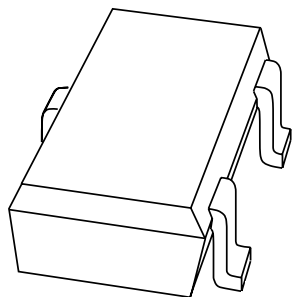


**DISCRETE SEMICONDUCTORS**

# DATA SHEET



## **BAP64-04W** Silicon PIN diode

Preliminary specification

2000 May 24

Philips  
Semiconductors



# PHILIPS

# Silicon PIN diode

# BAP64-04W

### 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

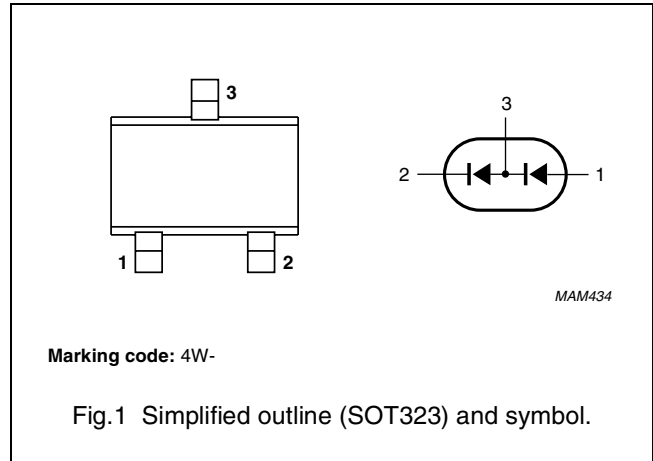
- RF attenuators and switches.

### DESCRIPTION

Two planar PIN diodes in series configuration in a SOT323 small plastic SMD package.

### PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	common connection



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage		–	100	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s = 90\text{ }^\circ\text{C}$	–	240	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–65	+150	$^\circ\text{C}$

## Silicon PIN diode

## BAP64-04W

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	forward voltage	$I_F = 50\text{ mA}$	0.95	1.1	V
$I_R$	reverse current	$V_R = 100\text{ V}$	–	10	$\mu\text{A}$
		$V_R = 20\text{ V}$	–	1	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 0; f = 1\text{ MHz}$	0.52	–	pF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	0.37	–	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 $I_R = 6\text{ mA}; R_L = 100\text{ }\Omega$ ; measured at $I_R = 3\text{ mA}$	1.55	–	$\mu\text{s}$
$L_S$	series inductance		1.2	–	nH

