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

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

Pb
Pb-free

e3
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

DESIGN SUPPORT TOOLS click logo to get started

3D
Models
Available

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.

PARTS TABLE

PART	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS
BAR64V-05W	BAR64V-05W-E3-08 or BAR64V-05W-E3-18	DW5	Common cathode	Tape and reel

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °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 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to +150	°C
Operating temperature range		T_{op}	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

| PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I_F = 50 mA		V_F			1.1	V
Reverse voltage	I_F = 10 µA		V_R	100			V
Reverse current	V_R = 50 V		I_R			0.05	µA
Diode capacitance	f = 1 MHz, V_R = 0 V		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
Differential forward resistance	f = 100 MHz, I_F = 1 mA		r_f		10	20	Ω
	f = 100 MHz, I_F = 10 mA		r_f		2	3.8	Ω
	f = 100 MHz, I_F = 100 mA		r_f		0.8	1.35	Ω
Charge carrier lifetime	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)

18342
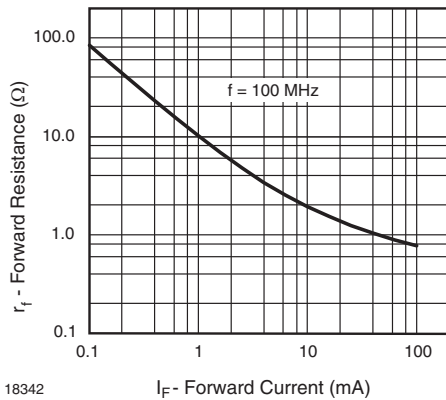
Fig. 1 - Forward Resistance vs. Forward Current
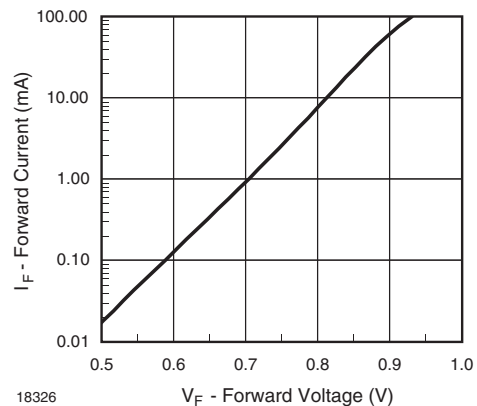

18326

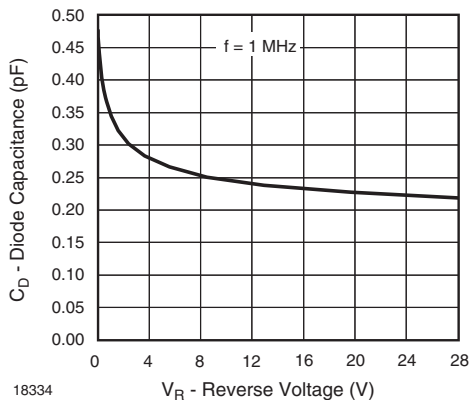Fig. 3 - Forward Current vs. Forward Voltage

18334

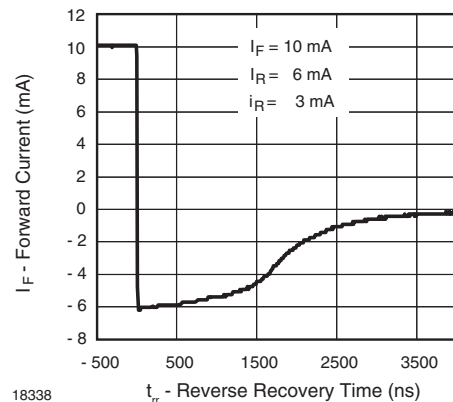Fig. 2 - Diode Capacitance vs. Reverse Voltage
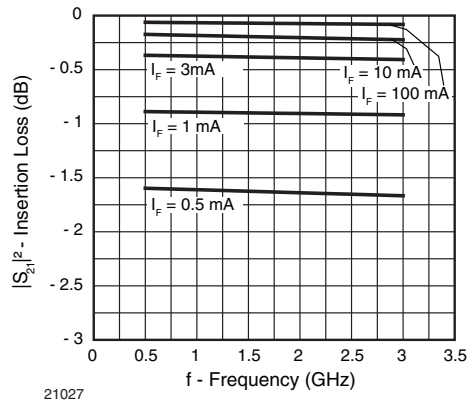

