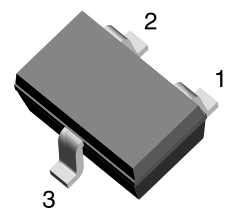
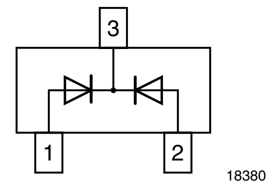
RF PIN Diodes - Dual, Common Cathode in SOT323

Description

Characterized by low reverse Capacitance the PIN Diodes BAR64V-05W-V was designed for RF signal switching and tuning. As a function of the forward bias current the forward resistance (RF) can be adjusted over a wide range. A long carrier life time offers low signal distortion for signals over 10 MHz up to 3 GHz. Typical applications for these PIN Diodes are switches and attenuators in wireless, mobile and TV-systems.





Features

- High voltage current controlled RF resistor
- Small diode capacitance
- Low series inductance
- Low forward resistance
- Improved performance due to two seperated dice
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Mechanical Data

Case: SOT323 plastic case
Weight: approx. 6.0 mg
Packaging Codes/Options:
GS18/10 k per 13" reel (8 mm tape), 10 k/box
GS08/3 k per 7" reel (8 mm tape), 15 k/box

Applications

- For frequencies up to 3 GHz
- RF-signal tuning
- Signal attenuator and switches
- Mobile, wireless and TV-Applications

Parts Table

Part	Ordering code	Marking	Remarks
BAR64V-05W-V	BAR64V-05W-V-GS18 or BAR64V-05W-V-GS08	DW5	Tape and reel

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

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

Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Min.	Typ.	Max.	Unit
Reverse voltage	I_R = 10 µA	V_R	100			V
Reverse current	V_R = 50 V	I_R			50	nA
Forward voltage	I_F = 50 mA	V_F			1.1	V
Diode capacitance	f = 1 MHz, V_R = 0	C_D		0.5		pF
	f = 1 MHz, V_R = 1 V	C_D		0.37	0.5	pF
	f = 1 MHz, V_R = 20 V	C_D		0.23	0.35	pF
Forward resistance	f = 100 MHz, I_F = 1 mA	r_f		10	20	Ω
	f = 100 MHz, I_F = 10 mA	r_f		2.0	3.8	Ω
	f = 100 MHz, I_F = 100 mA	r_f		0.8	1.35	Ω
Charge carrier life time	I_F = 10 mA, I_R = 6 mA, i_R = 3 mA	t_{rr}		1.8		µs
Series inductance		L_S		1		nH

