

Silicon PIN diode

FEATURES

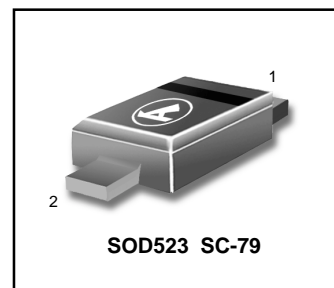
- High speed switching for RF signals
- Low diode capacitance
- Low diode forward resistance
- Very low series inductance
- For applications up to 3 GHz.

APPLICATIONS

- RF attenuators and switches.

DESCRIPTION

Planar PIN diode in a SOD323 small SMD plastic package.

BAP63 – 03


LIMITING VALUES In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	50	V
I_F	continuous forward current		–	100	mA
P_{tot}	total power dissipation	$T_s \leq 90^\circ\text{C}$	–	500	mW
T_{stg}	storage temperature		-65	+150	$^\circ\text{C}$
T_j	junction temperature		-65	+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS $T_j = 25^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 50\text{ mA}$	0.95	1.1	V
I_R	reverse current	$V_R = 35\text{ V}$	–	10	nA
C_d	diode capacitance	$V_R = 0; f = 1\text{ MHz}$	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
r_D	diode forward resistance	$I_F = 0.5\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	2.5	3.5	Ω
		$I_F = 1\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	1.95	3	Ω
		$I_F = 10\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	1.17	1.8	Ω
		$I_F = 100\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	0.9	1.5	Ω
$ s_{21} ^2$	isolation	$V_R = 0; f = 900\text{ MHz}$	15.4	–	dB
		$V_R = 0; f = 1800\text{ MHz}$	10.1	–	dB
		$V_R = 0; f = 2450\text{ MHz}$	7.8	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 0.5\text{ mA}; f = 900\text{ MHz}$	0.21	–	dB
		$I_F = 0.5\text{ mA}; f = 1800\text{ MHz}$	0.28	–	dB
		$I_F = 0.5\text{ mA}; f = 2450\text{ MHz}$	0.38	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 1\text{ mA}; f = 900\text{ MHz}$	0.18	–	dB
		$I_F = 1\text{ mA}; f = 1800\text{ MHz}$	0.26	–	dB
		$I_F = 1\text{ mA}; f = 2450\text{ MHz}$	0.35	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 10\text{ mA}; f = 900\text{ MHz}$	0.13	–	dB
		$I_F = 10\text{ mA}; f = 1800\text{ MHz}$	0.20	–	dB
		$I_F = 10\text{ mA}; f = 2450\text{ MHz}$	0.30	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 100\text{ mA}; f = 900\text{ MHz}$	0.10	–	dB
		$I_F = 100\text{ mA}; f = 1800\text{ MHz}$	0.18	–	dB
		$I_F = 100\text{ mA}; f = 2450\text{ MHz}$	0.28	–	dB

BAP63-03

ELECTRICAL CHARACTERISTICS $T_j = 25^\circ\text{C}$ unless otherwise specified. (Continue)

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
τ_L	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}$; $R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$	310	–	ns
L_s	series inductance		1.5	–	nH

Note

1. Guaranteed on AQL basis: inspection level S4, AQL 1.0.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering-point	120	K/W

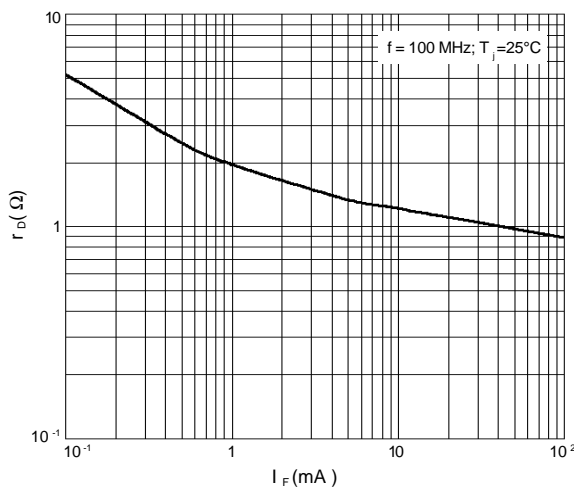


Fig.1 Forward resistance as a function of forward current; typical values.

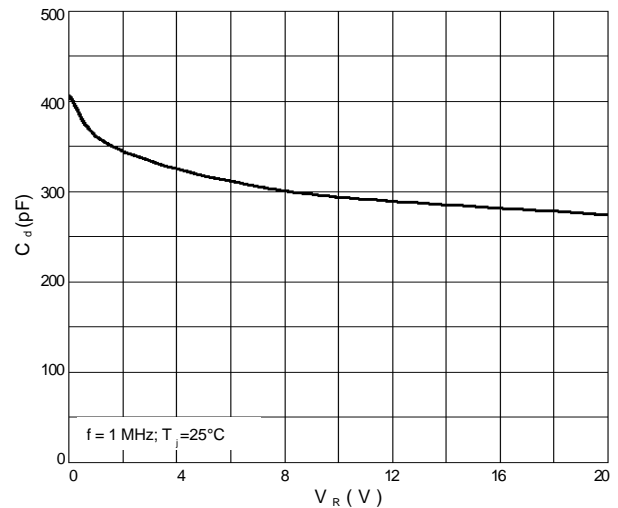


Fig.2 Diode capacitance as a function of reverse voltage; typical values.

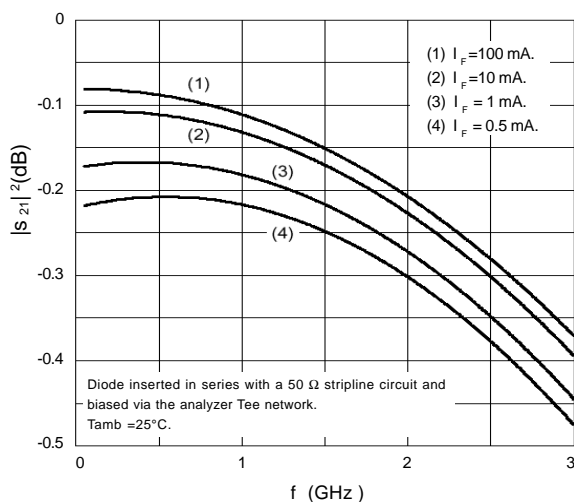


Fig.3 Insertion loss ($|s_{21}|^2$) of the diode in on-state as a function of frequency; typical values.

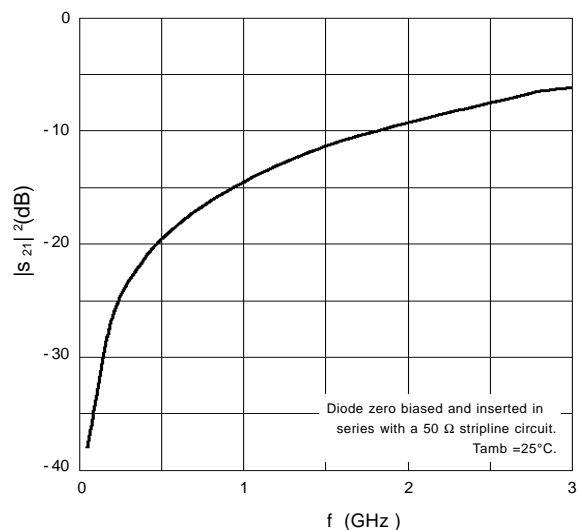


Fig.4 Isolation ($|s_{21}|^2$) of the diode in off-state as a function of frequency; typical values.



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.