

Small Signal Switching Diodes, High Voltage



DESIGN SUPPORT TOOLS

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3D
Models
Available

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

FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- 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 www.vishay.com/doc?99912



RoHS
COMPLIANT

PARTS TABLE

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

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 ⁽¹⁾			I_F	250	mA
Rectified current (average) half wave rectification with resist. load ⁽¹⁾			$I_{F(AV)}$	200	mA
Repetitive peak forward current ⁽¹⁾	$f \geq 50\text{ Hz}$, $\theta = 180^{\circ}$		I_{FRM}	625	mA
Surge forward current	$t < 1\text{ s}$, $T_j = 25\text{ }^{\circ}\text{C}$		I_{FSM}	1	A
Power dissipation ⁽¹⁾			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 ⁽¹⁾		R_{thJA}	375	$^{\circ}\text{C/W}$
Junction temperature ⁽¹⁾		T_j	150	$^{\circ}\text{C}$
Storage temperature range ⁽¹⁾		T_{stg}	-65 to +150	$^{\circ}\text{C}$
Operating temperature range		T_{op}	-55 to +150	$^{\circ}\text{C}$

Note

(1) Valid provided that leads 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
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	μA
	$V_R = 150\text{ V}$	BAV20W	I_R			100	nA
	$V_R = 150\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV20W	I_R			15	μA
	$V_R = 200\text{ V}$	BAV21W	I_R			100	nA
	$V_R = 200\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV21W	I_R			15	μA
Dynamic forward resistance	$I_F = 10\text{ mA}$		r_f		5		Ω
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

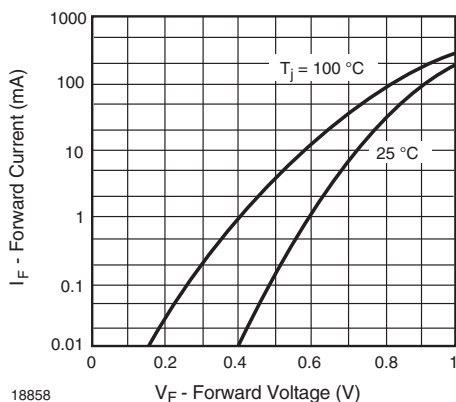
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Fig. 1 - Forward Current vs. Forward Voltage

