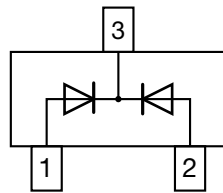


## RF PIN Diodes - Dual, Common Cathode in SOT-323



### 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](http://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

### 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	-	08		BAR64-05W-HE3-08
BAR64-05W-		E	3	-		18	BAR64-05W-E3-18
BAR64-05W-	H	E	3	-		18	BAR64-05W-HE3-18

### 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
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	5.65 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

### THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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 <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 50 mA	V <sub>F</sub>	-	-	1.1	V
Reverse voltage	I <sub>R</sub> = 10 μA	V <sub>R</sub>	100	-	-	V
Reverse current	V <sub>R</sub> = 50 V	I <sub>R</sub>	-	-	0.05	μA
Diode capacitance	f = 1 MHz, V <sub>R</sub> = 0 V	C <sub>D</sub>	-	0.5	-	pF
	f = 1 MHz, V <sub>R</sub> = 1 V	C <sub>D</sub>	-	0.37	0.5	pF
	f = 1 MHz, V <sub>R</sub> = 20 V	C <sub>D</sub>	-	0.23	0.35	pF
Differential forward resistance	f = 100 MHz, I <sub>F</sub> = 1 mA	r <sub>f</sub>	-	10	20	Ω
	f = 100 MHz, I <sub>F</sub> = 10 mA	r <sub>f</sub>	-	2	3.8	Ω
	f = 100 MHz, I <sub>F</sub> = 100 mA	r <sub>f</sub>	-	0.8	1.35	Ω
Charge carrier lifetime	I <sub>F</sub> = 10 mA, I <sub>R</sub> = 6 mA, i <sub>R</sub> = 3 mA	t <sub>rr</sub>	-	1.4	-	μs
Series inductance		L <sub>S</sub>	-	1.4	-	nH

