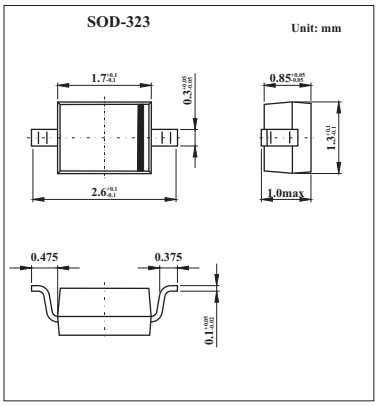
General Purpose PIN Diode
BAP1321-03



■ Features

- High voltage, current controlled
- RF resistor for RF attenuators and switches
- Low diode capacitance
- Low diode forward resistance
- Very low series inductance
- For applications up to 3 GHz.

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Continuous reverse voltage	V_R	60	V
Continuous forward current	I_F	100	mA
Total power dissipation Ts = 90℃	P_{tot}	500	mW
Storage temperature	T_{stg}	-65 to +150	℃
Junction temperature	T_j	150	℃
Thermal resistance from junction to soldering point	$R_{th(j-s)}$	120	℃/W

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test conditons	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 50 mA		0.95	1.1	V
Reverse current	I_R	V_R = 60 V			100	nA
Diode capacitance	Cd	V_R = 0; f = 1 MHz		0.4		pF
		V_R = 1 V; f = 1 MHz		0.35	0.45	pF
		V_R = 20 V; f = 1 MHz		0.25	0.32	pF
Diode forward resistance	r_D	I_F = 0.5 mA; f = 100 MHz		3.4	5	Ω
		I_F = 1 mA; f = 100 MHz		2.4	3.6	Ω
		I_F = 10 mA; f = 100 MHz		1.2	1.8	Ω
		I_F = 100 mA; f = 100 MHz		0.85	1.3	Ω
isolation	$\|S_{21}\|^2$	V_R = 0; f = 900 MHz		16.6		dB
		V_R = 0; f = 1800 MHz		11.6		dB
		V_R = 0; f = 2450 MHz		9.2		dB
insertion loss	$\|S_{21}\|^2$	V_R = 0.5mA; f = 900 MHz		0.26		dB
		V_R = 0.5mA; f = 1800 MHz		0.35		dB
		V_R = 0.5mA; f = 2450 MHz		0.44		dB
insertion loss	$\|S_{21}\|^2$	V_R = 1mA; f = 900 MHz		0.2		dB
		V_R = 1mA; f = 1800 MHz		0.29		dB
		V_R = 1mA; f = 2450 MHz		0.38		dB
insertion loss	$\|S_{21}\|^2$	V_R = 10mA; f = 900 MHz		0.13		dB
		V_R = 10mA; f = 1800 MHz		0.22		dB
		V_R = 10mA; f = 2450 MHz		0.32		dB
insertion loss	$\|S_{21}\|^2$	V_R = 100mA; f = 900 MHz		0.1		dB
		V_R = 100mA; f = 1800 MHz		0.2		dB
		V_R = 100mA; f = 2450 MHz		0.29		dB
charge carrier life time	τ_L	When switched from I_F = 10 mA to I_R = 6 mA; R_L = 100 Ω; measured at I_R = 3 mA		0.5		μs
series inductance	L_S	I_F = 100 mA; f = 100 MHz		1.5		nH

■ Marking

Marking	V8

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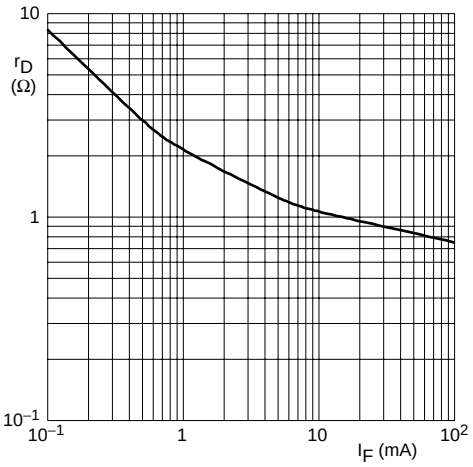
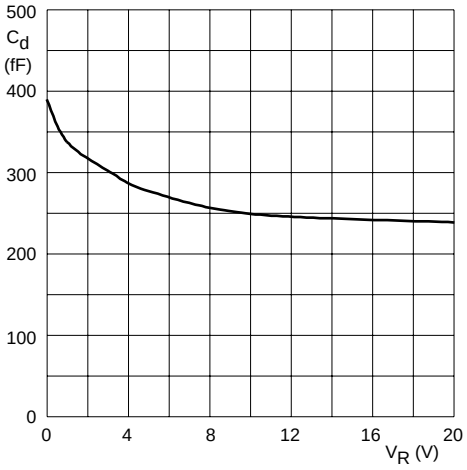
■ Typical Characteristics



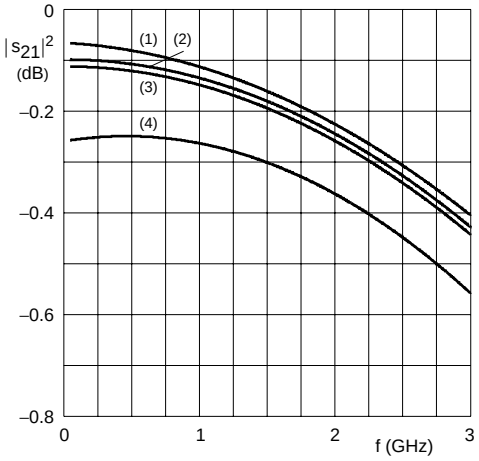
T_j = 25 °C; f = 100 MHz.

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



T_j = 25 °C; = 1 MHz.

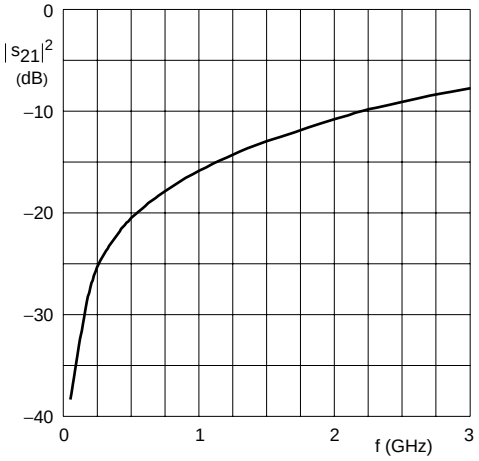
Fig.2 Diode capacitance as a function of reverse voltage; typical values.



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

Diode inserted in series with a 50 Ω stripline circuit and biased via the analyzer Tee network.
T_{amb} = 25 °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 Ω stripline circuit.
T_{amb} = 25 °C.

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