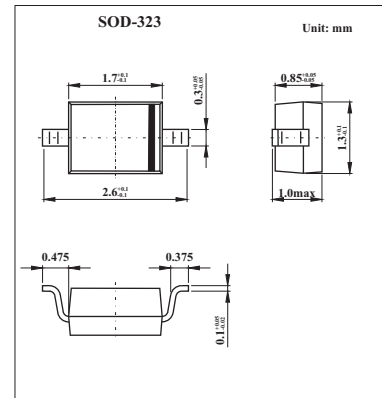


General Purpose PIN Diode

BAP63-03

■ Features

- High speed switching for RF signals
- Low diode capacitance
- Low diode forward resistance
- Very low series inductance



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Continuous reverse voltage	VR	50	V
Continuous forward current	IF	100	mA
Total power dissipation Ts = 90°C	Ptot	500	mW
Storage temperature	Tstg	-65 to +150	°C
Junction temperature	Tj	150	°C
Thermal resistance from junction to soldering point	Rth(j-s)	120	°C/W

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■ Electrical Characteristics Ta = 25°C

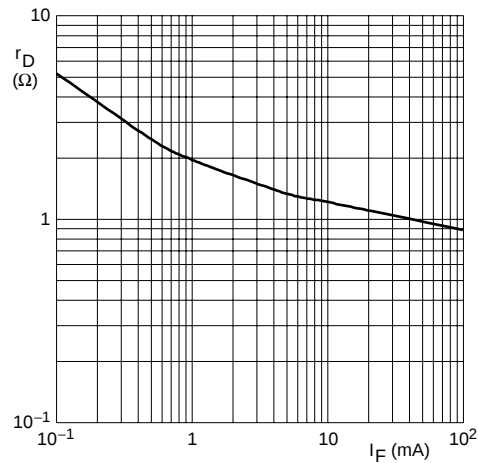
Parameter	Symbol	Test conditons	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		0.95	1.1	V
Reverse voltage	V_R	$I_R = 10 \text{ } \mu\text{A}$	50			V
Reverse current	I_R	$V_R = 35 \text{ V}$			10	nA
Diode capacitance	C_d	$V_R = 0; f = 1 \text{ MHz}$		0.4		pF
		$V_R = 1 \text{ V}; f = 1 \text{ MHz}$		0.35		pF
		$V_R = 20 \text{ V}; f = 1 \text{ MHz}$		0.27	0.32	pF
Diode forward resistance	r_D	$I_F = 0.5 \text{ mA}; f = 100 \text{ MHz}$		2.5	3.5	Ω
		$I_F = 1 \text{ mA}; f = 100 \text{ MHz}$		1.95	3	Ω
		$I_F = 10 \text{ mA}; f = 100 \text{ MHz}$		1.17	1.8	Ω
		$I_F = 100 \text{ mA}; f = 100 \text{ MHz}$		0.95	1.5	Ω
isolation	$ S_{21} ^2$	$V_R = 0; f = 900 \text{ MHz}$		15.4		dB
		$V_R = 0; f = 1800 \text{ MHz}$		10.1		dB
		$V_R = 0; f = 2450 \text{ MHz}$		7.8		dB
insertion loss	$ S_{21} ^2$	$V_R = 0.5 \text{ mA}; f = 900 \text{ MHz}$		0.21		dB
		$V_R = 0.5 \text{ mA}; f = 1800 \text{ MHz}$		0.28		dB
		$V_R = 0.5 \text{ mA}; f = 2450 \text{ MHz}$		0.38		dB
insertion loss	$ S_{21} ^2$	$V_R = 1 \text{ mA}; f = 900 \text{ MHz}$		0.18		dB
		$V_R = 1 \text{ mA}; f = 1800 \text{ MHz}$		0.26		dB
		$V_R = 1 \text{ mA}; f = 2450 \text{ MHz}$		0.35		dB
insertion loss	$ S_{21} ^2$	$V_R = 10 \text{ mA}; f = 900 \text{ MHz}$		0.13		dB
		$V_R = 10 \text{ mA}; f = 1800 \text{ MHz}$		0.20		dB
		$V_R = 10 \text{ mA}; f = 2450 \text{ MHz}$		0.30		dB
insertion loss	$ S_{21} ^2$	$V_R = 100 \text{ mA}; f = 900 \text{ MHz}$		0.10		dB
		$V_R = 100 \text{ mA}; f = 1800 \text{ MHz}$		0.18		dB
		$V_R = 100 \text{ mA}; f = 2450 \text{ MHz}$		0.28		dB
charge carrier life time	τ_L	When switched from $I_F = 10 \text{ mA}$ to $I_R = 6 \text{ mA}$; $R_L = 100 \text{ } \Omega$; measured at $I_R = 3 \text{ mA}$		310		ns
series inductance	L_s			1.5		nH

