

## Small Signal Switching Diodes, High Voltage



### FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization:


**RoHS**  
COMPLIANT

 For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### MECHANICAL DATA

**Case:** SOD-123

**Weight:** approx. 10.3 mg

**Packaging codes/options:**

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

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

PARTS TABLE					
PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	INTERNAL CONSTRUCTION	REMARKS
BAV19W	$V_R = 100\text{ V}$	BAV19W-E3-08 or BAV19W-E3-18	A8	Single diode	Tape and reel
		BAV19W-HE3-08 or BAV19W-HE3-18			
BAV20W	$V_R = 150\text{ V}$	BAV20W-E3-08 or BAV20W-E3-18	A9	Single diode	Tape and reel
		BAV20W-HE3-08 or BAV20W-HE3-18			
BAV21W	$V_R = 200\text{ V}$	BAV21W-E3-08 or BAV21W-E3-18	AA	Single diode	Tape and reel
		BAV21W-HE3-08 or BAV21W-HE3-18			

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Continuous reverse voltage		BAV19W	$V_R$	100	V
		BAV20W	$V_R$	150	V
		BAV21W	$V_R$	200	V
Repetitive peak reverse voltage		BAV19W	$V_{RRM}$	120	V
		BAV20W	$V_{RRM}$	200	V
		BAV21W	$V_{RRM}$	250	V
DC Forward current <sup>(1)</sup>			$I_F$	250	mA
Rectified current (average) half wave rectification with resist. load <sup>(1)</sup>			$I_{F(AV)}$	200	mA
Repetitive peak forward current <sup>(1)</sup>	$f \geq 50\text{ Hz}$ , $\theta = 180^\circ$		$I_{FRM}$	625	mA
Surge forward current	$t < 1\text{ s}$ , $T_j = 25\text{ }^\circ\text{C}$		$I_{FSM}$	1	A
Power dissipation <sup>(1)</sup>			$P_{tot}$	410	mW

THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air <sup>(1)</sup>		$R_{thJA}$	375	$^\circ\text{C/W}$
Junction temperature <sup>(1)</sup>		$T_j$	150	$^\circ\text{C}$
Storage temperature range <sup>(1)</sup>		$T_{stg}$	- 65 to + 150	$^\circ\text{C}$
Operating temperature range		$T_{op}$	- 55 to + 150	$^\circ\text{C}$

#### Note

<sup>(1)</sup> Valid provided that leads 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
Forward voltage	$I_F = 100\text{ mA}$		$V_F$			1	V
	$I_F = 200\text{ mA}$		$V_F$			1.25	V
Leakage current	$V_R = 100\text{ V}$	BAV19W	$I_R$			100	nA
	$V_R = 100\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV19W	$I_R$			15	$\mu\text{A}$
	$V_R = 150\text{ V}$	BAV20W	$I_R$			100	nA
	$V_R = 150\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV20W	$I_R$			15	$\mu\text{A}$
	$V_R = 200\text{ V}$	BAV21W	$I_R$			100	nA
	$V_R = 200\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV21W	$I_R$			15	$\mu\text{A}$
Dynamic forward resistance	$I_F = 10\text{ mA}$		$r_f$		5		$\Omega$
Diode capacitance	$V_R = 0, f = 1\text{ MHz}$		$C_D$		1.5		pF
Reverse recovery time	$I_F = 30\text{ mA}, I_R = 30\text{ mA},$ $i_R = 3\text{ mA}, R_L = 100\text{ }\Omega$		$t_{rr}$			50	ns

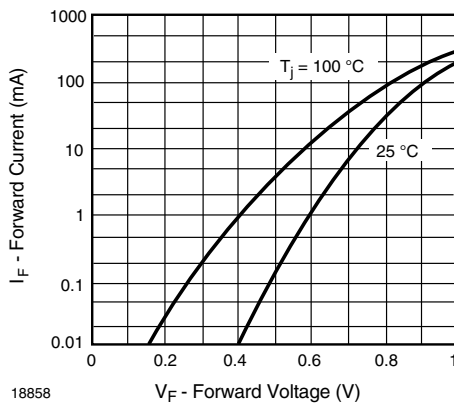
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

