

# BAP65-02

Silicon PIN diode

Rev. 6.1 — 28 January 2019

Product data sheet

## 1 Product profile

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### 1.1 General description

Planar PIN diode in a SOD523 ultra 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	 <p>Top view</p>	 <i>sym006</i>
2	anode		

## 3 Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP65-02	-	plastic surface-mounted package; 2 leads	SOD523

## 4 Marking

Table 3. Marking code

Type number	Marking code
BAP65-02	K6

## 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	$T_{sp} \leq 90\text{ °C}$	-	715	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-65	+150	°C
$T_{amb}$	ambient temperature		-40	+85	°C

## 6 Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		85	K/W

## 7 Characteristics

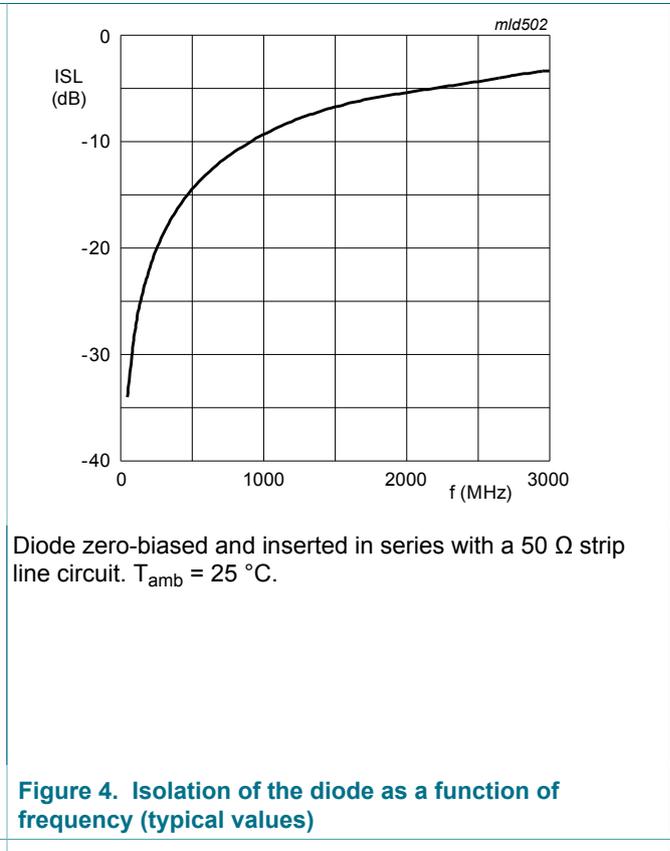
