



# BAP70-02

Silicon PIN diode

Rev. 8 — 11 December 2018

Product data sheet

## 1 Product profile

### 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 attenuators
- Low diode capacitance
- Very low series inductance
- AEC-Q101 qualified

### 1.3 Applications

- RF attenuators
- (SAT) TV
- Car radio

## 2 Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode		 sym006
2	anode		

## 3 Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP70-02	-	plastic surface-mounted package; 2 leads	SOD523



## 4 Marking

**Table 3. Marking**

Type number	Marking code
BAP70-02	K8 <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
$V_R$	reverse voltage	continuous voltage	-	50	V
$I_F$	forward current	continuous current	-	100	mA
$P_{tot}$	total power dissipation	$T_{sp} \leq 90\text{ °C}$	-	415	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		145	K/W

## 7 Characteristics

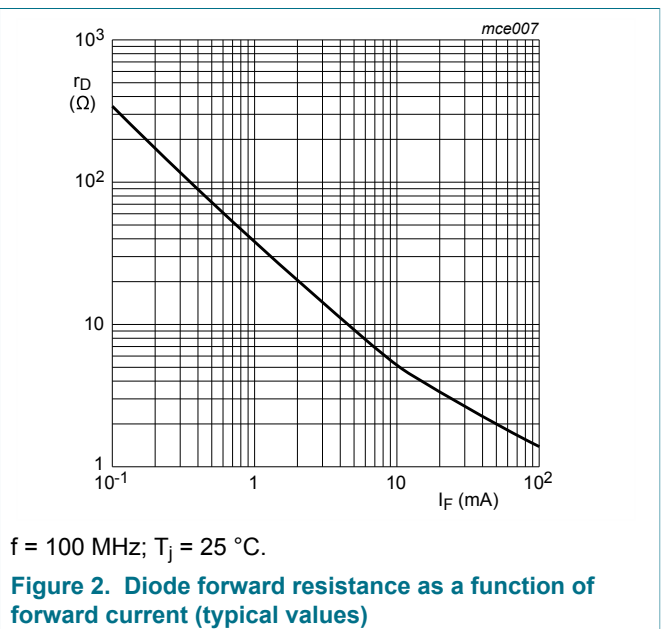
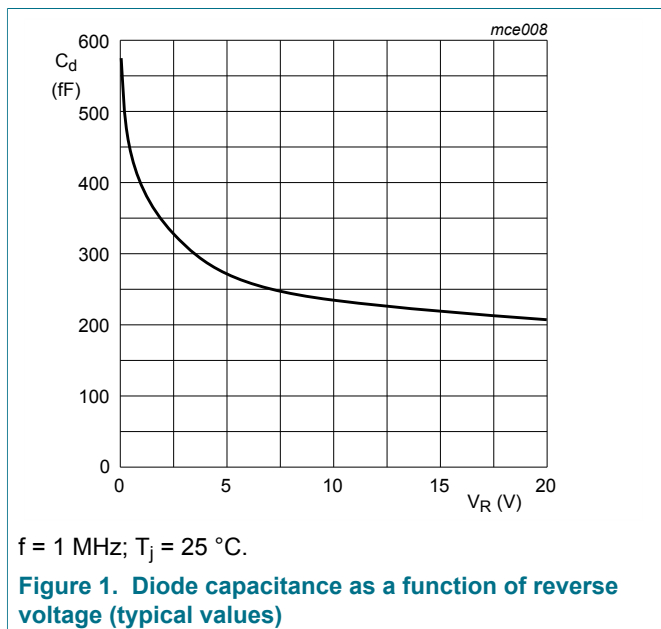
**Table 6. Characteristics**

$T_j = 25\text{ °C}$  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	$V_R = 50\text{ V}$	-	-	100	nA
$C_d$	diode capacitance	$f = 1\text{ MHz}$ (see <a href="#">Figure 1</a> )				
		$V_R = 0\text{ V}$	-	570	-	fF
		$V_R = 1\text{ V}$	-	400	-	fF
		$V_R = 5\text{ V}$	-	270	-	fF
		$V_R = 20\text{ V}$	-	200	250	fF

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$r_D$	diode forward resistance	$f = 100 \text{ MHz}$ (see <a href="#">Figure 2</a> )				
		$I_F = 0.5 \text{ mA}$	-	77	100	$\Omega$
		$I_F = 1 \text{ mA}$	-	40	50	$\Omega$
		$I_F = 10 \text{ mA}$	-	5.4	7	$\Omega$
		$I_F = 100 \text{ mA}$	-	1.4	1.9	$\Omega$
$\tau_L$	charge carrier life time	when switched from $I_F = 10 \text{ mA}$ to $I_R = 6 \text{ mA}$ ; $R_L = 100 \Omega$ ; measured at $I_R = 3 \text{ mA}$	-	1.25	-	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100 \text{ mA}$ ; $f = 100 \text{ MHz}$	-	0.6	-	nH