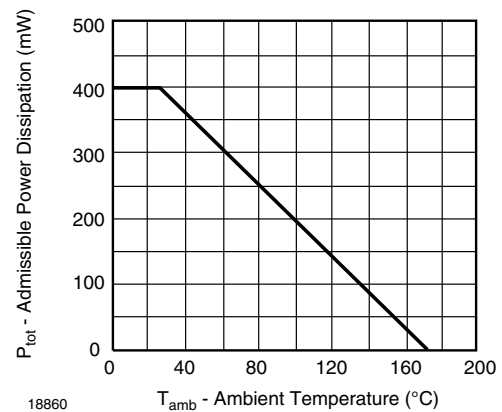


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

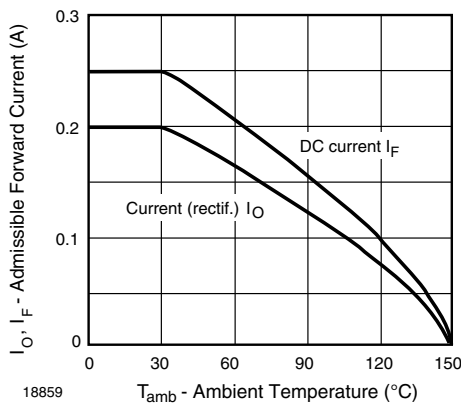


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

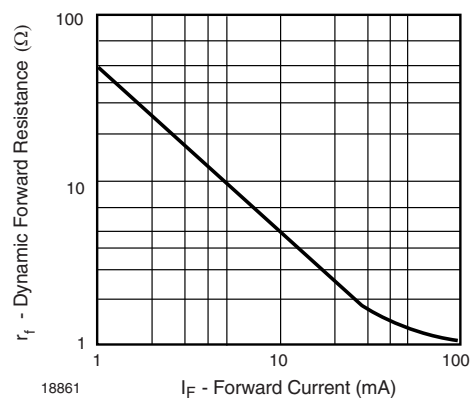


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

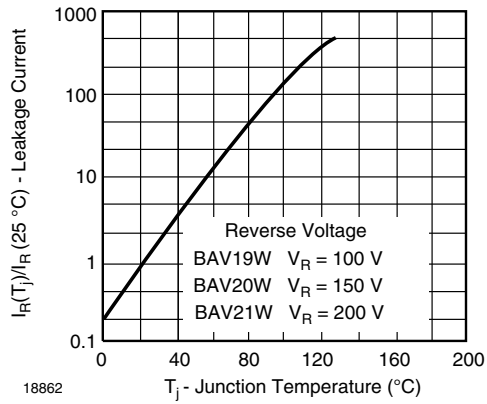


Fig. 5 - Leakage Current vs. Junction Temperature

