# SD103AW, SD103BW, SD103CW

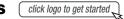
Vishay Semiconductors

### **Small Signal Schottky Diodes**



www.vishay.com

#### **DESIGN SUPPORT TOOLS**





#### **MECHANICAL DATA**

Case: SOD-123

Weight: approx. 10.3 mg

Cathode band color: black

#### Packaging codes/options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

#### FEATURES

 The low forward voltage drop and fast switching make it ideal for protection of MOS devices, steering, biasing, and coupling diodes for fast switching and low logic level applications



- Other applications are click suppression, efficient full wave bridges in telephone subsets, and blocking diodes in rechargeable low voltage battery systems
- The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guardring
- For general purpose applications
- AEC-Q101 qualified available
- 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 <u>www.vishay.com/doc?99912</u>

PARTS TABLE						
PART	ORDERING CODE	CIRCUIT CONFIGURATION	TYPE MARKING	REMARKS		
SD103AW	SD103AW-E3-08 or SD103AW-E3-18	Single	S6	Tape and reel		
	SD103AW-HE3-08 or SD103AW-HE3-18	Single				
SD103BW	SD103BW-E3-08 or SD103BW-E3-18	Single	S7			
	SD103BW-HE3-08 or SD103BW-HE3-18	Single	57			
SD103CW	SD103CW-E3-08 or SD103CW-E3-18	Single	S8			
	SD103CW-HE3-08 or SD103CW-HE3-18	Single	30			

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART SYMBOL		VALUE	UNIT	
		SD103AW	V <sub>RRM</sub>	40	V	
Repetitive peak reverse voltage		SD103BW	V <sub>RRM</sub>	30	V	
		SD103CW	V <sub>RRM</sub>	20	V	
Forward continuous current (1)			I <sub>F</sub>	350	mA	
Power dissipation (infinite heat sink) <sup>(1)</sup>			P <sub>tot</sub>	400	mW	
Single cycle surge	10 µs square wave		I <sub>FSM</sub>	2	А	

Note

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

<b>THERMAL CHARACTERISTICS</b> (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		Tj	125	°C		
Operating temperature range		T <sub>op</sub>	-55 to +125	°C		
Storage temperature range		T <sub>stg</sub>	-55 to +150	°C		

Note

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

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ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Leakage current	V <sub>R</sub> = 30 V	SD103AW	I <sub>R</sub>			5	μA
	V <sub>R</sub> = 20 V	SD103BW	I <sub>R</sub>			5	μA
	V <sub>R</sub> = 10 V	SD103CW	I <sub>R</sub>			5	μA
Forward voltage drop	I <sub>F</sub> = 20 mA		VF			370	mV
	I <sub>F</sub> = 200 mA		V <sub>F</sub>			600	mV
Diode capacitance	V <sub>R</sub> = 0 V, f = 1 MHz		CD		50		pF
Reverse recovery time	$I_{F} = I_{R} = 50 \text{ mA to } 200 \text{ mA},$ recover to 0.1 $I_{R}$		t <sub>rr</sub>		10		ns

TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

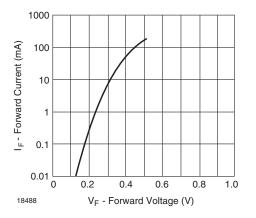


Fig. 1 - Typical Variation of Forward Current vs. Forward Voltage

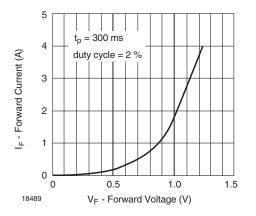


Fig. 2 - Typical High Current Forward Conduction Curve

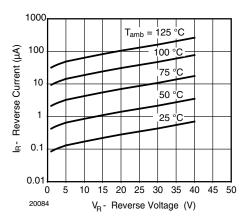


Fig. 3 - Typical Variation of Reverse Current at Various Temperatures

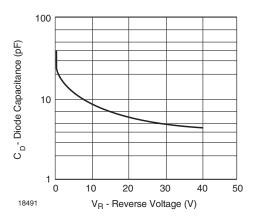


Fig. 4 - Typical Capacitance vs. Reverse Voltage

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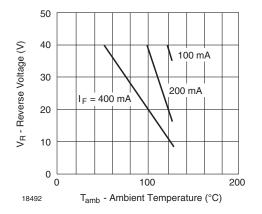
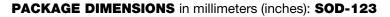
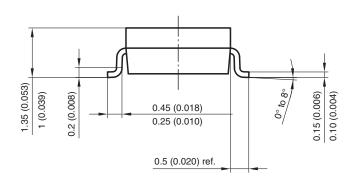
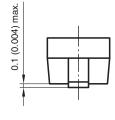
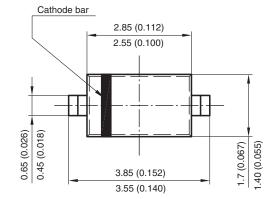


Fig. 5 - Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

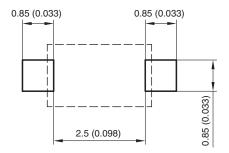








Mounting Pad Layout



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