

Band Switching Diodes

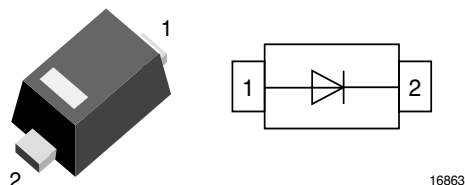
Description

The main purpose of the BA892V-02V is the Band Switching. Biased with a DC forward current for signals at frequencies over 100 MHz up to 3 GHz this diode behaves like a current controlled resistor and not as a diode any more.

Depending on the forward current the forward resistance r_f can be switched far below $1\ \Omega$, so that the Switch is closed.

To open the Switch, the BA892V-02V has to be driven in the reverse mode where the BA892V-02V behaves like a small capacitor with high isolation.

So typical applications for this Band Switching Diode are mobile and TV-applications.



Features

- Low forward resistance
- Small, space saving SOD523 package with low series inductance
- Small capacitance
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Applications

Band switching up to 3 GHz
Low loss band-switching in TV/VTR tuners

Mechanical Data

Case: SOD-523 Plastic case
Weight: approx. 1.6 mg
Cathode Band Color: Laser marking
Packaging Codes/Options:
GS08 / 3 k per 7" reel (8 mm tape), 3 k/box

Parts Table

Part	Ordering code	Marking	Remarks
BA892V-02V	BA892V-02V-GS08	A	Tape and Reel

Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	35	V
Forward current		I_F	100	mA
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Junction soldering point		R_{thJS}	100	K/W

Electrical Characteristics

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

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	V_R	35			V
Reverse current	$V_R = 20\text{ V}$	I_R			20	nA
Forward voltage	$I_F = 100\text{ mA}$	V_F			1.1	V
Diode capacitance	$f = 1\text{ MHz}$, $V_R = 0$	C_D		1.1		pF
	$f = 1\text{ MHz}$, $V_R = 1\text{ V}$	C_D		0.9	1.2	pF
	$f = 1\text{ MHz}$, $V_R = 3\text{ V}$	C_D		0.85	1.1	pF
Forward resistance	$f = 100\text{ MHz}$, $I_F = 1\text{ mA}$	r_f		0.6		Ω
	$f = 100\text{ MHz}$, $I_F = 3\text{ mA}$	r_f		0.45	0.7	Ω
	$f = 100\text{ MHz}$, $I_F = 10\text{ mA}$	r_f		0.34	0.5	Ω
Charge carrier life time	$I_F = 10\text{ mA}$, $I_R = 6\text{ mA}$, $i_R = 3\text{ mA}$	t_{rr}		90		ns

