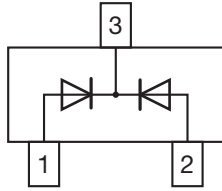


RF PIN Diodes - Dual, Common Cathode in SOT-323



DESCRIPTION

Characterized by low reverse capacitance the PIN diodes BAR64V-05W 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 separate dice
- Base P/N-E3 - RoHS-compliant, commercial grade
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

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

MECHANICAL DATA

Case: SOT-323

Weight: approx. 5.7 mg

Packaging codes/options:

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

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

PARTS TABLE

| PART | ORDERING CODE | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS |
|------------|--------------------------------------|--------------|----------------------------|---------------|
| BAR64V-05W | BAR64V-05W-E3-08 or BAR64V-05W-E3-18 | DW5 | Dual diodes common cathode | Tape and reel |

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

| PART | TEST CONDITION | SYMBOL | VALUE | UNIT |
|----------------------------|----------------|--------|-------|------|
| Reverse voltage | | V_R | 100 | V |
| Forward continuous current | | I_F | 100 | mA |

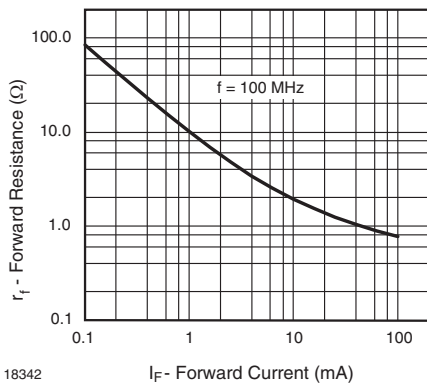
THERMAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|-----------------------------|----------------|-----------|---------------|--------------------|
| Junction temperature | | T_j | 150 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | - 55 to + 150 | $^{\circ}\text{C}$ |
| Operating temperature range | | T_{op} | - 55 to + 125 | $^{\circ}\text{C}$ |

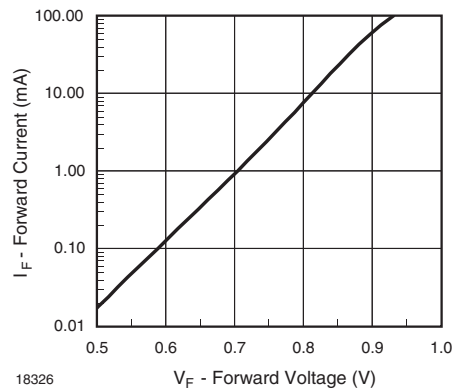


| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|---|--|------|----------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | $I_F = 50\text{ mA}$ | | V_F | | | 1.1 | V |
| Reverse voltage | $I_F = 10\text{ }\mu\text{A}$ | | V_R | 100 | | | V |
| Reverse current | $V_R = 50\text{ V}$ | | I_R | | | 0.05 | μA |
| Diode capacitance | $f = 1\text{ MHz}, V_R = 0\text{ V}$ | | C_D | | 0.5 | | pF |
| | $f = 1\text{ MHz}, V_R = 1\text{ V}$ | | C_D | | 0.37 | 0.5 | pF |
| | $f = 1\text{ MHz}, V_R = 20\text{ V}$ | | C_D | | 0.23 | 0.35 | pF |
| Differential forward resistance | $f = 100\text{ MHz}, I_F = 1\text{ mA}$ | | r_f | | 10 | 20 | Ω |
| | $f = 100\text{ MHz}, I_F = 10\text{ mA}$ | | r_f | | 2 | 3.8 | Ω |
| | $f = 100\text{ MHz}, I_F = 100\text{ mA}$ | | r_f | | 0.8 | 1.35 | Ω |
| Charge carrier lifetime | $I_F = 10\text{ mA}, I_R = 6\text{ mA}, i_R = 3\text{ mA}$ | | t_{rr} | | 1.8 | | μs |
| Series inductance | | | L_S | | 1 | | nH |

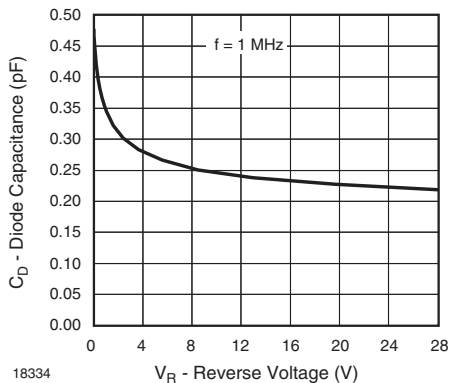
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)



