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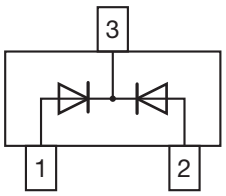
RF PIN Diodes - Dual, Common Cathode in SOT-323



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-free

e3

RoHS COMPLIANT

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.

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 °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)

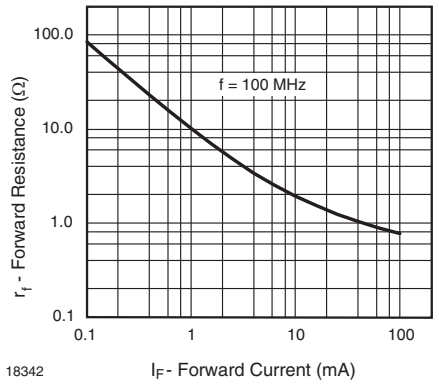


Fig. 1 - Forward Resistance vs. Forward Current

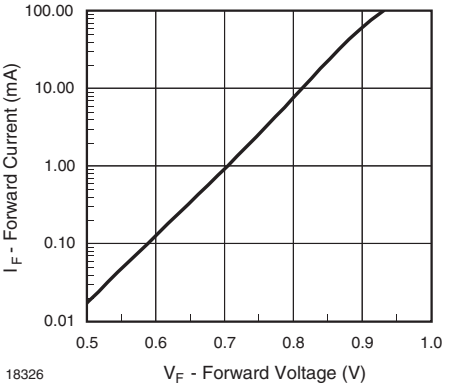


Fig. 3 - Forward Current vs. Forward Voltage

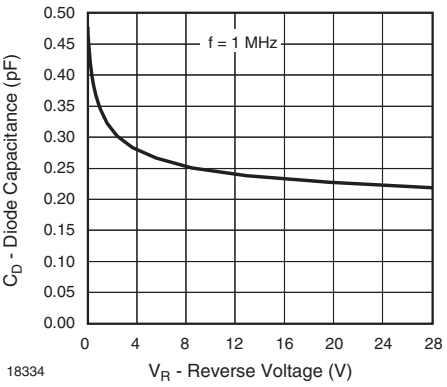


Fig. 2 - Diode Capacitance vs. Reverse Voltage