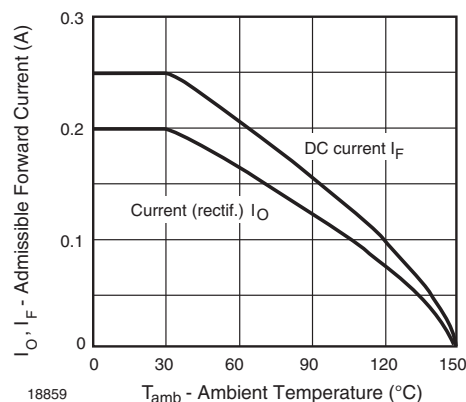


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

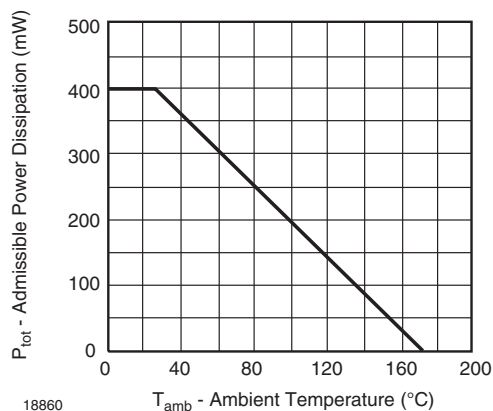


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

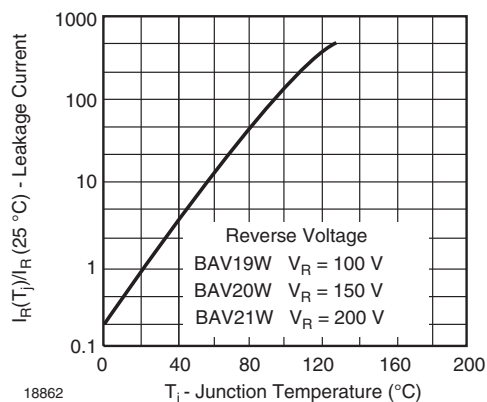


Fig. 5 - Leakage Current vs. Junction Temperature

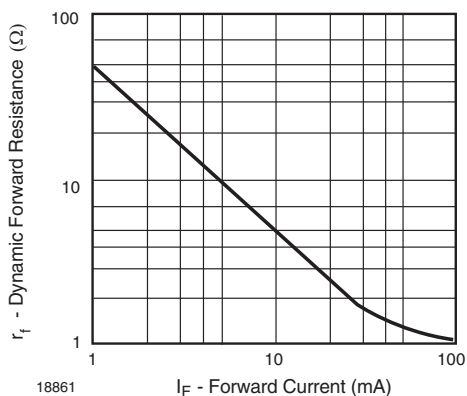


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

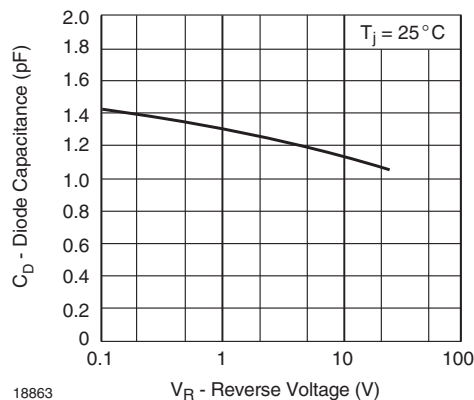
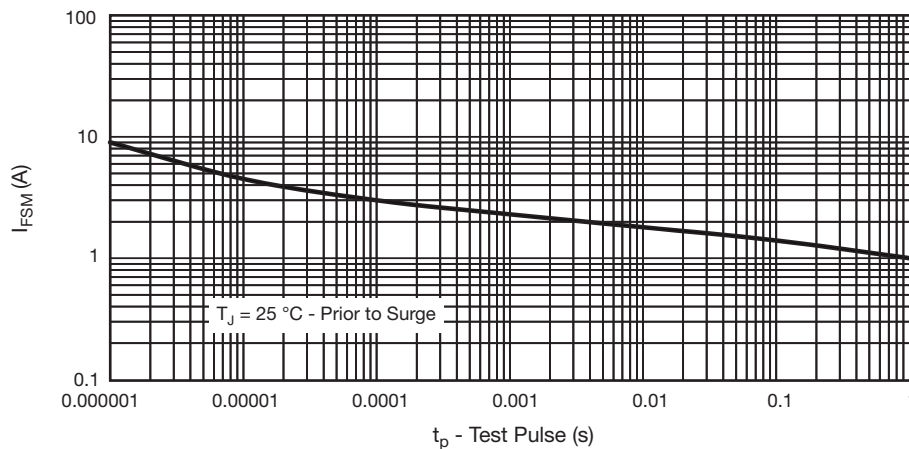
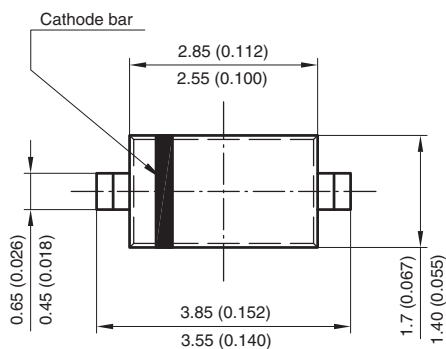
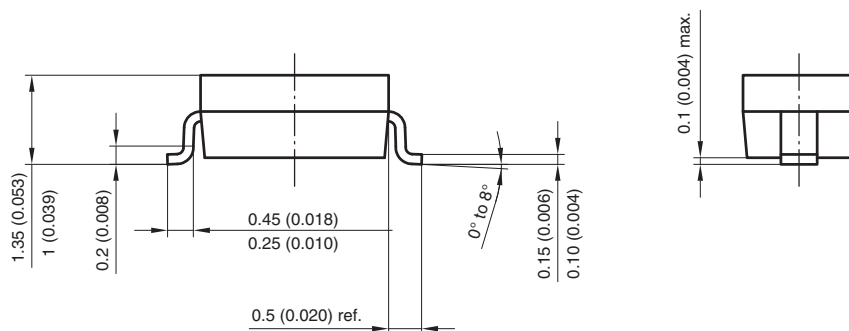


Fig. 6 - Capacitance vs. Reverse Voltage

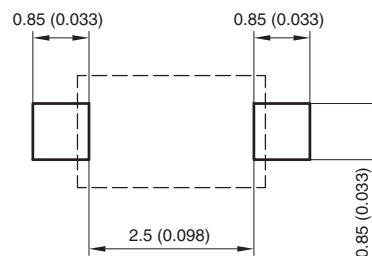

Fig. 7 - Non-Repetitive Peak Forward Current vs. Pulse Duration
Maximum Admissible Values of Square Pulse



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



Mounting Pad Layout



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