Typical Characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

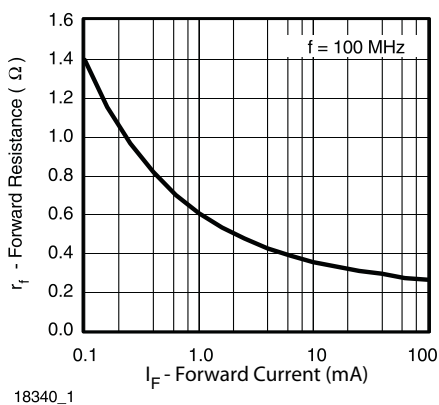


Figure 1. Forward Resistance vs. Forward Current

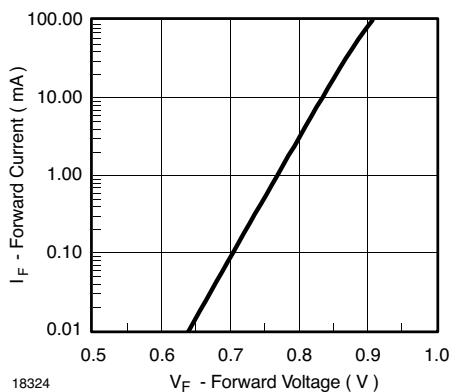


Figure 3. Forward Current vs. Forward Voltage

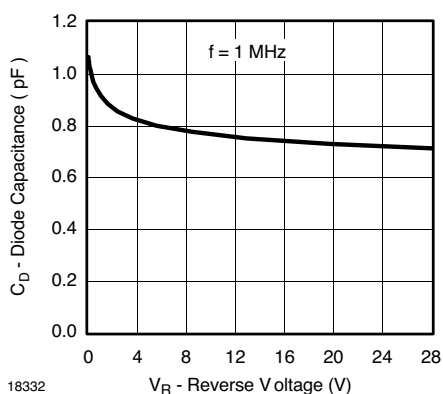


Figure 2. Diode Capacitance vs. Reverse Voltage

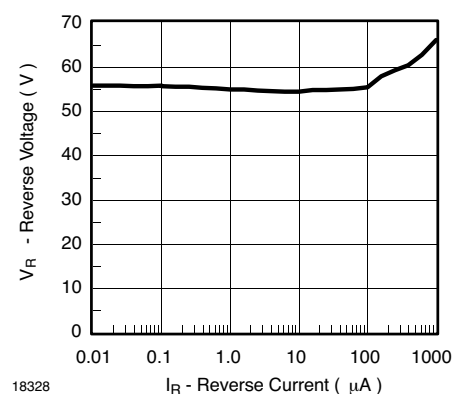


Figure 4. Reverse Voltage vs. Reverse Current

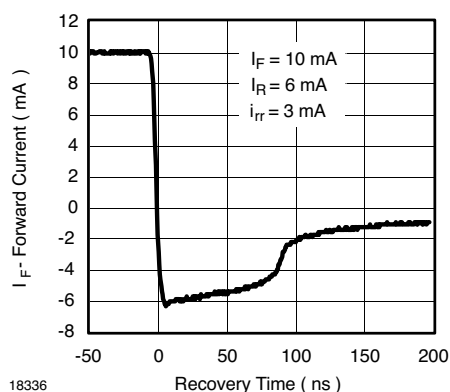
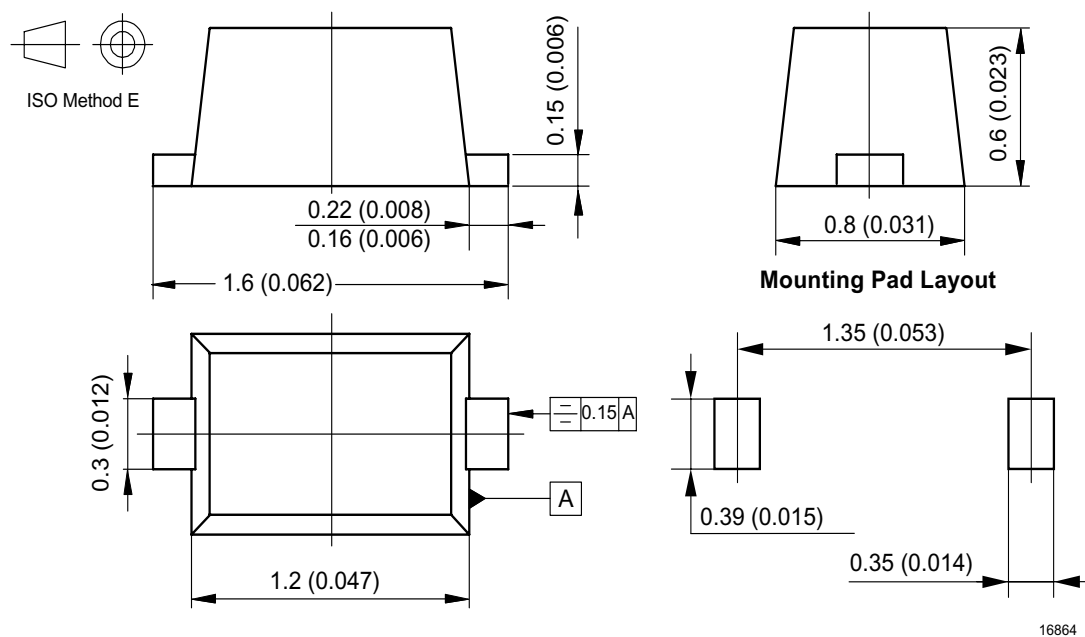


Figure 5. Typical Charge Recovery Curve

Package Dimensions in mm (Inches)



Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany



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