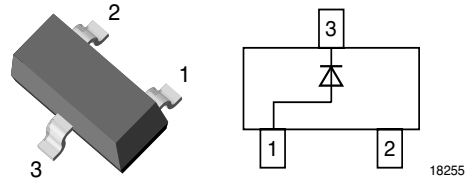


## RF PIN Diode - Single in SOT-23

### Description

Characterized by a very low reverse Capacitance the PIN Diode BAR63V-03 was designed for RF signal tuning. As a function of the forward bias current the forward resistance (rf) can be adjusted to less than  $1 \Omega$  while the low reverse capacitance offers a high isolation. Typical applications for this PIN Diodes are wireless, mobile and TV-systems.



### Features

- Low forward resistance
- Very small reverse capacitance
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### Mechanical Data

**Case:** SOT-23 Plastic case

**Weight:** approx. 8.1 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 frequency up to 3 GHz

RF-signal tuning

Mobile, wireless and TV-Applications

### Parts Table

| Part      | Ordering code                    | Marking | Remarks       |
|-----------|----------------------------------|---------|---------------|
| BAR63V-03 | BAR63V-03-GS18 or BAR63V-03-GS08 | C3      | Tape and Reel |

### Absolute Maximum Ratings

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

| Parameter                 | Test condition | Symbol    | Value         | Unit             |
|---------------------------|----------------|-----------|---------------|------------------|
| Reverse voltage           |                | $V_R$     | 50            | V                |
| Forward current           |                | $I_F$     | 100           | mA               |
| Junction temperature      |                | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage temperature range |                | $T_{stg}$ | - 55 to + 150 | $^\circ\text{C}$ |

### Electrical Characteristics

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

| Parameter         | Test condition                         | Symbol | Min | Typ. | Max | Unit |
|-------------------|--|--------|-----|------|-----|------|
| Reverse voltage   | $I_R = 10 \text{ } \mu\text{A}$        | $V_R$  | 50  |      |     | V    |
| Reverse current   | $V_R = 35 \text{ V}$                   | $I_R$  |     |      | 10  | nA   |
| Forward voltage   | $I_F = 100 \text{ mA}$                 | $V_F$  |     |      | 1.2 | V    |
| Diode capacitance | $f = 1 \text{ MHz}, V_R = 0$           | $C_D$  |     | 0.28 |     | pF   |
|                   | $f = 1 \text{ MHz}, V_R = 5 \text{ V}$ | $C_D$  |     | 0.23 | 0.3 | pF   |

| Parameter                | Test condition  | Symbol   | Min | Typ. | Max | Unit     |
|--------------------------|---|----------|-----|------|-----|----------|
| Forward resistance       | $f = 100 \text{ MHz}, I_F = 1 \text{ mA}$                     | $r_f$    |     | 2.0  |     | $\Omega$ |
|                          | $f = 100 \text{ MHz}, I_F = 5 \text{ mA}$                     | $r_f$    |     | 1.1  | 2.0 | $\Omega$ |
|                          | $f = 100 \text{ MHz}, I_F = 10 \text{ mA}$                    | $r_f$    |     | 0.9  |     | $\Omega$ |
| Charge carrier life time | $I_F = 10 \text{ mA}, I_R = 6 \text{ mA}, i_R = 3 \text{ mA}$ | $t_{rr}$ |     | 115  |     | ns       |

