



# BAP70-02

Silicon PIN diode

Rev. 7 — 16 April 2014

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

### 1.3 Applications

- RF attenuators
- (SAT) TV
- Car radio

## 2. Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode		 <i>sym006</i>
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



## 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	$T_{sp} = 90\text{ °C}$	-	415	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-65	+150	°C

## 6. Thermal characteristics

**Table 5. Thermal characteristics**

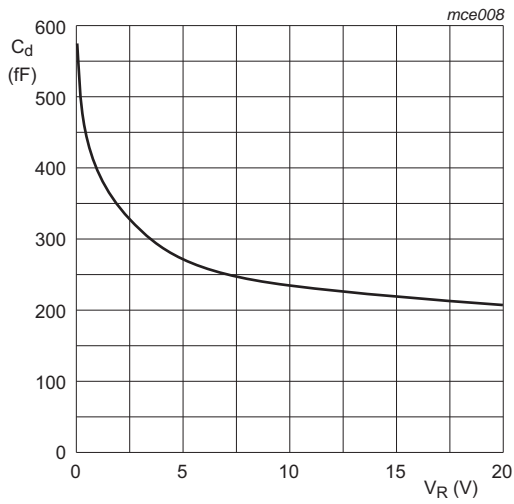
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		145	K/W

## 7. Characteristics

**Table 6. Characteristics**

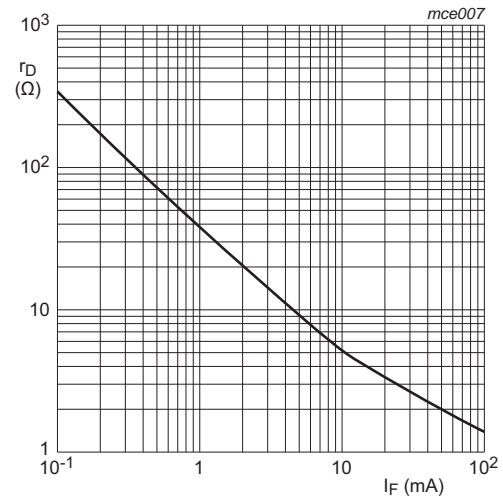
$T_j = 25\text{ °C}$  unless otherwise specified.

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	see <a href="#">Figure 1</a> ; $f = 1\text{ MHz}$ ;				
		$V_R = 0\text{ V}$	-	570	-	fF
		$V_R = 1\text{ V}$	-	400	-	fF
		$V_R = 5\text{ V}$	-	270	-	fF
$r_D$	diode forward resistance	see <a href="#">Figure 2</a> ; $f = 100\text{ MHz}$ ;				
		$I_F = 0.5\text{ mA}$	-	77	100	$\Omega$
		$I_F = 1\text{ mA}$	-	40	50	$\Omega$
		$I_F = 10\text{ mA}$	-	5.4	7	$\Omega$
$\tau_L$	charge carrier life time	$I_F = 100\text{ mA}$	-	1.4	1.9	$\Omega$
		when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; measured at $I_R = 3\text{ mA}$	-	1.25	-	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100\text{ mA}$ ; $f = 100\text{ MHz}$	-	0.6	-	nH



$f = 1 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

**Fig 1. Diode capacitance as a function of reverse voltage; typical values**



$f = 100 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

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

## 8. Package outline

Plastic surface-mounted package; 2 leads

SOD523

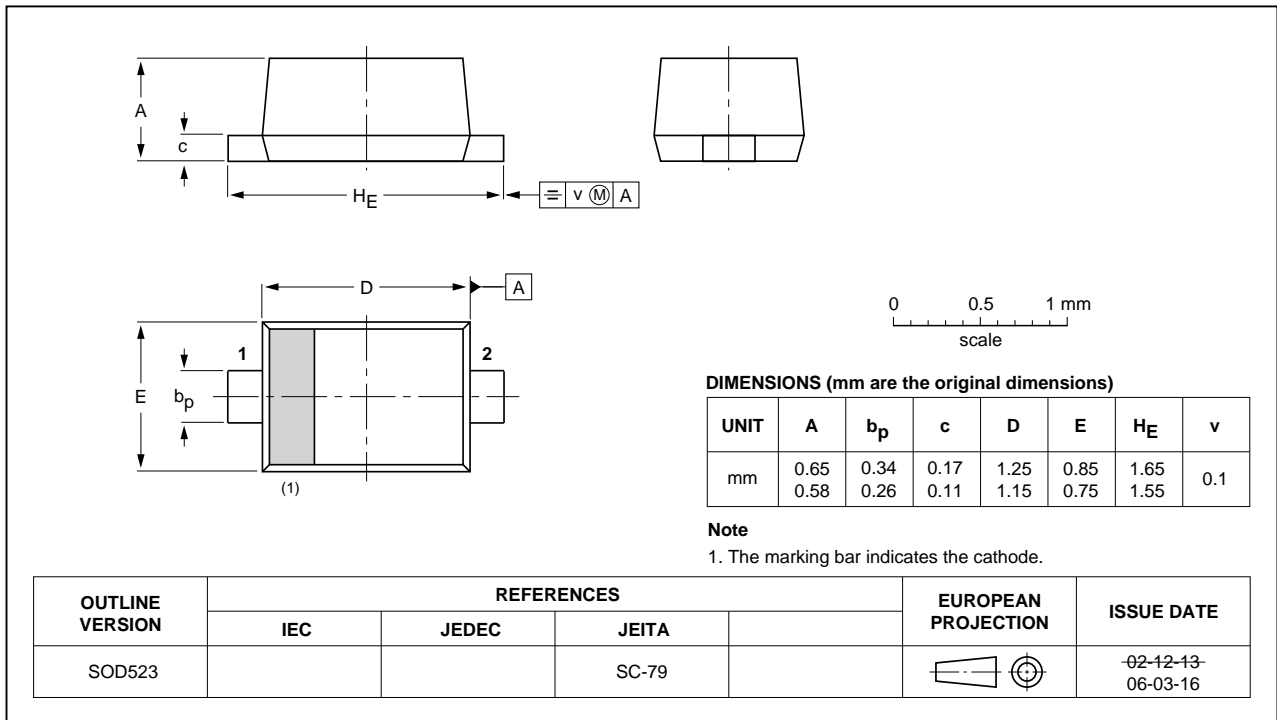


Fig 3. Package outline SOD523

## 9. Abbreviations

Table 7. Abbreviations

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

## 10. Revision history

**Table 8. Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-02 v.7	20140416	Product data sheet	-	BAP70-02 v.6
Modifications:	• Rollback to previous version			
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	-	-

## 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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