



# BAP65-03

Silicon Pin diode

Rev. 5.2 — 28 January 2019

Product data sheet

## 1 Product profile

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### 1.1 General description

Planar PIN diode in a SOD323 small SMD plastic package.

### 1.2 Features and benefits

- High voltage, current controlled
- RF resistor for RF switches
- Low diode capacitance
- Low diode forward resistance
- Very low series inductance
- AEC-Q101 qualified



### 1.3 Applications

- RF attenuators and switches
- Bandswitch for TV tuners
- Series diode for mobile communication transmit/receive switch.



## 2 Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Graphic symbol
1	cathode	 Top view	 sym006
2	anode		

## 3 Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP65-03	-	plastic surface-mounted package; 2 leads	SOD323

## 4 Marking

Table 3. Marking

Type number	Marking code
BAP65-03	D3 <sup>[1]</sup>

[1] The marking bar indicates the cathode (see simplified outline graphic in [Table 1](#))

## 5 Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	continuous reverse voltage		-	30	V
$I_F$	continuous forward current		-	100	mA
$P_{tot}$	total power dissipation	$T_{sp} \leq 90\text{ °C}$	-	500	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-65	+150	°C

## 6 Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		120	K/W

## 7 Characteristics

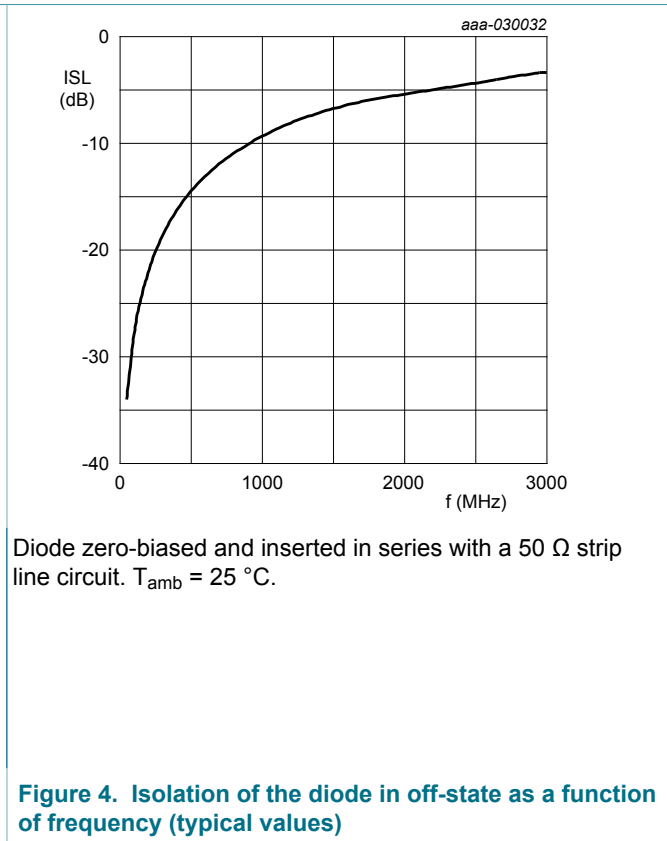
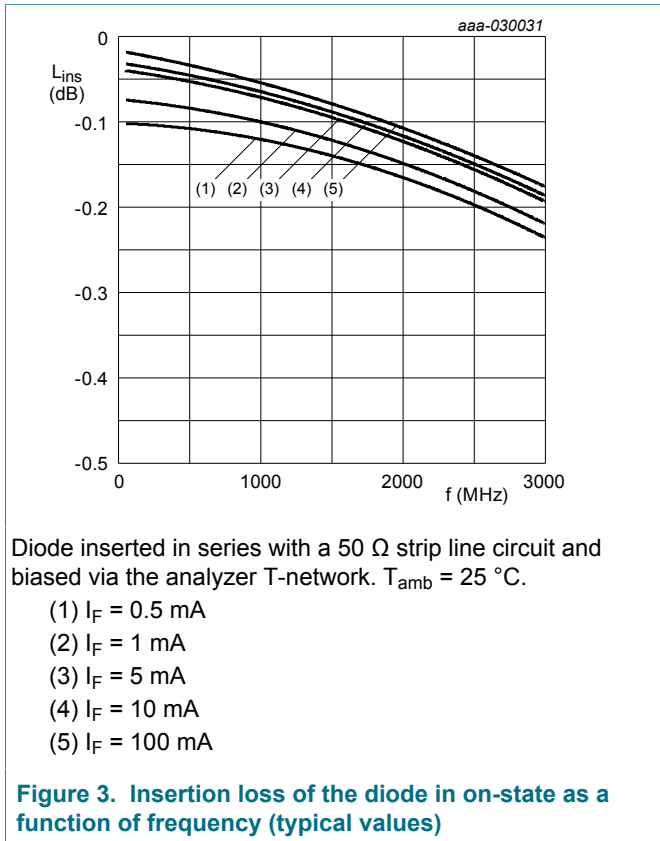
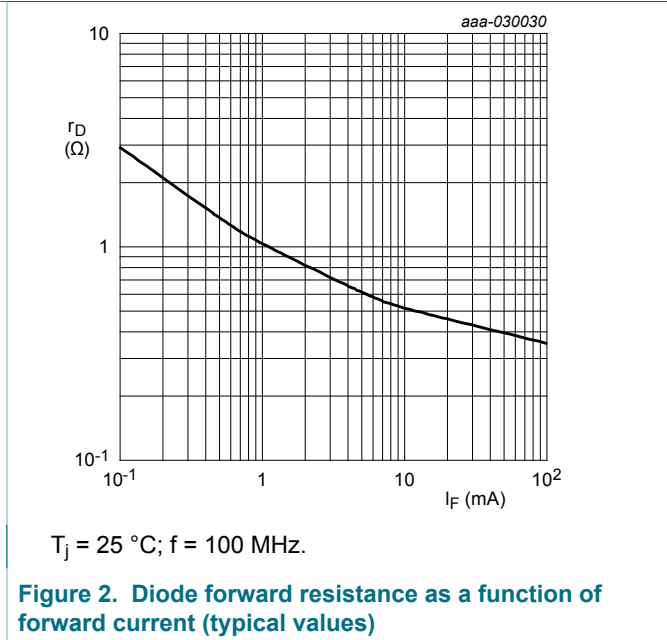
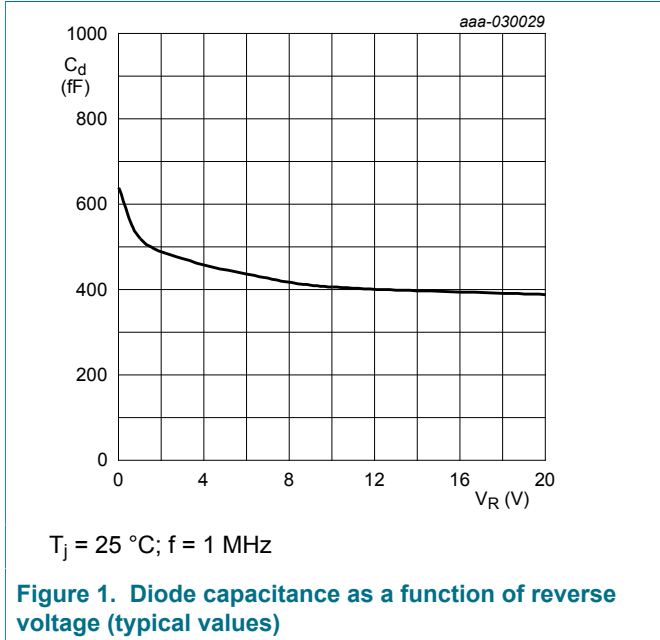
**Table 6. Characteristics**
 $T_j = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 50\text{ mA}$	-	0.9	1.1	V
$I_R$	reverse current	$V_R = 20\text{ V}$	-	-	20	nA
$C_d$	diode capacitance	f = 1 MHz (see <a href="#">Figure 1</a> )				
		$V_R = 0\text{ V}$	-	0.65	-	pF
		$V_R = 1\text{ V}$	-	0.55	0.9	pF
		$V_R = 3\text{ V}$	-	0.5	0.8	pF
