes/options:**

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 mm tape), 15K/box

### PARTS TABLE

PART	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BAT42W	BAT42W-E3-08	no	LC	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAT42W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT42W-E3-18	no				
	BAT42W-HE3_A-18	yes				
BAT43W	BAT43W-E3-08	no	LD	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAT43W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT43W-E3-18	no				
	BAT43W-HE3_A-18	yes				

### PACKAGE

PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOD-123	10.6 mg	UL 94 V-0	MSL 1 (according J-STD-020)	Peak temperature max. 260 °C

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage		$V_{RRM}$	30	V
Forward continuous current <sup>(1)</sup>		$I_F$	300	mA
Repetitive peak forward current <sup>(1)</sup>		$I_{FRM}$	500	mA
Surge forward current <sup>(1)</sup>	Duty cycle $t_p / T < 0.5$	$I_{FSM}$	4	A
Power dissipation	On FR-4 board with recommended soldering footprint	$P_{tot}$	230	mW
	Infinite heatsink		350	mW

#### Note

<sup>(1)</sup> Infinite heatsink



THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air	according to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	$R_{thJA}$	420	K/W
Thermal resistance junction lead	Infinite heatsink	$R_{thJL}$	280	K/W
Maximum junction temperature		$T_j$	125	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-65 to +150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	-55 to +125	$^{\circ}\text{C}$

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
	$I_F = 10\text{ mA}$	BAT42W	$V_F$			400	mV
	$I_F = 50\text{ mA}$	BAT42W	$V_F$			650	mV
	$I_F = 2\text{ mA}$	BAT43W	$V_F$	260		330	mV
	$I_F = 15\text{ mA}$	BAT43W	$V_F$			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

**Note**

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



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

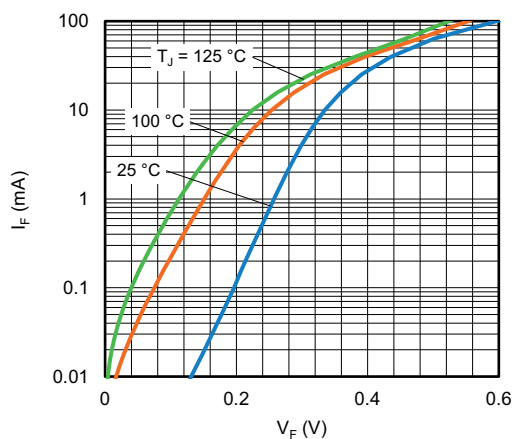


Fig. 1 - Typical Forward Current vs. Forward Voltage

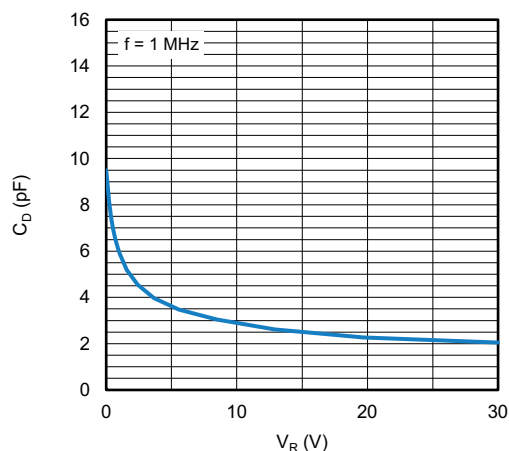


Fig. 3 - Typical Reverse Characteristics

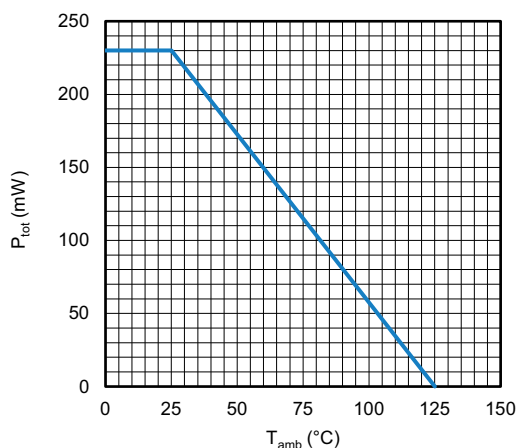


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

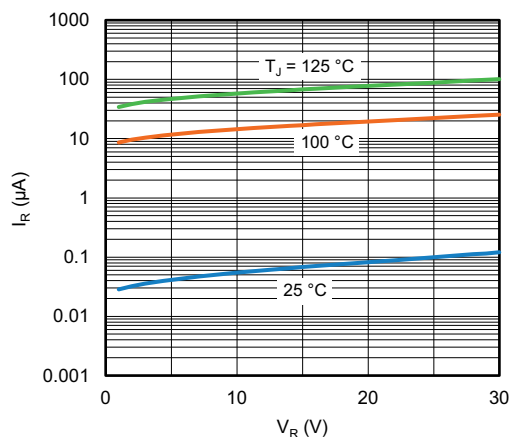
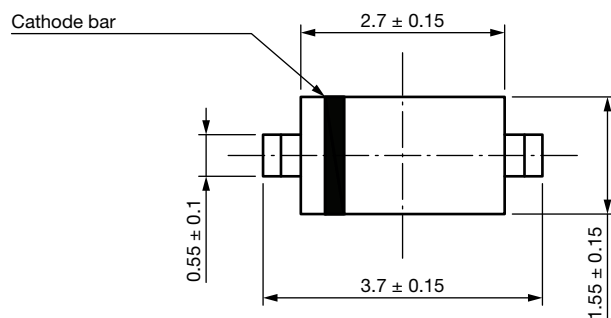
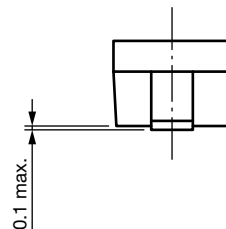


Fig. 4 - Typical Capacitance vs. Reverse Voltage



**PACKAGE DIMENSIONS** in millimeters (inches): **SOD-123**



Foot print recommendation



Rev. 01 - Date: 18. Jan. 2022

Document no.: S8-V-3910.01-003 (4)

23223



CARRIER TAPE SOD-123



Rev. 02 - Date: 21. Jan. 2014  
Document no.: S8-V-3717.10-002 (4)

23224

ORIENTATION IN CARRIER TAPE SOD-123



Rev. 02 - Date: 07. Nov. 2022  
Document no.: S8-V-3717.10-003 (4)

23225



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