BAP64-03

Silicon PIN diode

FEATURES

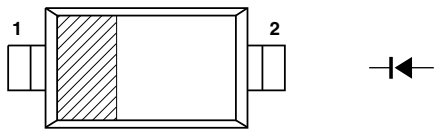
- High voltage, current controlled
- RF resistor for RF attenuators and switches
- Low diode capacitance
- Low diode forward resistance
- Low series inductance
- For applications up to 3 GHz.

APPLICATIONS

- RF attenuators and switches.

DESCRIPTION

Planar PIN diode in a SOD323 very small plastic SMD package.



Marking code: A3

1 cathode
2 anode

Fig.1 Simplified outline (SOD323) and symbol.

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 °C	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	I_F = 50 mA	–	0.95	1.1	V
I_R	reverse leakage current	V_R = 175 V	–	–	10	μA
		V_R = 20 V	–	–	1	μA
C_d	diode capacitance	V_R = 0; f = 1 MHz	–	0.48	–	pF
		V_R = 1 V; f = 1 MHz	–	0.35	---	pF
		V_R = 20 V; f = 1 MHz	–	0.23	0.35	pF
r_D	diode forward resistance	I_F = 0.5 mA; f = 100 MHz; note 1	–	20	40	Ω
		I_F = 1 mA; f = 100 MHz; note 1	–	10	20	Ω
		I_F = 10 mA; f = 100 MHz; note 1	–	2	3.8	Ω
		I_F = 100 mA; f = 100 MHz; note 1	–	0.7	1.35	Ω
τ_L	charge carrier life time	when switched from I_F = 10 mA to I_R = 6 mA; R_L = 100 Ω; measured at I_R = 3 mA	–	1.55	–	μs
L_S	series inductance		–	1.68	–	nH

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

THERMAL CHARACTERISTICS

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

GRAPHICAL DATA

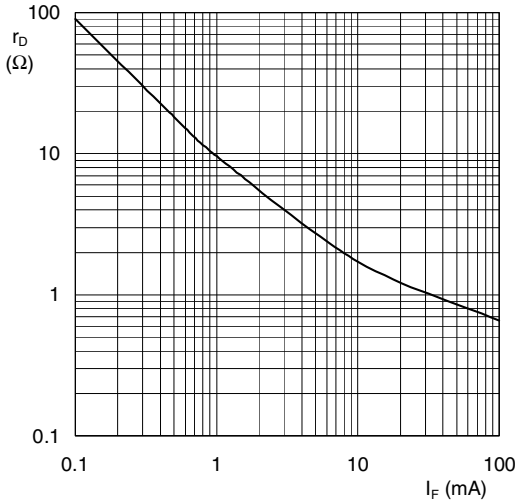
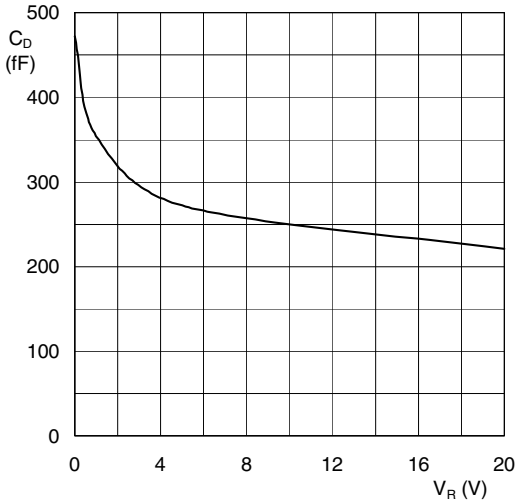
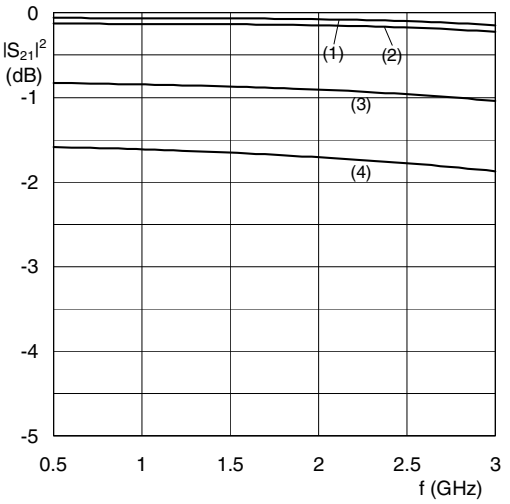


Fig.2 Forward resistance as a function of forward current; typical values.



f :

Fig.3 Diode capacitance as a function of reverse voltage; typical values.