		$V_R = 20\text{ V}$	-	0.375	-	pF
$r_D$	diode forward resistance	f = 100 MHz (see <a href="#">Figure 2</a> )				
		$I_F = 1\text{ mA}$	-	1	-	$\Omega$
		$I_F = 5\text{ mA}$	[1]	0.65	0.95	$\Omega$
		$I_F = 10\text{ mA}$	[1]	0.56	0.9	$\Omega$
		$I_F = 100\text{ mA}$	-	0.35	-	$\Omega$
ISL	isolation	$V_R = 0\text{ V}$ (see <a href="#">Figure 4</a> )				
		f = 900 MHz	-	10.2	-	dB
		f = 1800 MHz	-	5.8	-	dB
		f = 2450 MHz	-	4.1	-	dB
$L_{ins}$	insertion loss	See <a href="#">Figure 3</a> .				
		$I_F = 1\text{ mA}$				
		f = 900 MHz	-	0.11	-	dB
		f = 1800 MHz	-	0.14	-	dB
		f = 2450 MHz	-	0.18	-	dB
		$I_F = 5\text{ mA}$				
		f = 900 MHz	-	0.06	-	dB
		f = 1800 MHz	-	0.10	-	dB
		f = 2450 MHz	-	0.14	-	dB
		$I_F = 10\text{ mA}$				
		f = 900 MHz	-	0.06	-	dB
		f = 1800 MHz	-	0.1	-	dB
		f = 2450 MHz	-	0.13	-	dB
$L_{ins}$	insertion loss	$I_F = 100\text{ mA}$				
		f = 900 MHz	-	0.05	-	dB
		f = 1800 MHz	-	0.1	-	dB
		f = 2450 MHz	-	0.14	-	dB