**TYPICAL CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

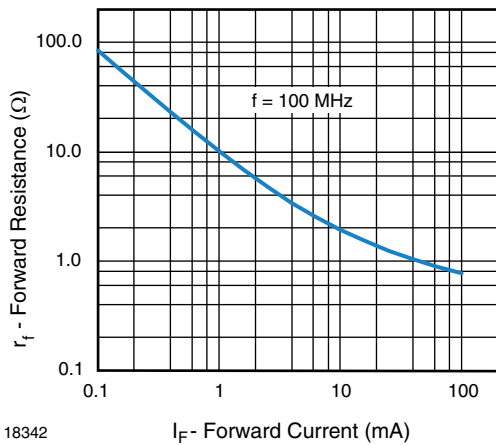


Fig. 1 - Forward Resistance vs. Forward Current

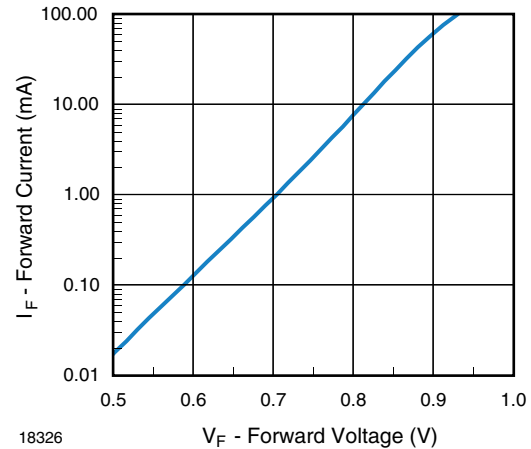


Fig. 3 - Forward Current vs. Forward Voltage

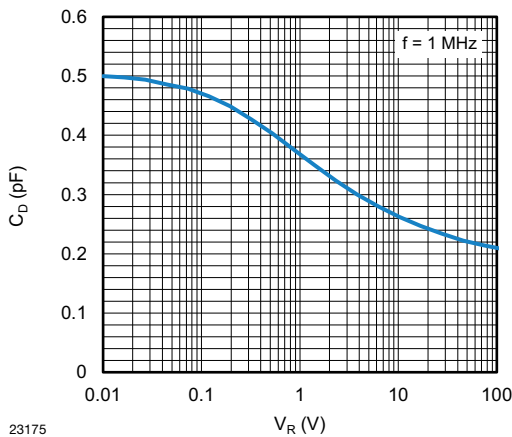


Fig. 2 - Diode Capacitance vs. Reverse Voltage

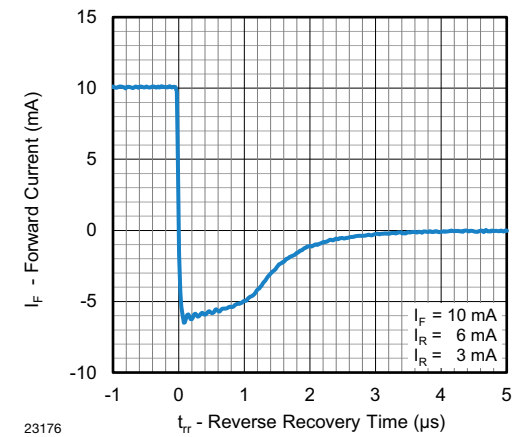
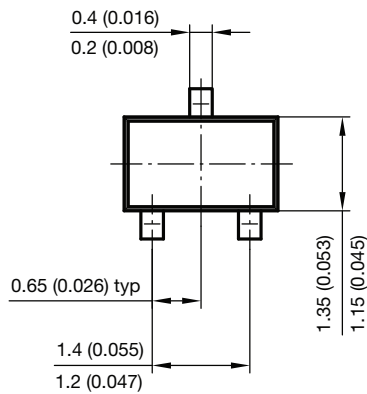
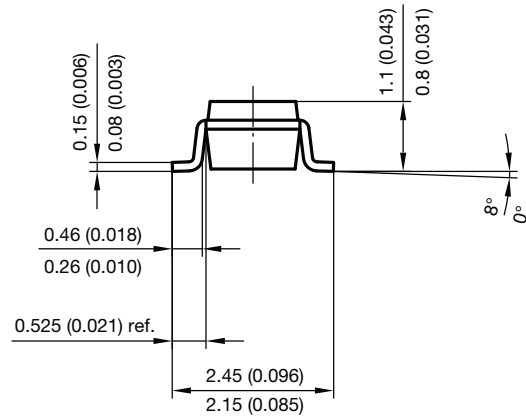
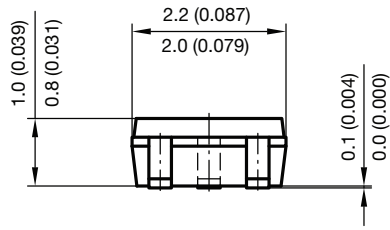


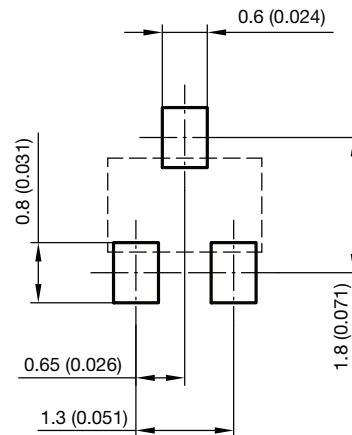
Fig. 4 - Typical Charge Recovery Curve



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

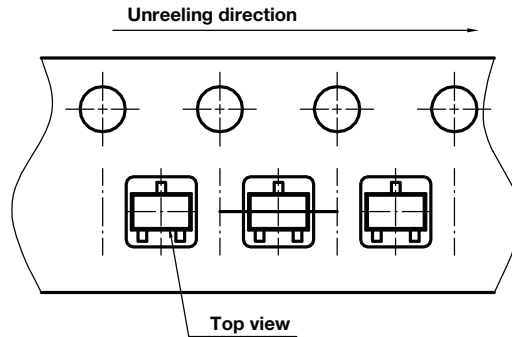


foot print recommendation:



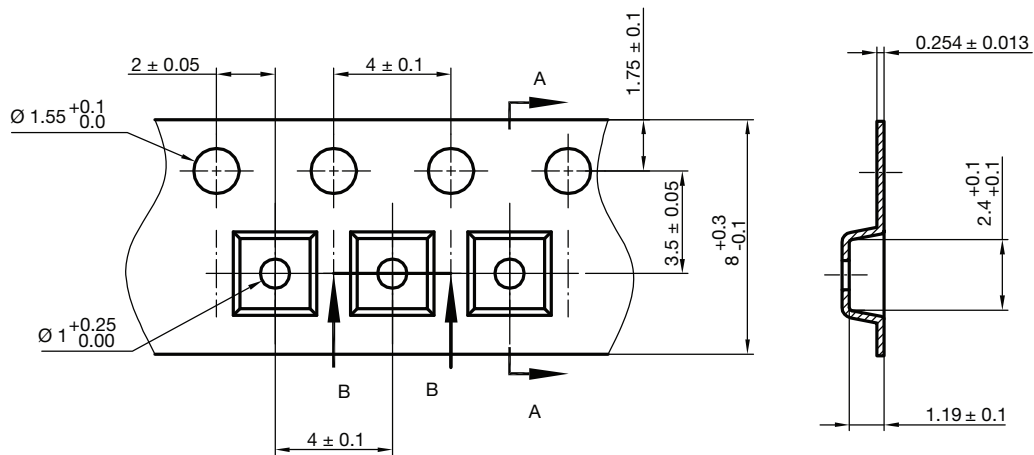
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**ORIENTATION IN CARRIER TAPE SOT-323**

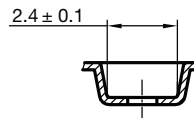


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**CARRIER TAPE SOT-323**



B-B Section



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 22762



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