Typical Characteristics

T_{amb} = 25 °C, unless otherwise specified

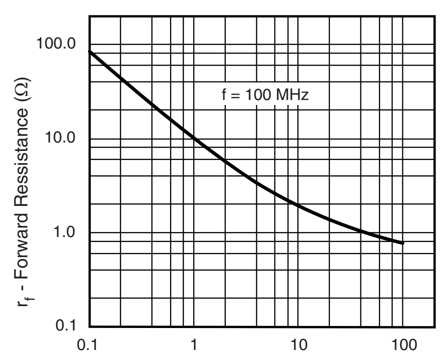


Figure 1. Forward Resistance vs. Forward Current

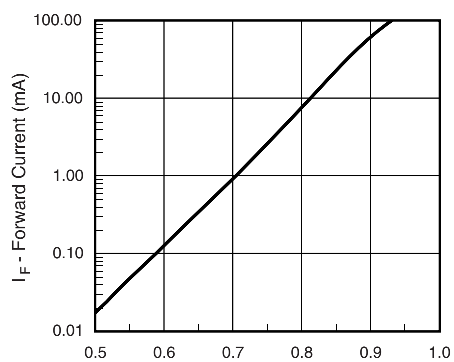


Figure 3. Forward Current vs. Forward Voltage

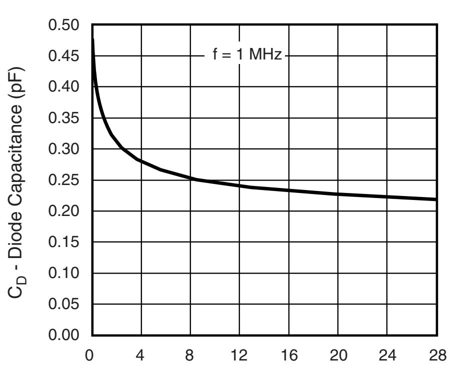


Figure 2. Diode Capacitance vs. Reverse Voltage

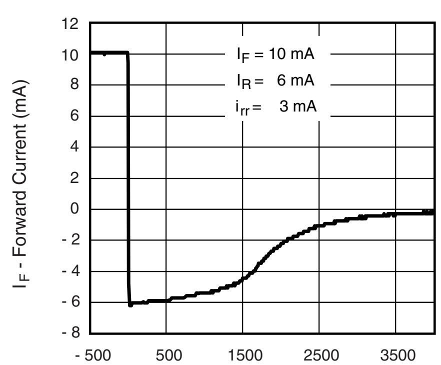


Figure 4. Typical Charge Recovery Curve

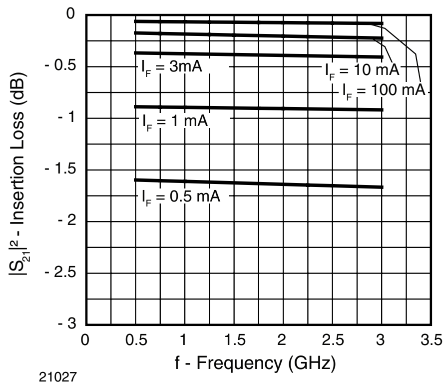


Figure 5. Insertion Loss of One Diode Inserted in Series with 50 Ω Strip Line

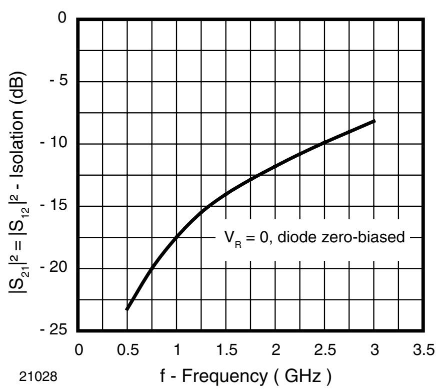


Figure 6. Isolation of One Diode Inserted in Series with 50 Ω Strip Line

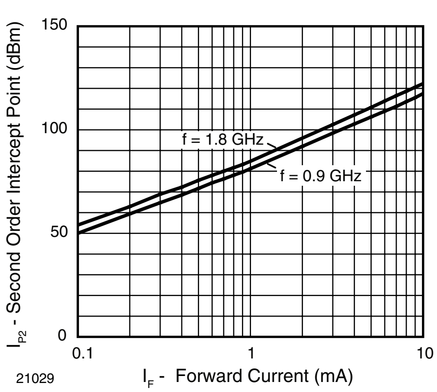
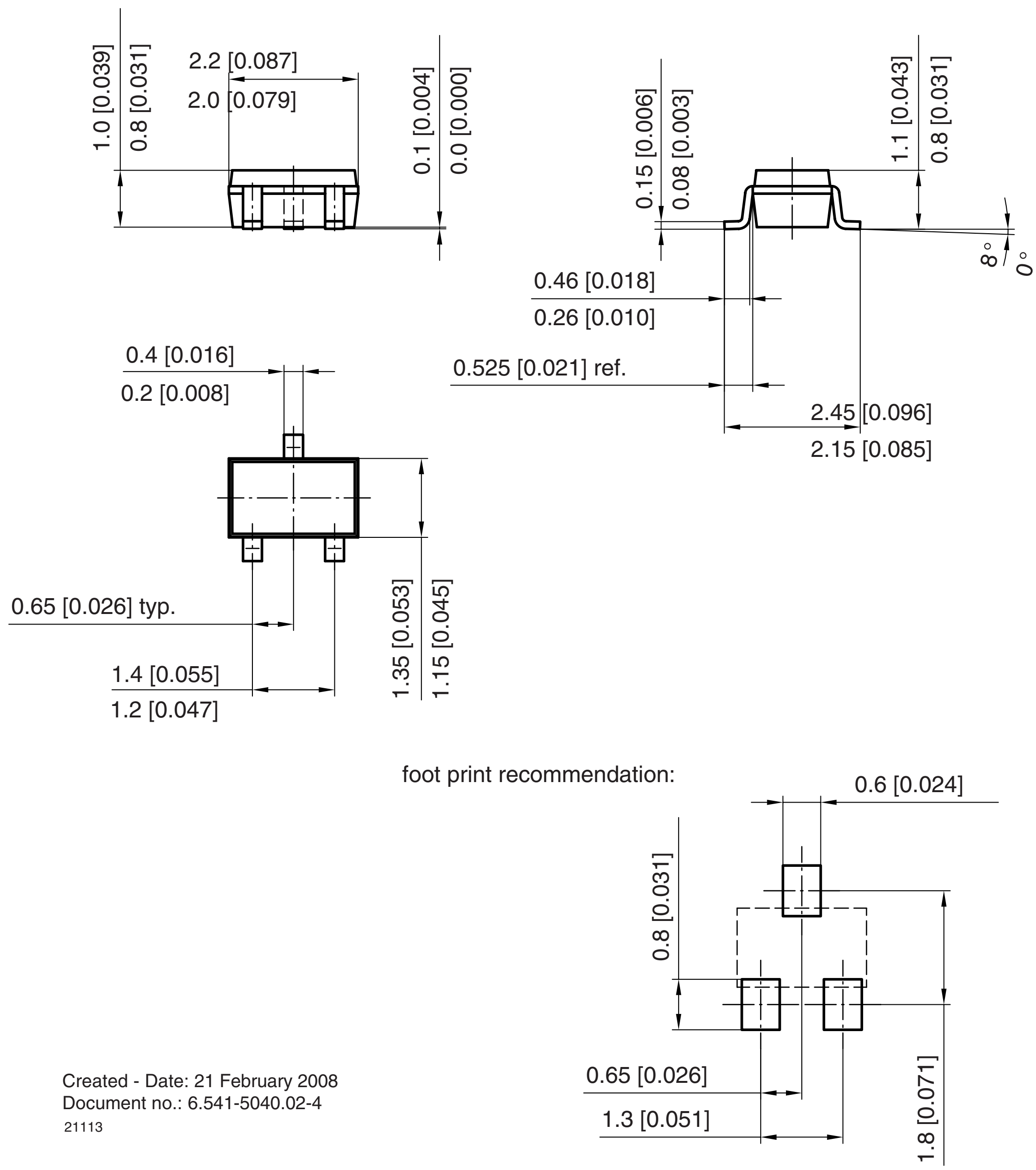


Figure 7. Second Order Intercept Point for One Diode Inserted in 50 Ω Strip Line

Package Dimensions in mm (inches): **SOT323-V**



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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.

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

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