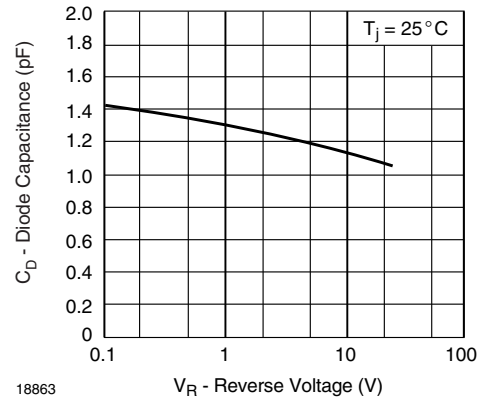


Fig. 6 - Capacitance vs. Reverse Voltage

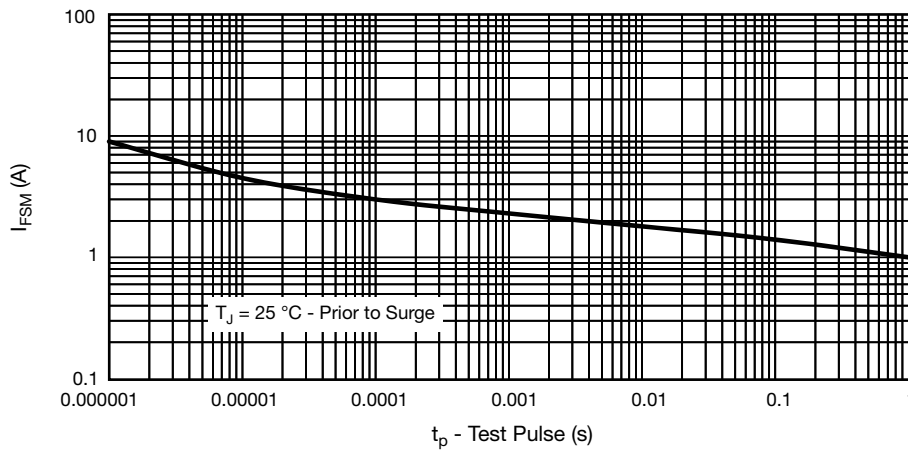
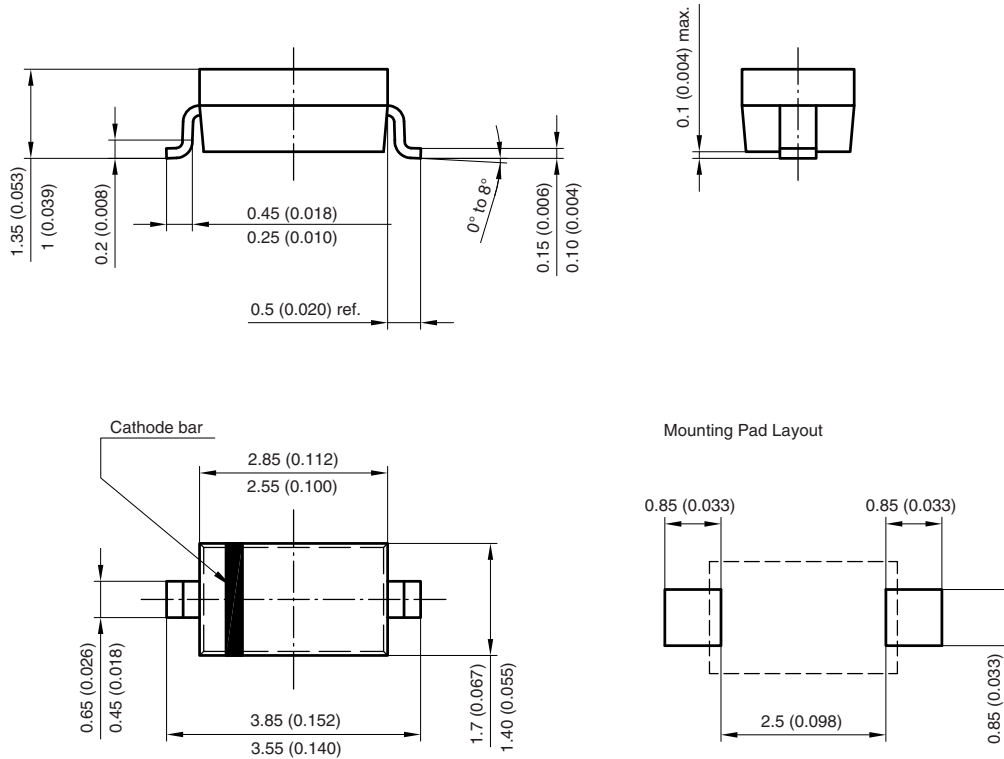


Fig. 7 - Non-Repetitive Peak Forward Current vs. Pulse Duration  
Maximum Admissible Values of Square Pulse



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



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