■ Marking

Marking	D2
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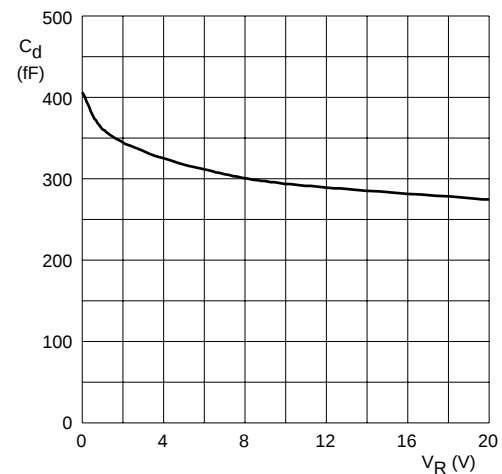
BAP63-03

■ Typical Characteristics



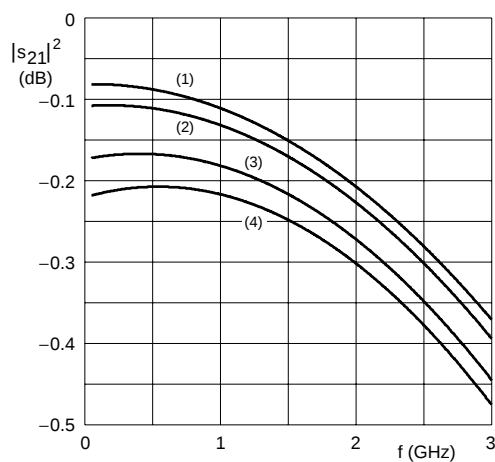
$T_j = 25^\circ\text{C}$; $f = 100$ MHz.

Fig.1 Forward resistance as a function of the forward current; typical values.



$T_j = 25^\circ\text{C}$; $f = 1$ MHz.

Fig.2 Diode capacitance as a function of reverse voltage; typical values.

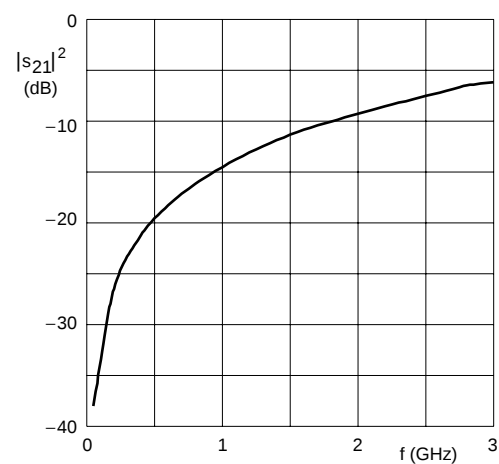


- (1) $I_F = 100$ mA. (3) $I_F = 1$ mA.
 (2) $I_F = 10$ mA. (4) $I_F = 0.5$ mA.

Diode inserted in series with a $50\ \Omega$ stripline circuit and biased via the analyzer Tee network.

$T_{\text{amb}} = 25^\circ\text{C}$.

Fig.3 Insertion loss ($|S_{21}|^2$) of the diode in on-state as a function of frequency; typical values.



Diode zero biased and inserted in series with a $50\ \Omega$ stripline circuit.

$T_{\text{amb}} = 25^\circ\text{C}$.

Fig.4 Isolation ($|S_{21}|^2$) of the diode in off-state as a function of frequency; typical values.