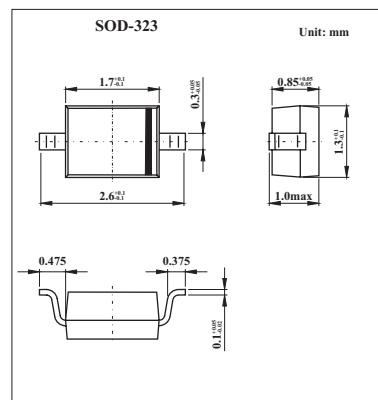


Silicon PIN Diodes

BAR50-03W

■ Features

- Current-controlled RF resistor for switching and attenuating applications
- Frequency range above 10 MHz up to 6 GHz
- Especially useful as antenna switch in mobile communication
- Very low capacitance at zero volt reverse bias at frequencies above 1 GHz (typ. 0.15 pF)
- VLow forward resistance
- Very low harmonics



■ Absolute Maximum Ratings Ta = 25 °C

Parameter	Symbol	Value	Unit
Diode reverse voltage	V _R	50	V
Forward current	I _F	100	mA
Total power dissipation Ts ≤ 116 °C	P _{tot}	250	mW
Junction temperature	T _j	150	°C
Operating temperature range	T _{op}	-55 to +125	°C
Storage temperature range	T _{stg}	-55 to +150	°C
Junction - soldering point ¹⁾	R _{thJS}	≤ 135	K/W

BAR50-03W■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse current	I_R	$V_R = 50 V$			50	nA
Forward voltage	V_F	$I_F = 50 mA$		0.95	1.1	V
Diode capacitance	C_T	$V_R = 1 V, f = 1 MHz$		0.24	0.5	pF
		$V_R = 5 V, f = 1 MHz$		0.2	0.4	
		$V_R = 0 V, f = 100 MHz$		0.2		
		$V_R = 0 V, f = 1...1.8 GHz, all other$		0.15		
Reverse parallel resistance	R_p	$V_R = 0 V, f = 100 MHz$		25		$K \Omega$
		$V_R = 0 V, f = 1 GHz$		6		
		$V_R = 0 V, f = 1.8 GHz$		5		
Forward resistance	r_f	$I_F = 0.5 mA, f = 100 MHz$		25	40	Ω
		$I_F = 1 mA, f = 100 MHz$		16.5	25	
		$I_F = 10 mA, f = 100 MHz$		3	4.5	
Charge carrier life time	τ_{rr}	$I_F = 10 mA, I_R = 6 mA, measured at I_R = 3 mA, R_L = 100 \Omega$		1100		ns
I-region width	W_I			56		μm
Insertion loss	$ S21 ^2$	$I_F = 3 mA, f = 1.8 GHz$		-0.56		dB
		$I_F = 5 mA, f = 1.8 GHz$		-0.4		
		$I_F = 18 mA, f = 1.8 GHz$		-0.27		
Isolation	$ S21 ^2$	$V_R = 0 V, f = 0.9 GHz$		-24.5		dB
		$V_R = 0 V, f = 1.8 GHz$		-20		
		$V_R = 0 V, f = 2.45 GHz$		-18		
		$V_R = 0 V, f = 5.6 GHz$		-12		

■ Marking

Marking	blue A
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