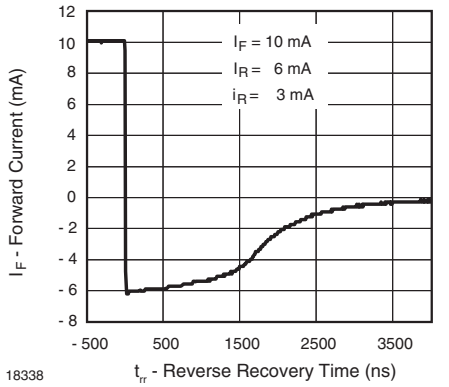


Fig. 4 - Typical Charge Recovery Curve

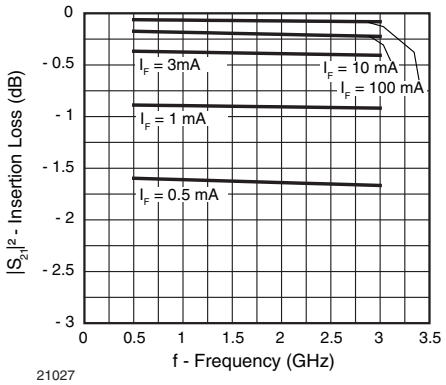


Fig. 5 - Insertion Loss of One Diode Inserted in Series with 50 Ω Strip Line

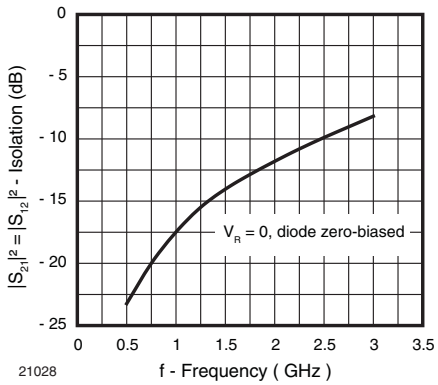


Fig. 6 - Isolation of One Diode Inserted in Series with 50 Ω Strip Line

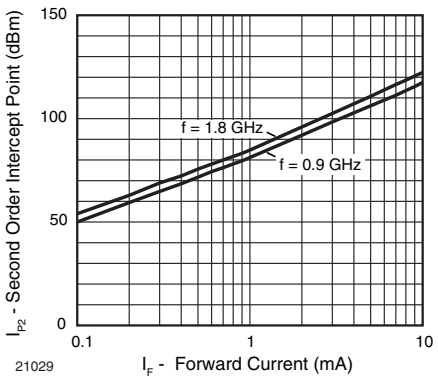
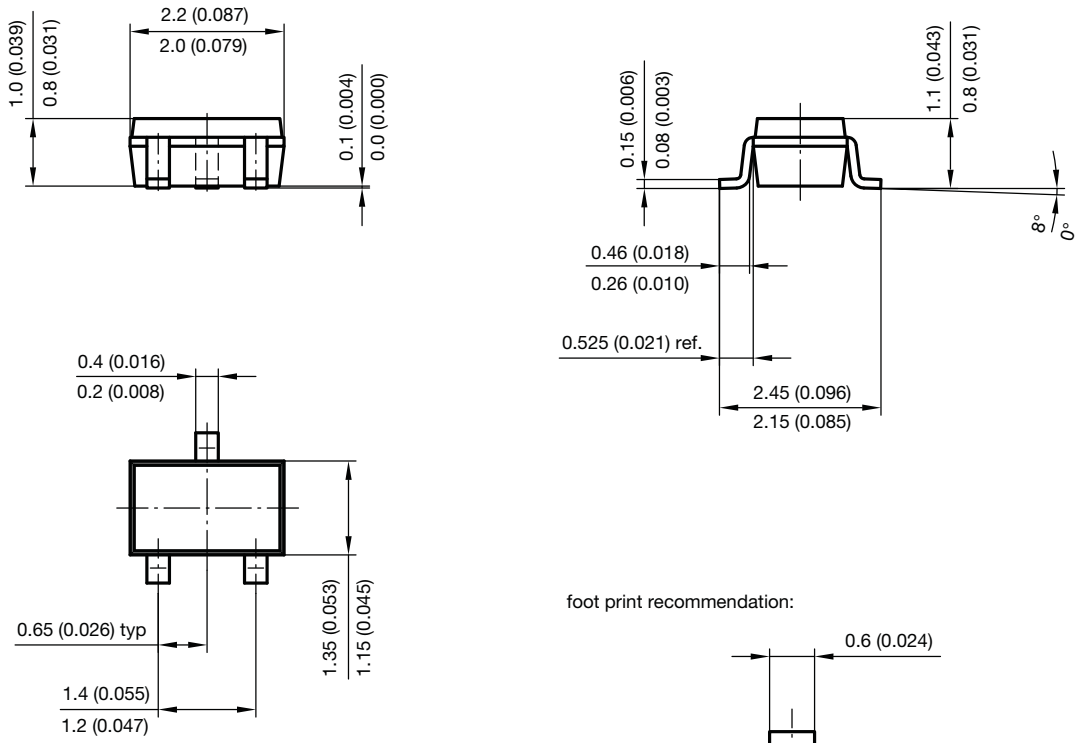
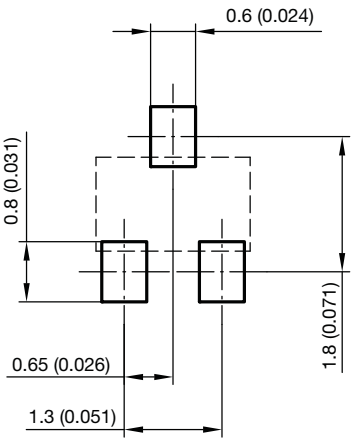


Fig. 7 - Second Order Intercept Point for One Diode Inserted in 50 Ω Strip Line

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



foot print recommendation:



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