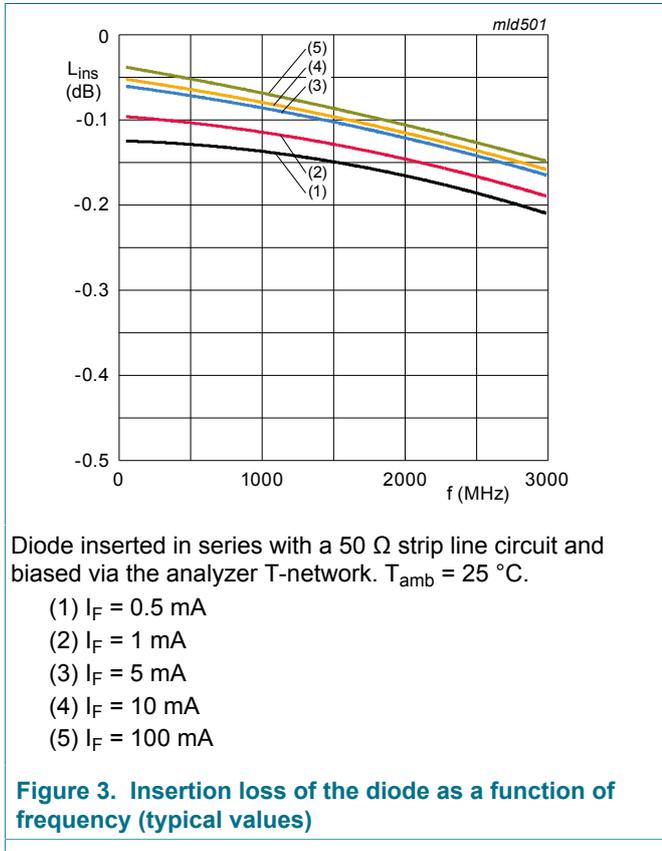
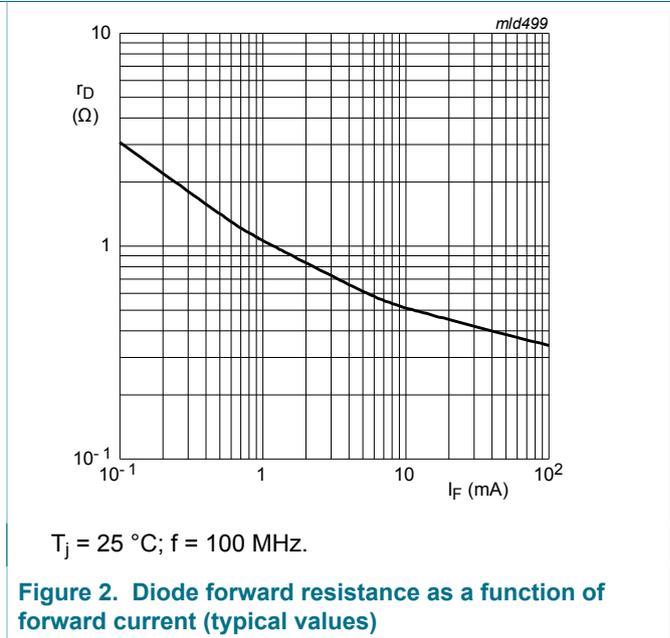
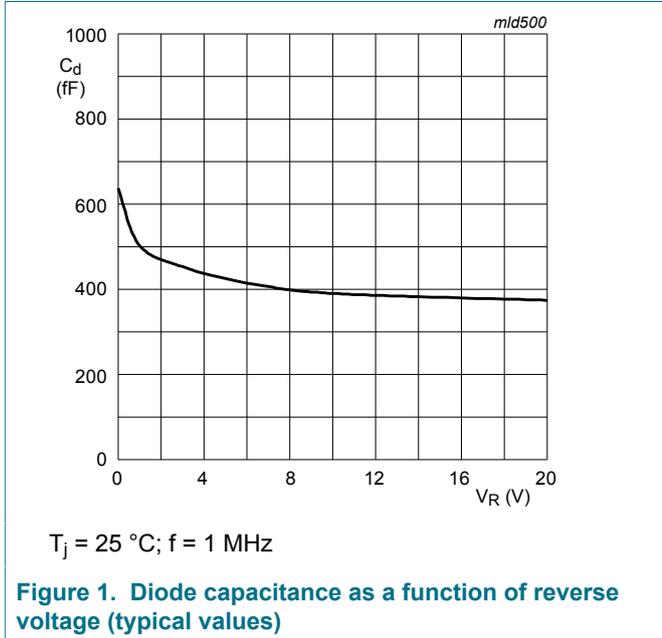
**Table 6. Characteristics**
 $T_j = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 50\text{ mA}$	-	0.9	1.1	V
$I_R$	reverse leakage 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	-	dB
		f = 1800 MHz	-	5.8	-	dB
		f = 2450 MHz	-	4.4	-	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	-	0.13	-	dB
		f = 2450 MHz	-	0.16	-	dB
		$I_F = 5\text{ mA}$				
		f = 900 MHz	-	0.08	-	dB
		f = 1800 MHz	-	0.11	-	dB
		f = 2450 MHz	-	0.13	-	dB
		$I_F = 10\text{ mA}$				
		f = 900 MHz	-	0.07	-	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	-	0.07	-	dB
		f = 1800 MHz	-	0.10	-	dB
		f = 2450 MHz	-	0.128	-	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	-	0.6	-	nH