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

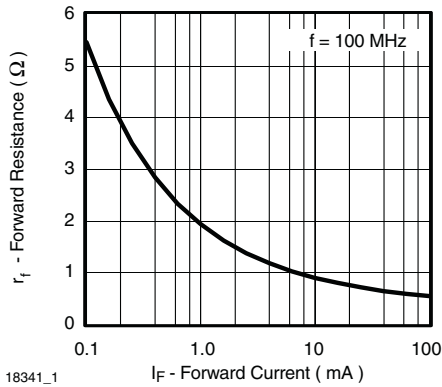


Figure 1. Forward Resistance vs. Forward Current

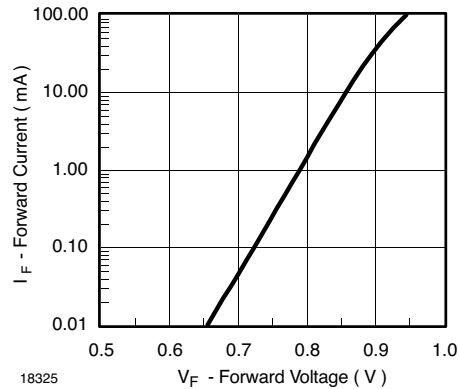


Figure 3. Forward Current vs. Forward Voltage

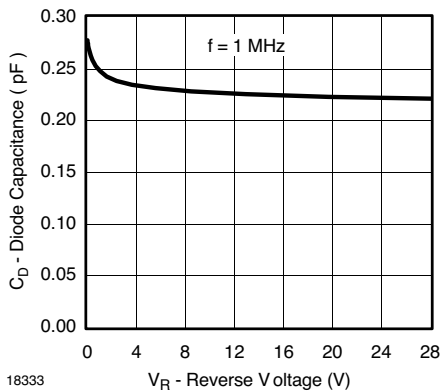


Figure 2. Diode Capacitance vs. Reverse Voltage

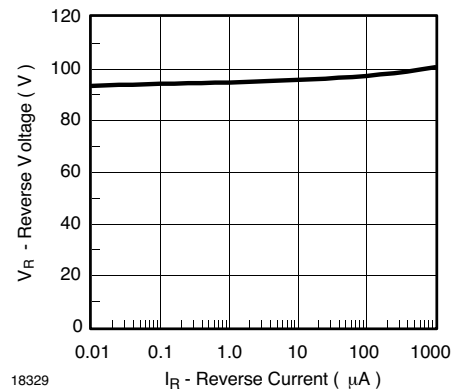


Figure 4. Reverse Voltage vs. Reverse Current

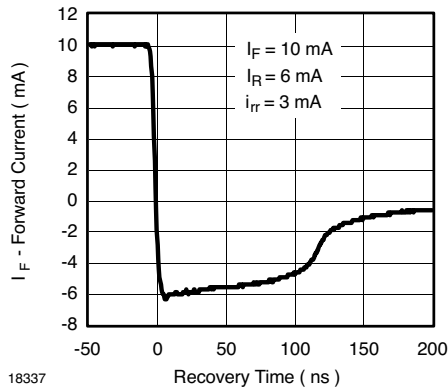
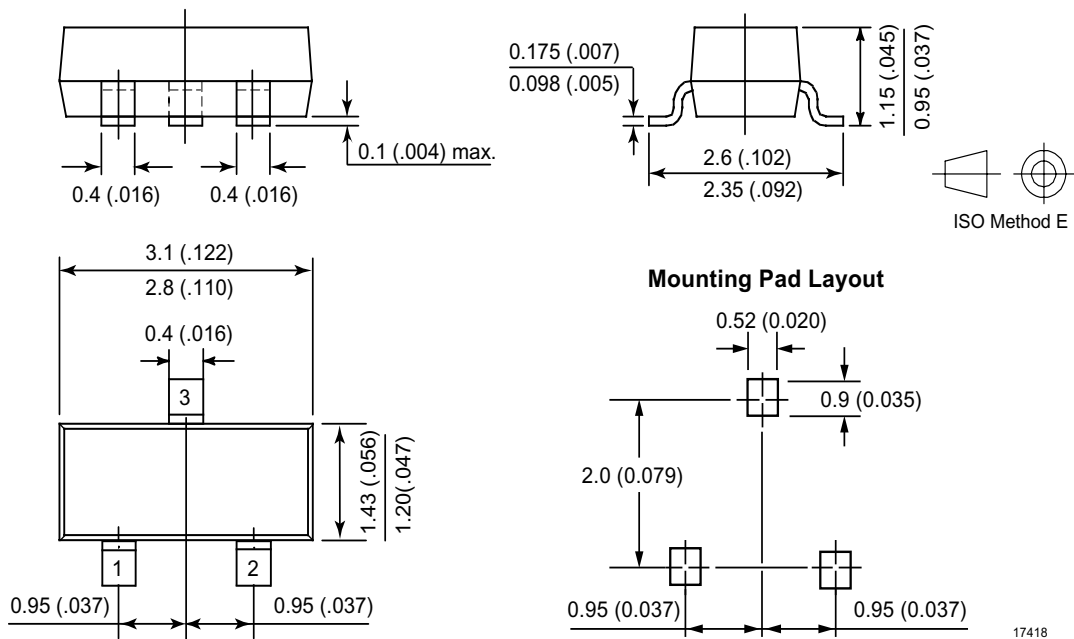


Figure 5. Typical Charge Recovery Curve

## 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.

We reserve the right to make changes to improve technical design  
and may do so without further notice.

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