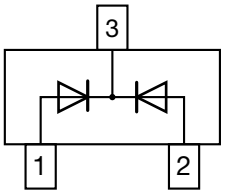
RF PIN Diodes - Dual, Common Cathode in SOT-323



FEATURES

- High voltage current controlled RF resistor
- Small diode capacitance
- AEC-Q101 qualified available
- Low series inductance
- Low forward resistance
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

3D Models

DESCRIPTION

Characterized by low reverse capacitance the PIN diode BAR64-05W 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

ORDERING INFORMATION

PART NUMBER	ENVIRONMENTAL AND QUALITY CODE				PACKAGING CODE		ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS	TIN PLATED	REVISION CODE	3K PER 7" REEL (8 mm TAPE) 15K/BOX = MOQ	10K PER 13" REEL (8 mm TAPE) 10K/BOX = MOQ	
BAR64-05W-		E	3	-	08		BAR64-05W-E3-08
BAR64-05W-	H	E	3	A	08		BAR64-05W-HE3A08
BAR64-05W-		E	3	-		18	BAR64-05W-E3-18
BAR64-05W-	H	E	3	A		18	BAR64-05W-HE3A18

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
ESD-immunity	HBM (Human Body Model) acc. AEC-Q101-001	V_{ESD}	750	V

PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
BAR64-05W	SOT-323	R64	5.2 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

PARTS TABLE	
PART	**CIRCUIT CONFIGURATION**
BAR64-05W	Common cathode

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}	-65 to +150	°C
Operating temperature range		T_{op}	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 50 mA	V_F	-	-	1.1	V
Reverse voltage	I_R = 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}	-	1.4	-	µs
Series inductance		L_S	-	1.4	-	nH

