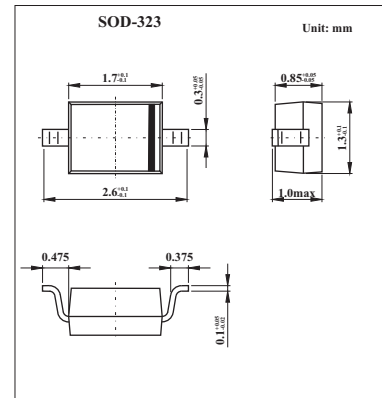


## General Purpose PIN Diode

### BAP63-03

#### Features

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



#### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Continuous reverse voltage	$V_R$	50	V
Continuous forward current	$I_F$	100	mA
Total power dissipation $T_s = 90^\circ\text{C}$	$P_{tot}$	500	mW
Storage temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Junction temperature	$T_j$	150	$^\circ\text{C}$
Thermal resistance from junction to soldering point	$R_{th(j-s)}$	120	$^\circ\text{C/W}$

## BAP63-03

Electrical Characteristics Ta = 25°C

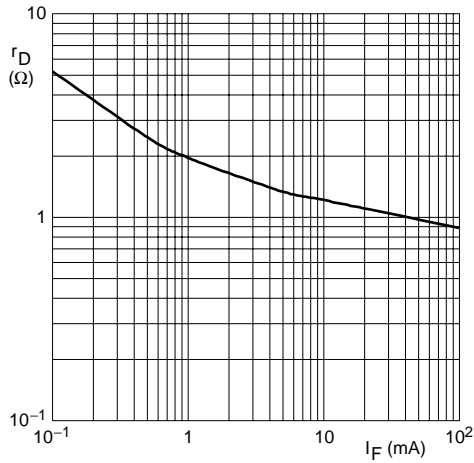
Parameter	Symbol	Test conditons	Min	Typ	Max	Unit
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 50 mA		0.95	1.1	V
Reverse voltage	V <sub>R</sub>	I <sub>R</sub> = 10 μA	50			V
Reverse current	I <sub>R</sub>	V <sub>R</sub> = 35 V			10	nA
Diode capacitance	C <sub>d</sub>	V <sub>R</sub> = 0; f = 1 MHz		0.4		pF
		V <sub>R</sub> = 1 V; f = 1 MHz		0.35		pF
		V <sub>R</sub> = 20 V; f = 1 MHz		0.27	0.32	pF
Diode forward resistance	r <sub>D</sub>	I <sub>F</sub> = 0.5 mA; f = 100 MHz		2.5	3.5	Ω
		I <sub>F</sub> = 1 mA; f = 100 MHz		1.95	3	Ω
		I <sub>F</sub> = 10 mA; f = 100 MHz		1.17	1.8	Ω
		I <sub>F</sub> = 100 mA; f = 100 MHz		0.95	1.5	Ω
isolation	S <sub>21</sub>   <sup>2</sup>	V <sub>R</sub> = 0; f = 900 MHz		15.4		dB
		V <sub>R</sub> = 0; f = 1800 MHz		10.1		dB
		V <sub>R</sub> = 0; f = 2450 MHz		7.8		dB
insertion loss	S <sub>21</sub>   <sup>2</sup>	V <sub>R</sub> = 0.5mA; f = 900 MHz		0.21		dB
		V <sub>R</sub> = 0.5mA; f = 1800 MHz		0.28		dB
		V <sub>R</sub> = 0.5mA; f = 2450 MHz		0.38		dB
insertion loss	S <sub>21</sub>   <sup>2</sup>	V <sub>R</sub> = 1mA; f = 900 MHz		0.18		dB
		V <sub>R</sub> = 1mA; f = 1800 MHz		0.26		dB
		V <sub>R</sub> = 1mA; f = 2450 MHz		0.35		dB
insertion loss	S <sub>21</sub>   <sup>2</sup>	V <sub>R</sub> = 10mA; f = 900 MHz		0.13		dB
		V <sub>R</sub> = 10mA; f = 1800 MHz		0.20		dB
		V <sub>R</sub> = 10mA; f = 2450 MHz		0.30		dB
insertion loss	S <sub>21</sub>   <sup>2</sup>	V <sub>R</sub> = 100mA; f = 900 MHz		0.10		dB
		V <sub>R</sub> = 100mA; f = 1800 MHz		0.18		dB
		V <sub>R</sub> = 100mA; f = 2450 MHz		0.28		dB
charge carrier life time	τ <sub>L</sub>	When switched from I <sub>F</sub> = 10 mA to I <sub>R</sub> = 6 mA; R <sub>L</sub> = 100 Ω; measured at I <sub>R</sub> = 3 mA		310		ns
series inductance	L <sub>s</sub>			1.5		nH

## Marking

Marking	D2
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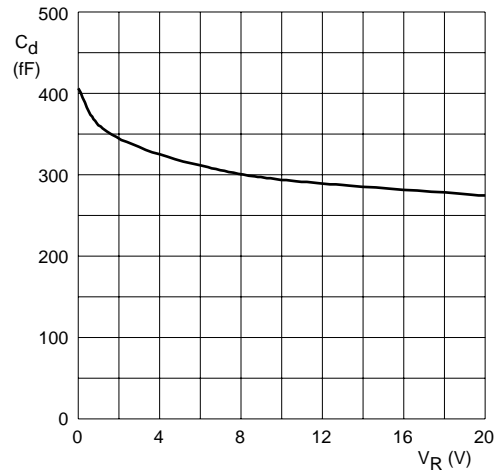
### BAP63-03

#### Typical Characteristics



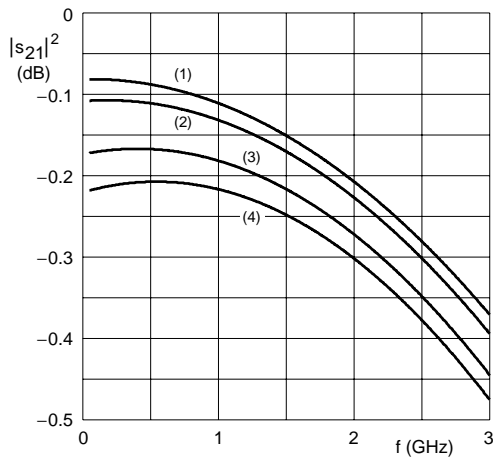
$T_j = 25\text{ }^\circ\text{C}; f = 100\text{ MHz.}$

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



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

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

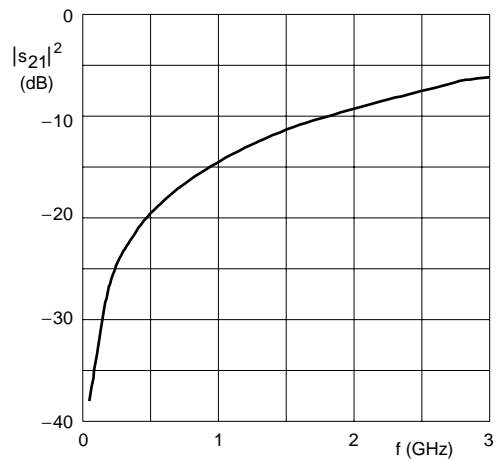


- (1)  $I_F = 100\text{ mA.}$       (3)  $I_F = 1\text{ mA.}$
- (2)  $I_F = 10\text{ mA.}$       (4)  $I_F = 0.5\text{ mA.}$

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

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

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 Ω stripline circuit.

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

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