

# Silicon PIN diode

## 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.

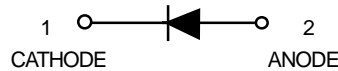
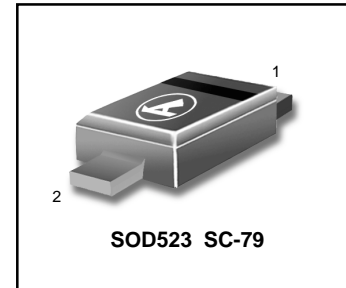
## APPLICATIONS

- RF attenuators and switches.

## DESCRIPTION

Planar PIN diode in a SOD523 ultra small plastic SMD package.

**BAP64 – 02**



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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	175	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s = 90^\circ\text{C}$	–	715	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	$V_R = 175\text{ V}$	–	10	$\mu\text{A}$
		$V_R = 20\text{ V}$	–	1	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 0; f = 1\text{ MHz}$	0.48	–	pF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	0.35	–	pF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	0.23	0.35	pF
$r_D$	diode forward resistance	$I_F = 0.5\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	20	40	$\Omega$
		$I_F = 1\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	10	20	$\Omega$
		$I_F = 10\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	2	3.8	$\Omega$
		$I_F = 100\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	0.7	1.35	$\Omega$
$\tau_L$	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}; R_L = 100\ \Omega;$ measured at $I_R = 3\text{ mA}$	1.55	–	$\mu\text{s}$
$L_s$	series inductance		0.6	–	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	85	K/W

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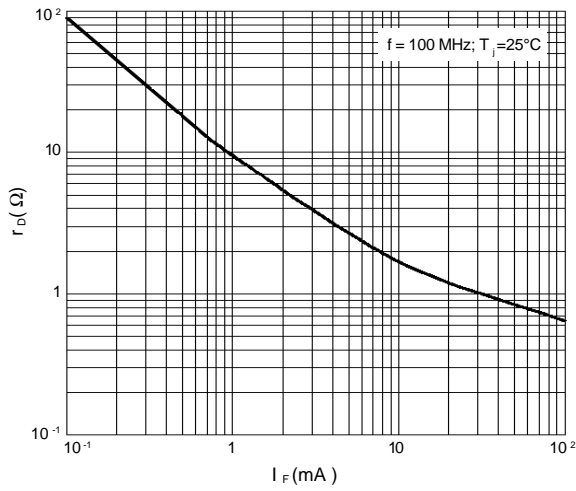


Fig.1 Forward resistance as a function of forward current; typical values.

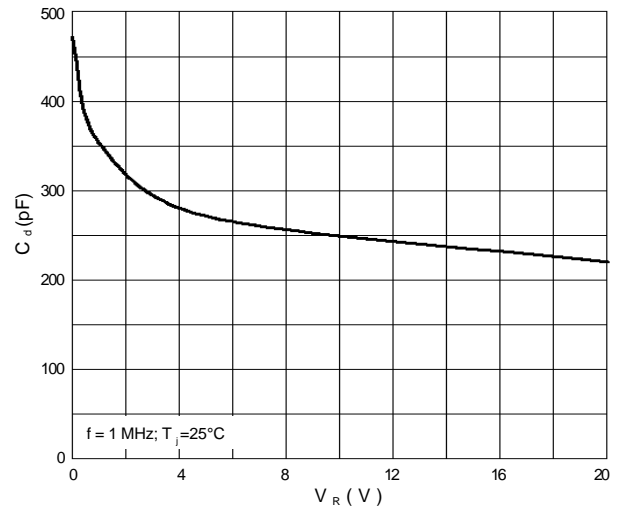


Fig.2 Diode capacitance as a function of reverse voltage; typical values.

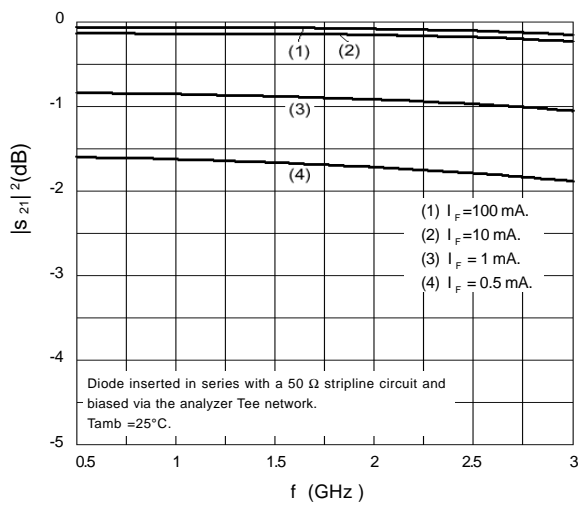


Fig.3 Insertion loss ( $|s_{21}|^2$ ) of the diode in on-state as a function of frequency; typical values.

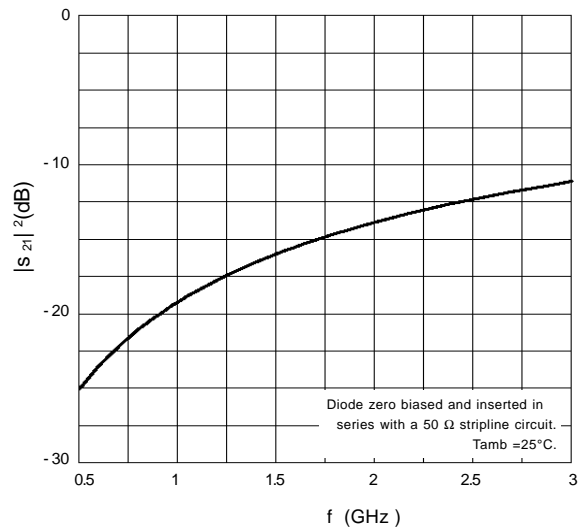


Fig.4 Isolation ( $|s_{21}|^2$ ) of the diode in off-state as a function of frequency; typical values.