**Note**

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

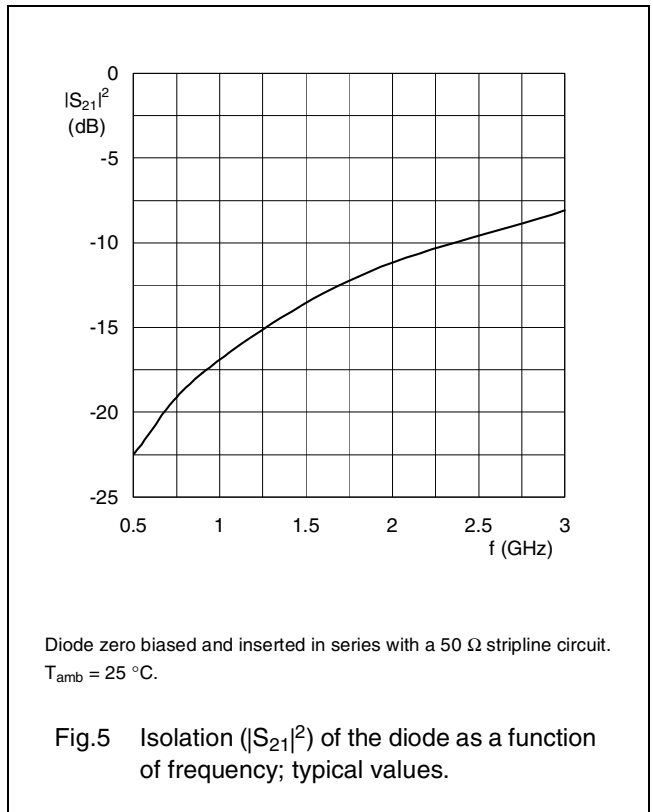
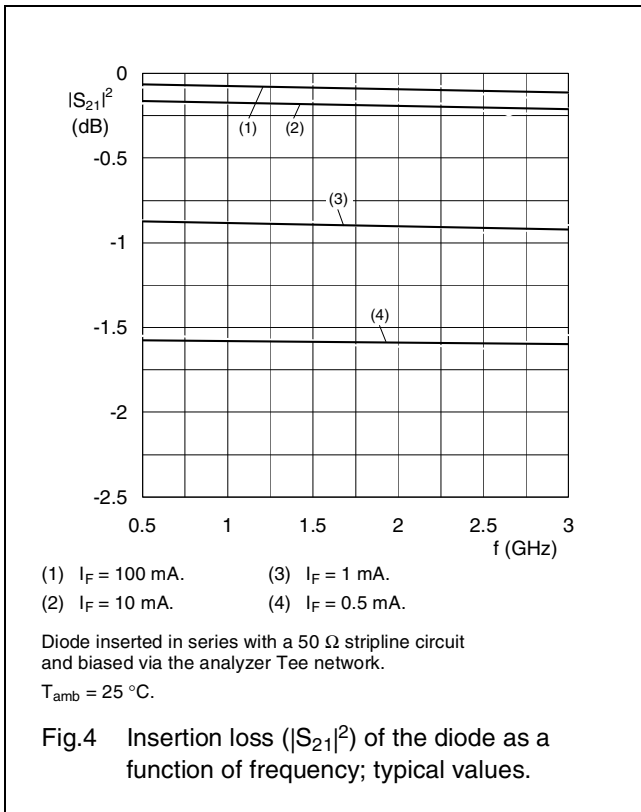
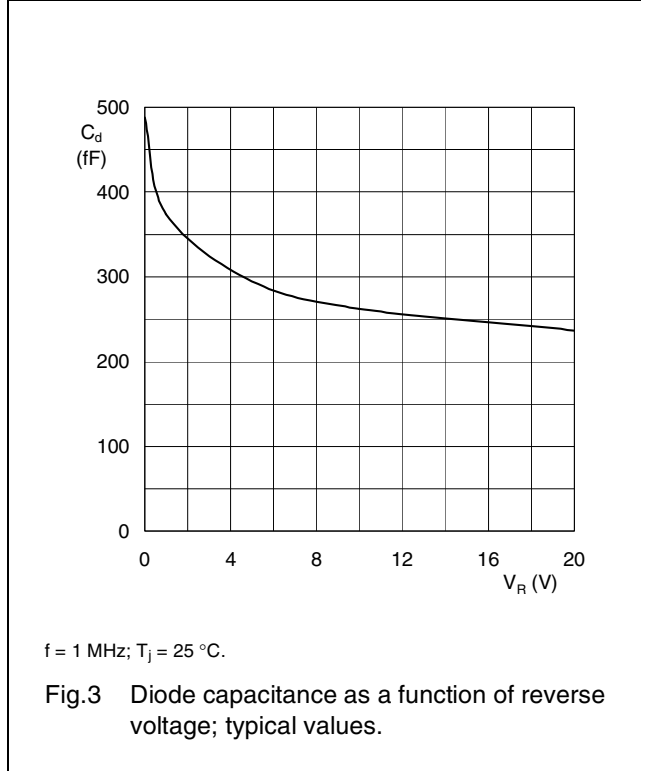
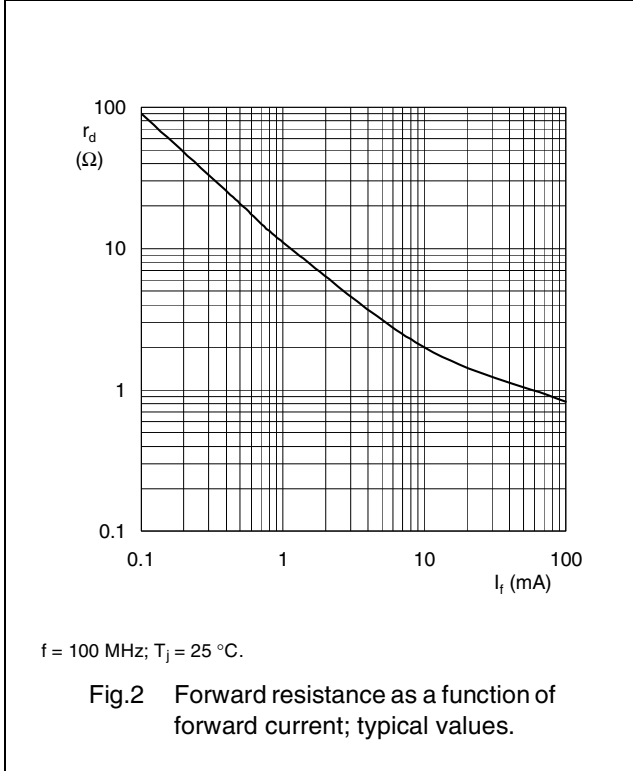
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	250	K/W

