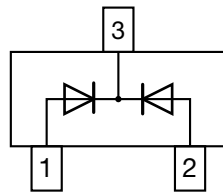


RF PIN Diodes - Dual, Common Cathode in SOT-323



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


RoHS
COMPLIANT

LINKS TO ADDITIONAL RESOURCES



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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-65 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	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 50\text{ mA}$	V_F	-	-	1.1	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	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	$I_F = 10\text{ mA}, I_R = 6\text{ mA}, I_{R1} = 3\text{ mA}$	t_{rr}	-	1.4	-	μs
Series inductance		L_S	-	1.4	-	nH



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

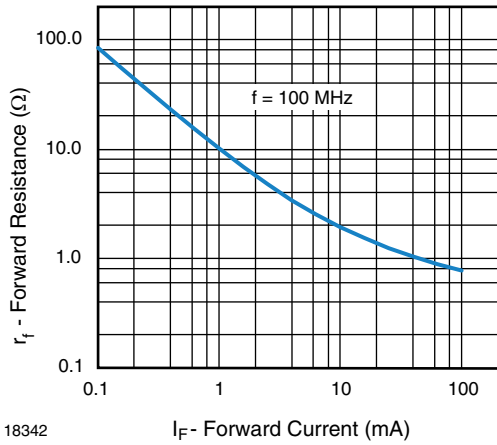


Fig. 1 - Forward Resistance vs. Forward Current

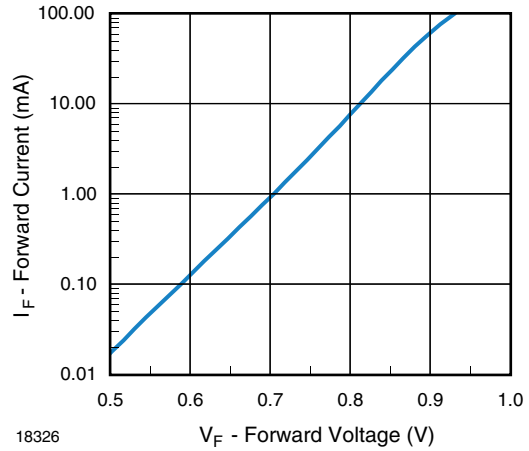


Fig. 3 - Forward Current vs. Forward Voltage

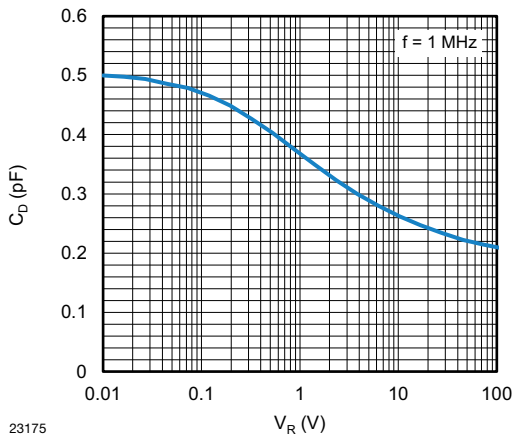


Fig. 2 - Diode Capacitance vs. Reverse Voltage

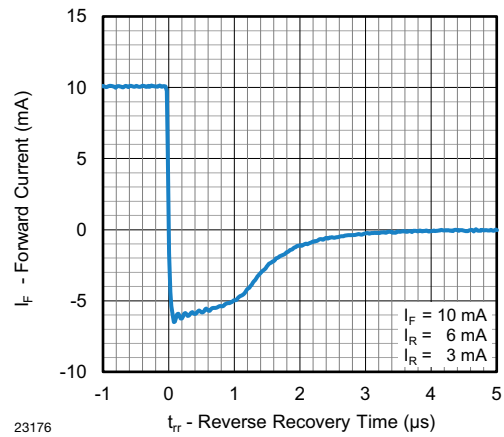
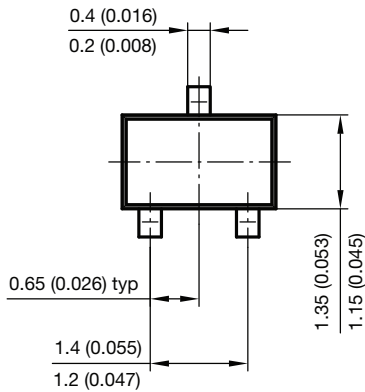
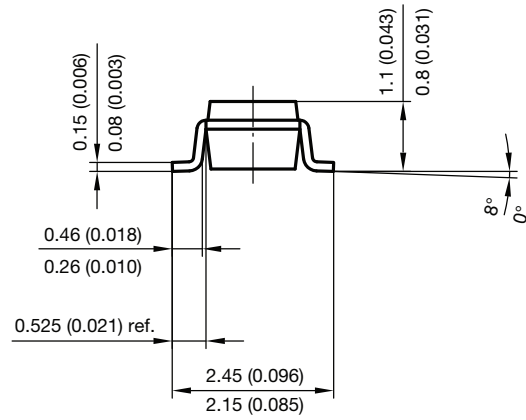
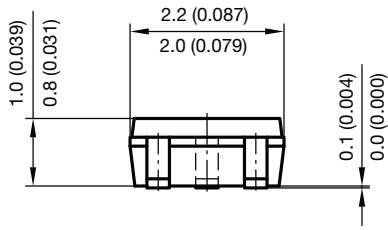