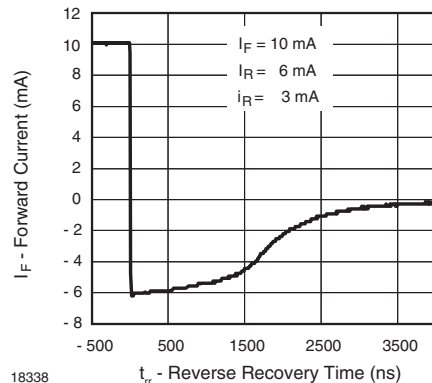
18342 Fig. 1 - Forward Resistance vs. Forward Current



18326 Fig. 3 - Forward Current vs. Forward Voltage



18334 Fig. 2 - Diode Capacitance vs. Reverse Voltage



18338 Fig. 4 - Typical Charge Recovery Curve

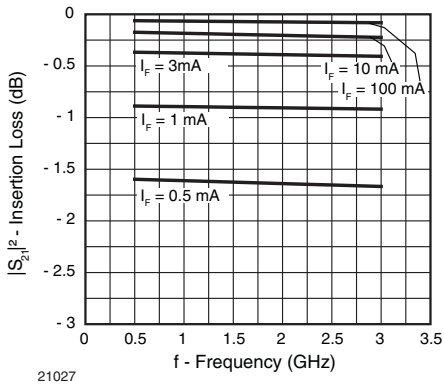


Fig. 5 - Insertion Loss of One Diode Inserted in Series with 50 Ω Strip Line

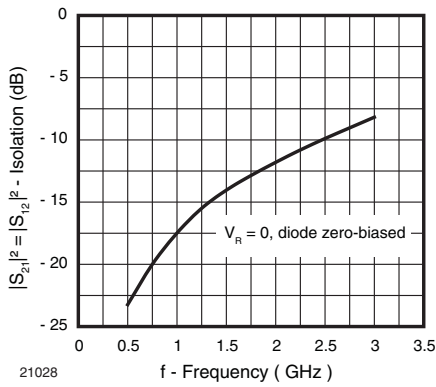


Fig. 6 - Isolation of One Diode Inserted in Series with 50 Ω Strip Line

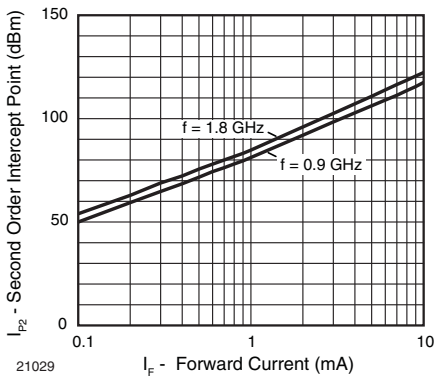
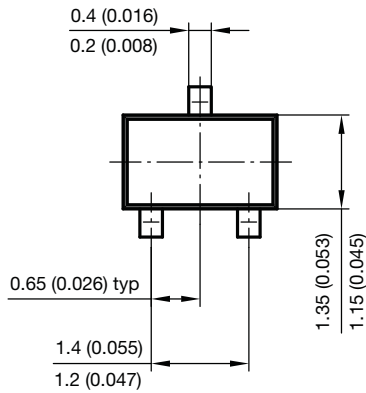
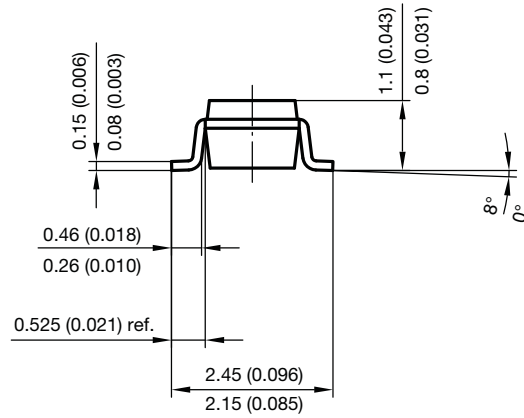
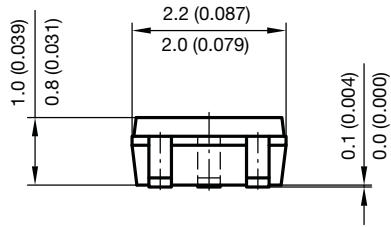


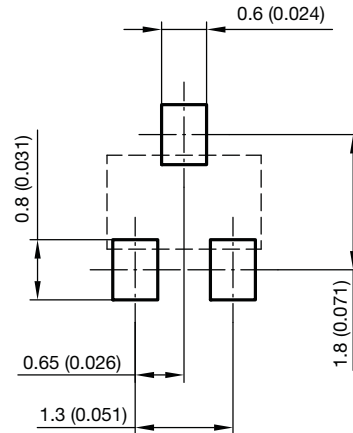
Fig. 7 - Second Order Intercept Point for One Diode Inserted in 50 Ω Strip Line



PACKAGE DIMENSIONS in millimeters (inches): **SOT-323**



foot print recommendation:



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Rev. 1 - Date: 06. April 2010
21113



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