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$\tau_L$	charge carrier life time	when switched from $I_F = 10$ mA to $I_R = 6$ mA; $R_L = 100 \Omega$ ; measured at $I_R = 3$ mA	-	0.17	-	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100$ mA; $f = 100$ MHz	-	1.5	-	nH

[1] Guaranteed on AQL basis; inspection level S4, AQL 1.0

**8 Graphical data**



**9 Package outline**

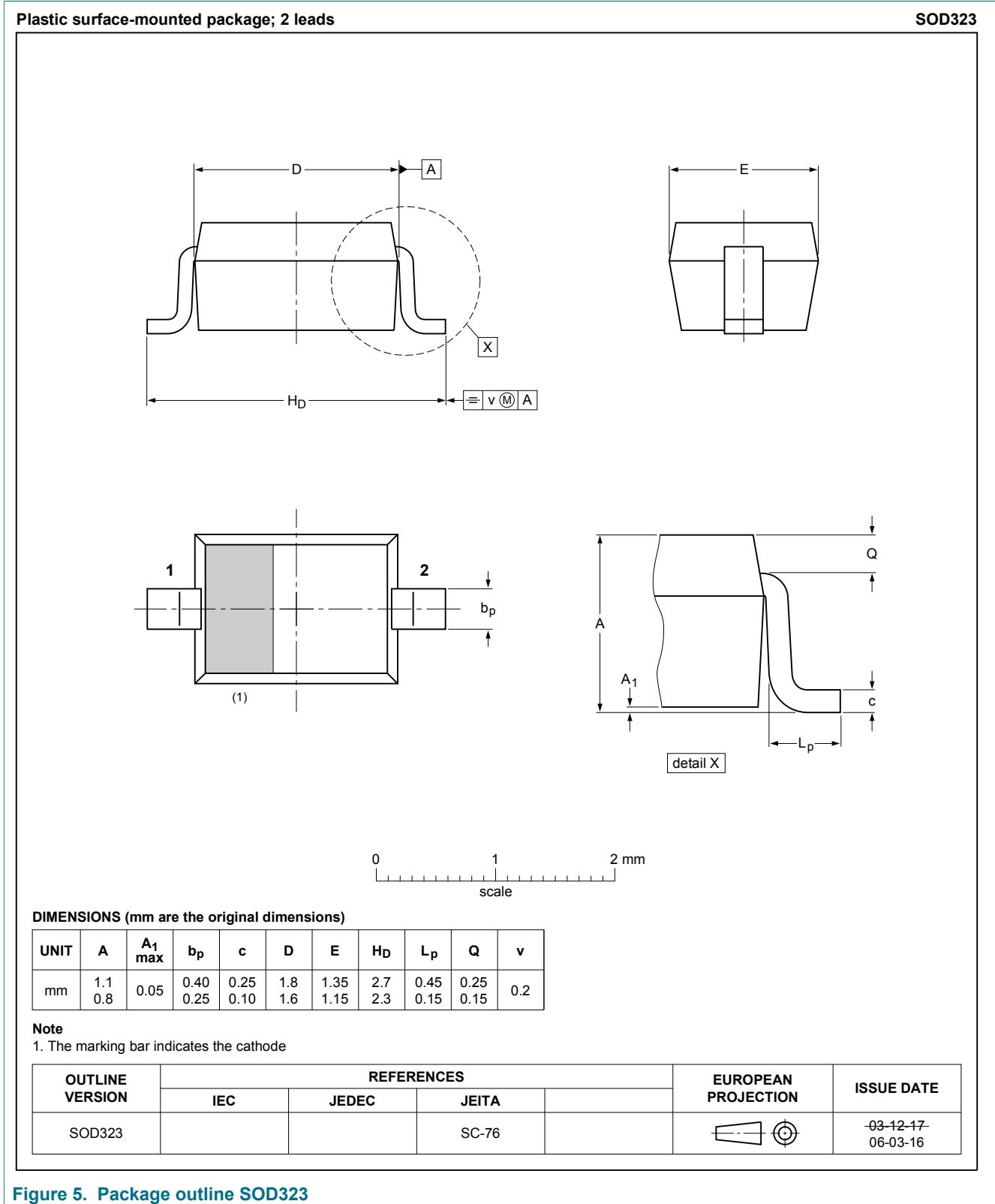


Figure 5. Package outline SOD323

## 10 Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP65-03 v.5.2	20190128	Product data sheet	-	BAP65-03 v.5.1
Modifications:	<ul style="list-style-type: none"> <li>• Changed title to Silicon PIN diode</li> </ul>			
BAP65-03 v.5.1	20181211	Product data sheet	-	BAP65-03 v.5
Modifications:	<ul style="list-style-type: none"> <li>• changed Typ value off <math>L_{ins}</math> at 2450 MHz to 0.18 dB</li> <li>• Changed condition <math>I_F</math> on <math>L_S</math> from 10 mA to 100 mA</li> </ul>			
BAP65-03 v.5	20180802	Product data sheet	-	BAP65-03 v.4
Modifications:	<ul style="list-style-type: none"> <li>• <a href="#">Section 1.2</a> "Features and benefits" has been updated.</li> <li>• The "Legal information" pages have been updated.</li> </ul>			
BAP65-03 v.4	20040211	Product data sheet	-	BAP65-03 v.3

## 11 Legal information

### 11.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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**Contents**

1 **Product profile** ..... 1

1.1 General description .....1

1.2 Features and benefits .....1

1.3 Applications .....1

2 **Pinning information** .....2

3 **Ordering information** .....2

4 **Marking** .....2

5 **Limiting values** .....2

6 **Thermal characteristics** .....2

7 **Characteristics** ..... 3

8 **Graphical data** .....5

9 **Package outline** .....6

10 **Revision history** .....7

11 **Legal information** .....8

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