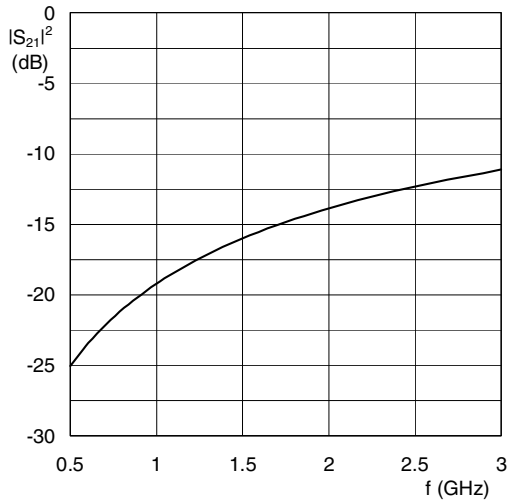


(1) I_F = 100 mA.; (2) I_F = 10 mA.; (3) I_F = 1 mA.; (4) I_F = 0.5 mA.

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

T_{amb} = 25 °C.

Fig.4 Insertion loss ($|S_{21}|^2$) of the diode as a function of frequency; typical values.



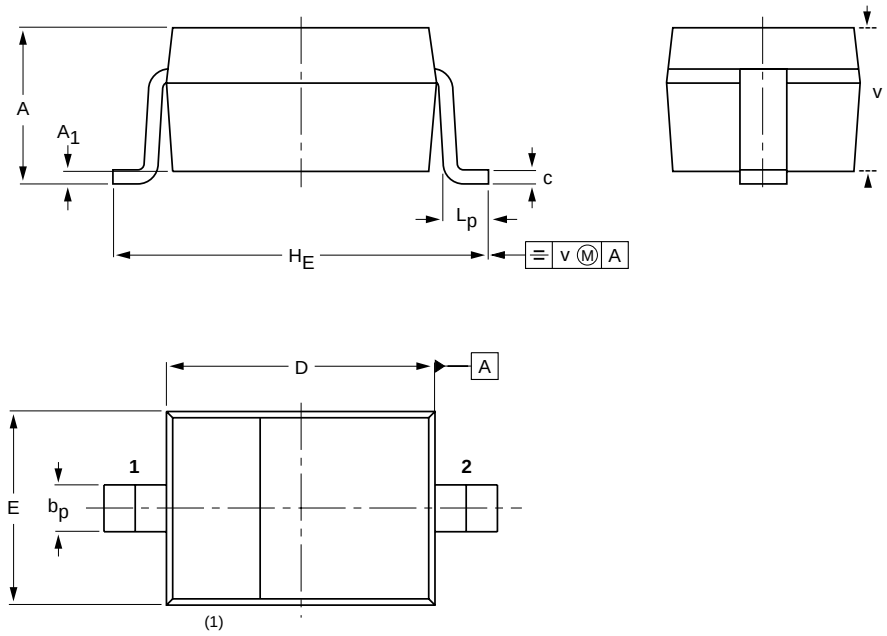
Diode zero biased and inserted in series with a 50 Ω stripline circuit.

T_{amb} = 25 °C.

Fig.5 Isolation ($|S_{21}|^2$) of the diode as a function of frequency; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads **SOD323**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1	b_p	c	D	E	H_E	L_p	v	
mm	1.0 ---	0.10 – 0.00	0.35 0.25	0.15 0.08	1.8 1.6	1.40 1.20	2.7 2.5	0.40 0.25	0.90 0.80	

Note

1. The marking bar indicates the cathode.

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