## 8 Graphical data



**9 Package outline**

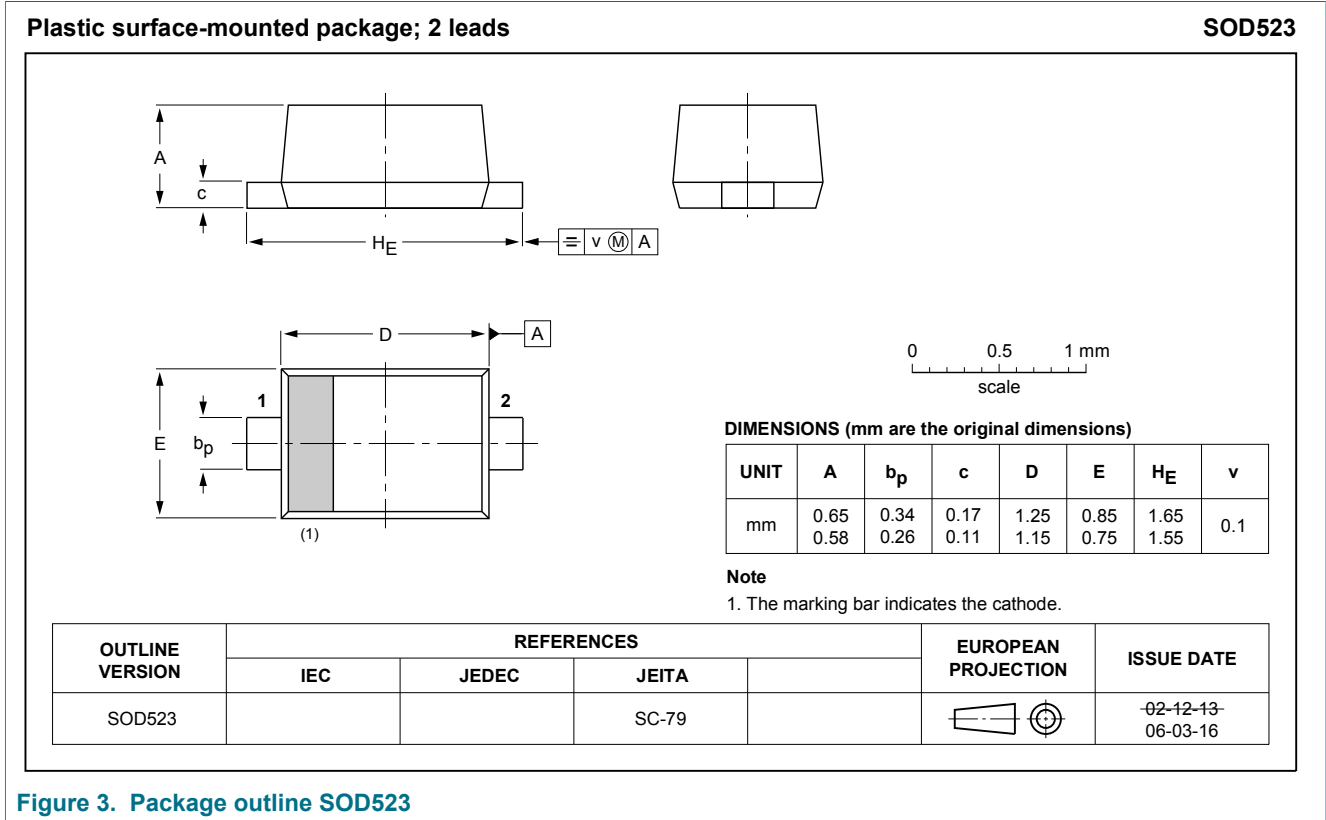


Figure 3. Package outline SOD523

**10 Abbreviations**

**Table 7. Abbreviations**

Acronym	Description
PIN	P-type, Intrinsic, N-type
SMD	Surface-Mounted Device
RF	Radio Frequency

## 11 Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-02 v.8	20181211	Product data sheet	-	BAP70-02 v.7
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>			
BAP70-02 v.7	20140416	Product data sheet	-	BAP70-02 v.6
BAP70-02 v.6	20140211	Product data sheet	-	BAP70-02_N v.5
BAP70-02_N v.5	20080102	Product data sheet	-	BAP70-02_N v.4
BAP70-02_N v.4	20070322	Product data sheet	-	BAP70-02 v.3
BAP70-02 v.3 (9397 750 10093)	20020806	Product data sheet	-	BAP70-02_N v.2
BAP70-02_N v.2 (9397 750 10079)	20020702	Preliminary data sheet	-	BAP70-02_N v.1
BAP70-02_N v.1 (9397 750 09578)	20020402	Preliminary data sheet	-	-

## 12 Legal information

### 12.1 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**

<b>1</b>	<b>Product profile</b> .....	<b>1</b>
1.1	General description .....	1
1.2	Features and benefits .....	1
1.3	Applications .....	1
<b>2</b>	<b>Pinning information</b> .....	<b>1</b>
<b>3</b>	<b>Ordering information</b> .....	<b>1</b>
<b>4</b>	<b>Marking</b> .....	<b>2</b>
<b>5</b>	<b>Limiting values</b> .....	<b>2</b>
<b>6</b>	<b>Thermal characteristics</b> .....	<b>2</b>
<b>7</b>	<b>Characteristics</b> .....	<b>2</b>
<b>8</b>	<b>Graphical data</b> .....	<b>3</b>
<b>9</b>	<b>Package outline</b> .....	<b>4</b>
<b>10</b>	<b>Abbreviations</b> .....	<b>4</b>
<b>11</b>	<b>Revision history</b> .....	<b>5</b>
<b>12</b>	<b>Legal information</b> .....	<b>6</b>

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