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

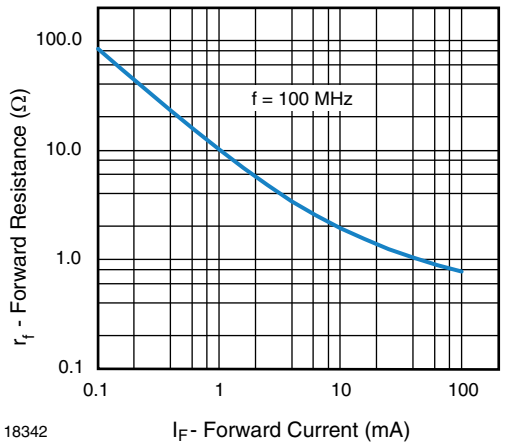


Fig. 1 - Forward Resistance vs. Forward Current

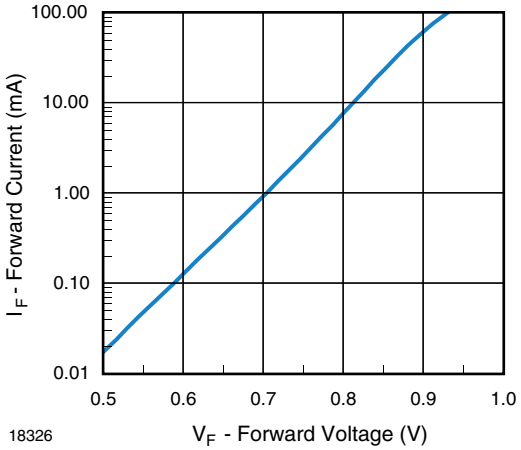


Fig. 3 - Forward Current vs. Forward Voltage

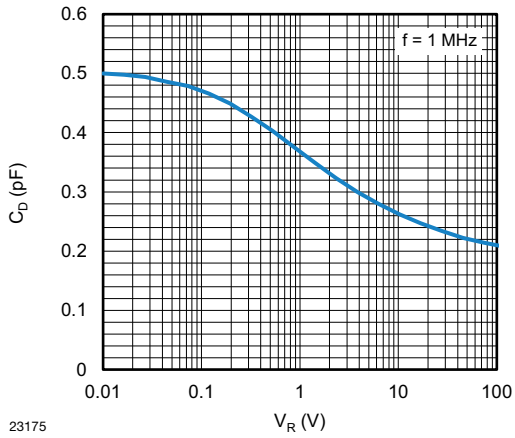


Fig. 2 - Diode Capacitance vs. Reverse Voltage

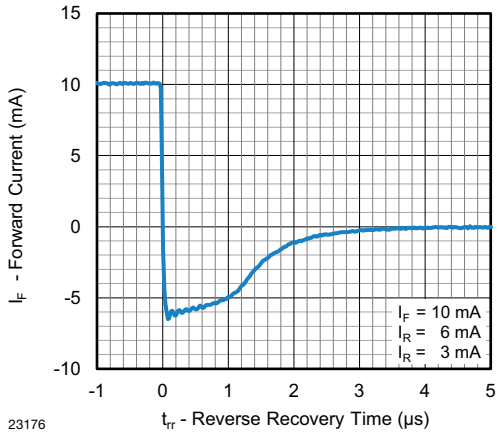
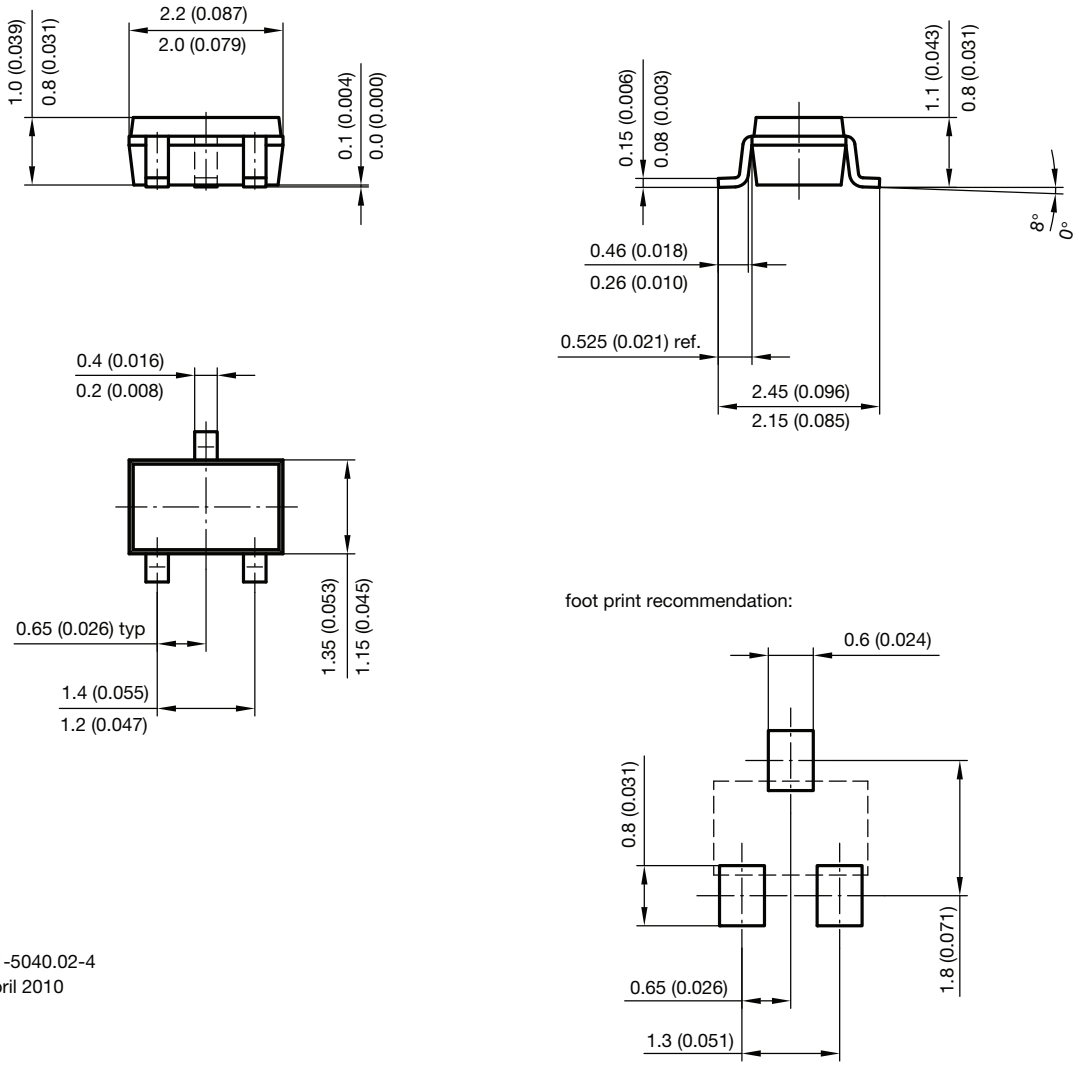