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Fig. 4 - Typical Charge Recovery Curve

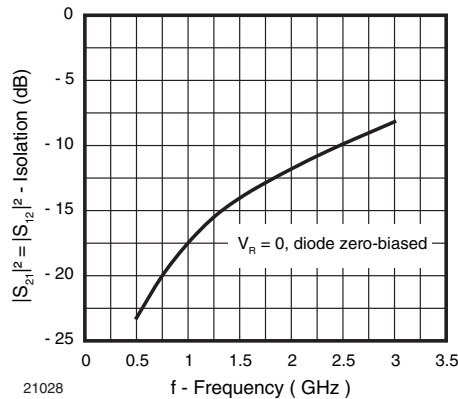Fig. 5 - Insertion Loss of One Diode Inserted in Series
with 50 Ω Strip Line

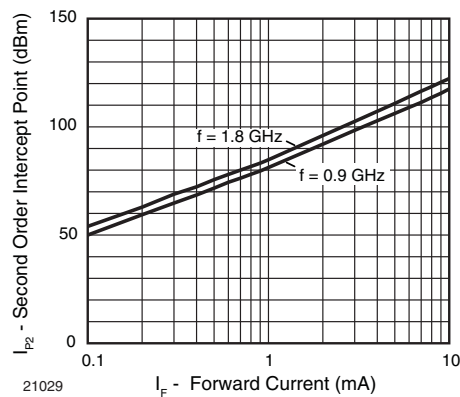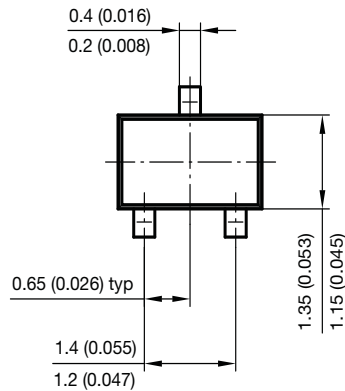Fig. 6 - Isolation of One Diode Inserted in Series
with 50 Ω Strip Line

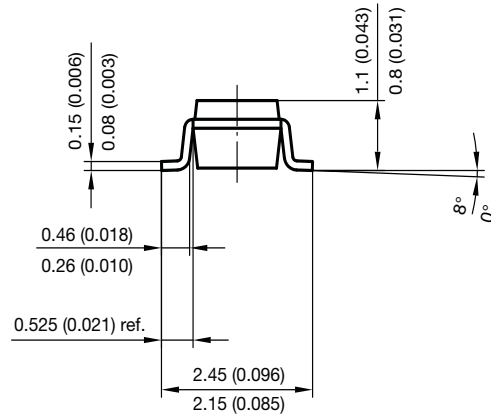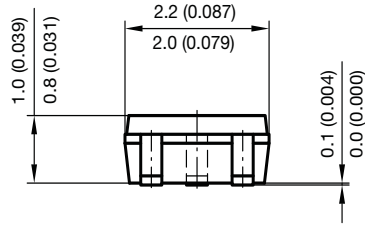Fig. 7 - Second Order Intercept Point for One Diode Inserted
in 50 Ω Strip Line

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

2.2 (0.087)
2.0 (0.079)
1.0 (0.039)
0.8 (0.031)
0.1 (0.004)
0.0 (0.000)

0.15 (0.006)
0.08 (0.003)
1.1 (0.043)
0.8 (0.031)
8°
0°
0.46 (0.018)
0.26 (0.010)
0.525 (0.021) ref.
2.45 (0.096)
2.15 (0.085)

0.4 (0.016)
0.2 (0.008)
0.65 (0.026) typ
1.4 (0.055)
1.2 (0.047)
1.35 (0.053)
1.15 (0.045)

foot print recommendation:

0.6 (0.024)
0.8 (0.031)
1.8 (0.071)
0.65 (0.026)
1.3 (0.051)
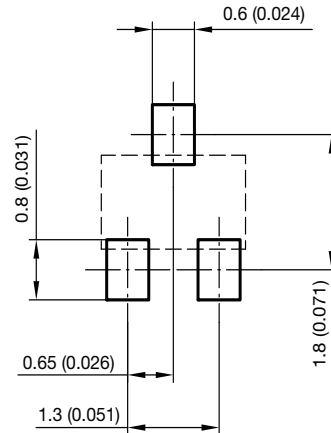
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