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

8 Graphical data



**9 Package outline**

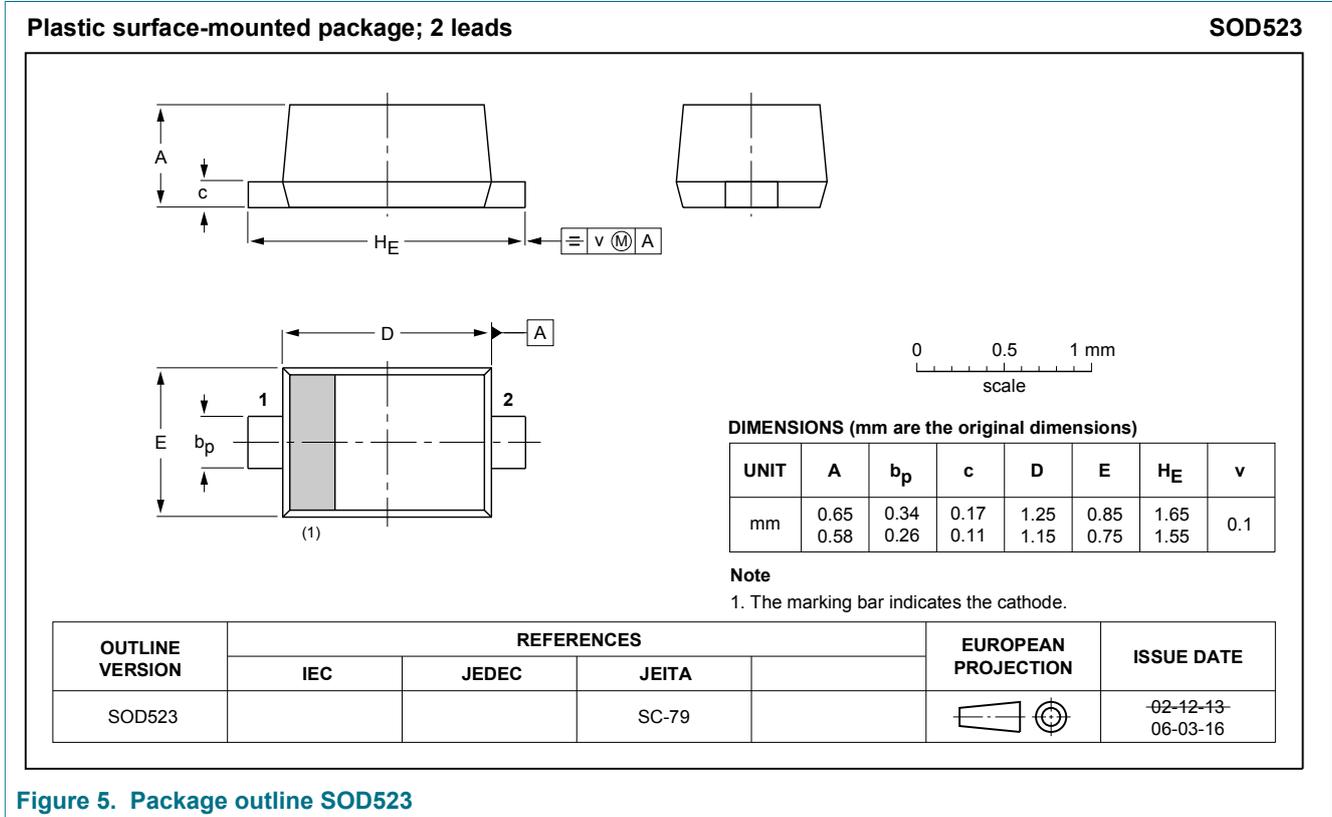


Figure 5. Package outline SOD523

## 10 Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP65-02 v.6.1	20190128	Product data sheet	-	BAP65-02 v.6
Modifications:	<ul style="list-style-type: none"> <li>• Changed title to Silicon PIN diode</li> </ul>			
BAP65-02 v.6	20181211	Product data sheet	-	BAP65-02 v.5
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>			
BAP65-02 v.5	20100928	Product data sheet	-	BAP65-02 v.4
BAP65-02_N v.4	20080108	Product data sheet	-	BAP65-02 v.3
BAP65-02 v.3 (9397 750 08364)	20010511	Product data sheet	-	BAP65-02 v.2
BAP65-02 v.2 (9397 750 08237)	20010507	Product data sheet	-	BAP65-02 v.1
BAP65-02 v.1 (9397 750 07724)	20001220	Product data sheet	-	-

## 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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Date of release: 28 January 2019

Document identifier: BAP65-02