Fig. 4 - Typical Charge Recovery Curve

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



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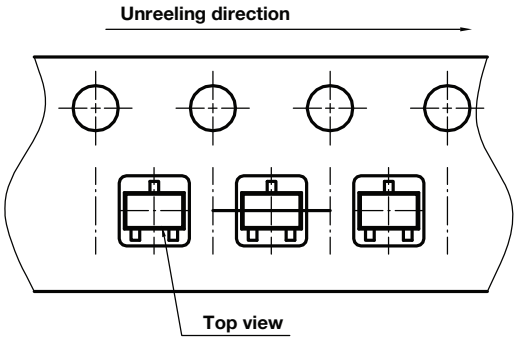
ORIENTATION IN CARRIER TAPE SOT-323



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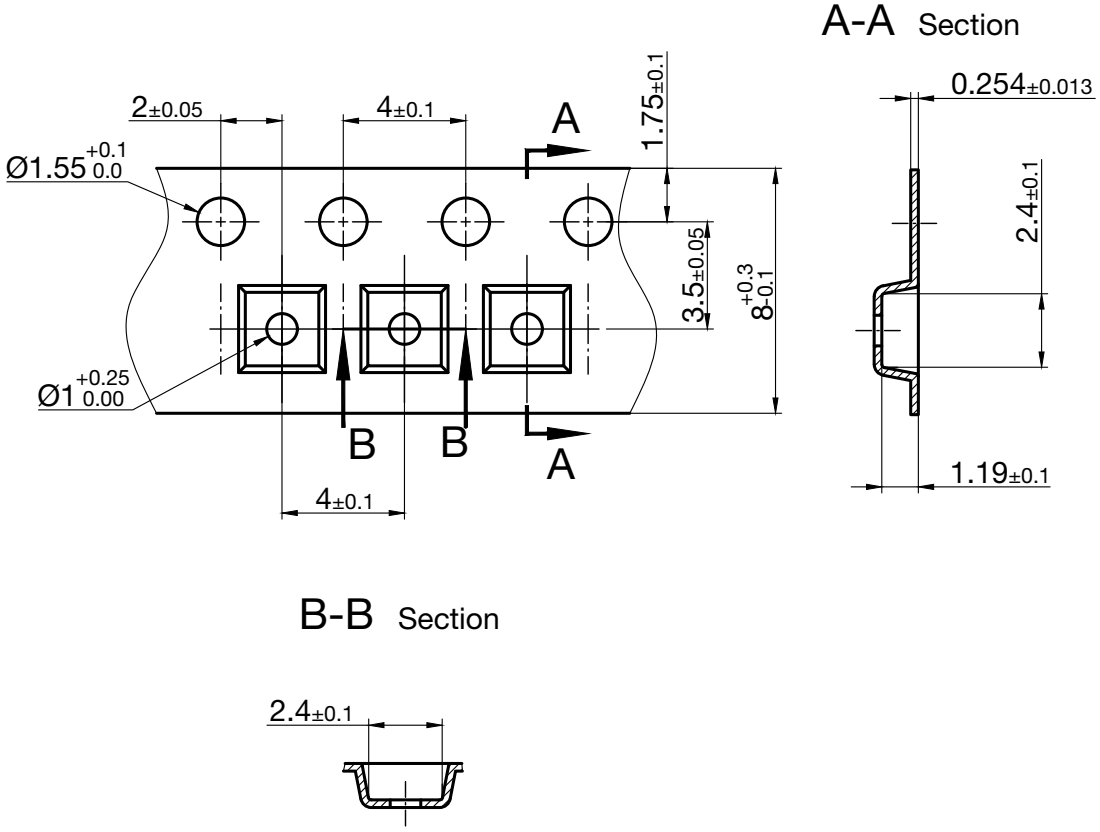
CARRIER TAPE SOT-323



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