Silicon PIN diode

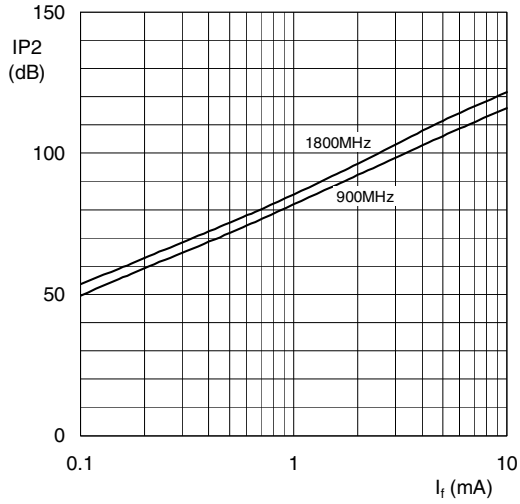
BAP64-04W

GRAPHICAL DATA



Silicon PIN diode

BAP64-04W



$T_{amb} = 25\text{ }^{\circ}\text{C}$ ; typical values

Fig.6 Second order intercept point as a function of forward current; typical values.

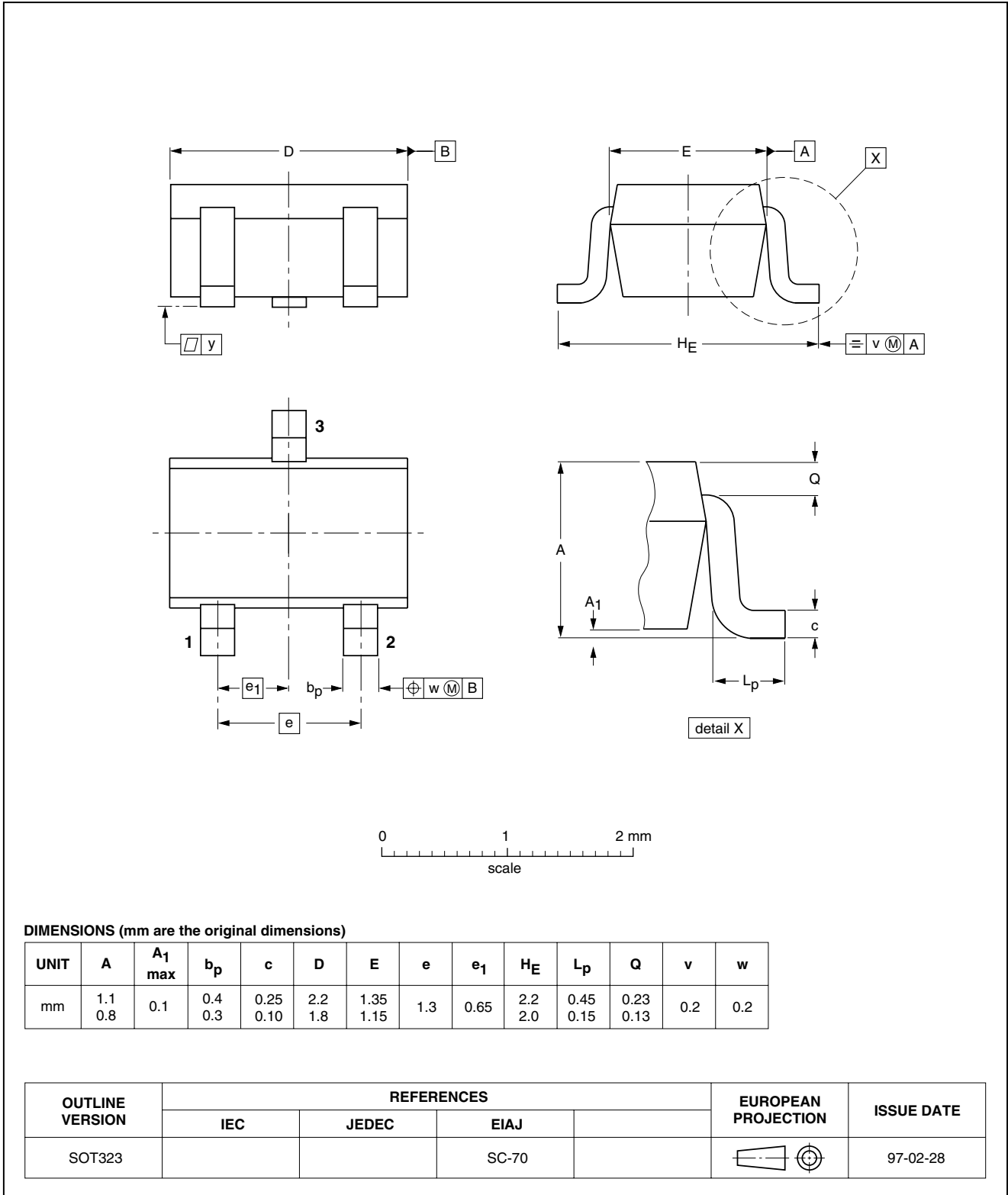
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



## Silicon PIN diode

BAP64-04W

## DATA SHEET STATUS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS <sup>(1)</sup>
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

## Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

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