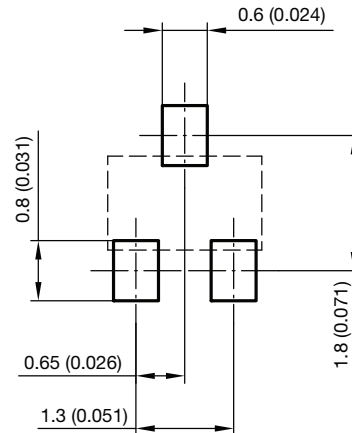
Fig. 4 - Typical Charge Recovery Curve



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

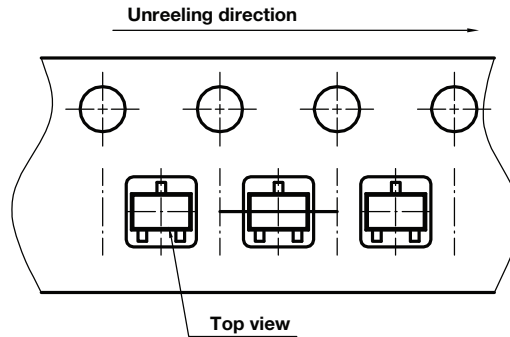


foot print recommendation:



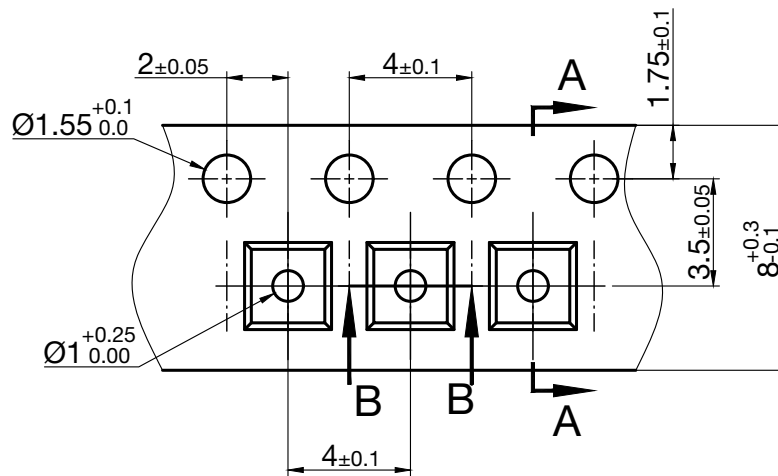
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Rev. 1 - Date: 06. April 2010
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ORIENTATION IN CARRIER TAPE SOT-323

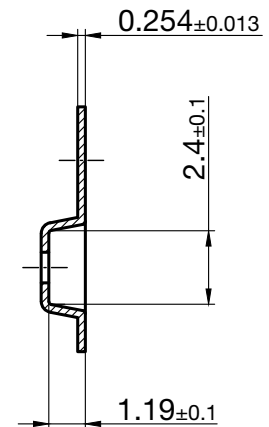


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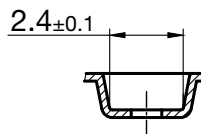
CARRIER TAPE SOT-323



A-A Section



B-B Section



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 Rev. 20.01.2025
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