



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 ^[1]

[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

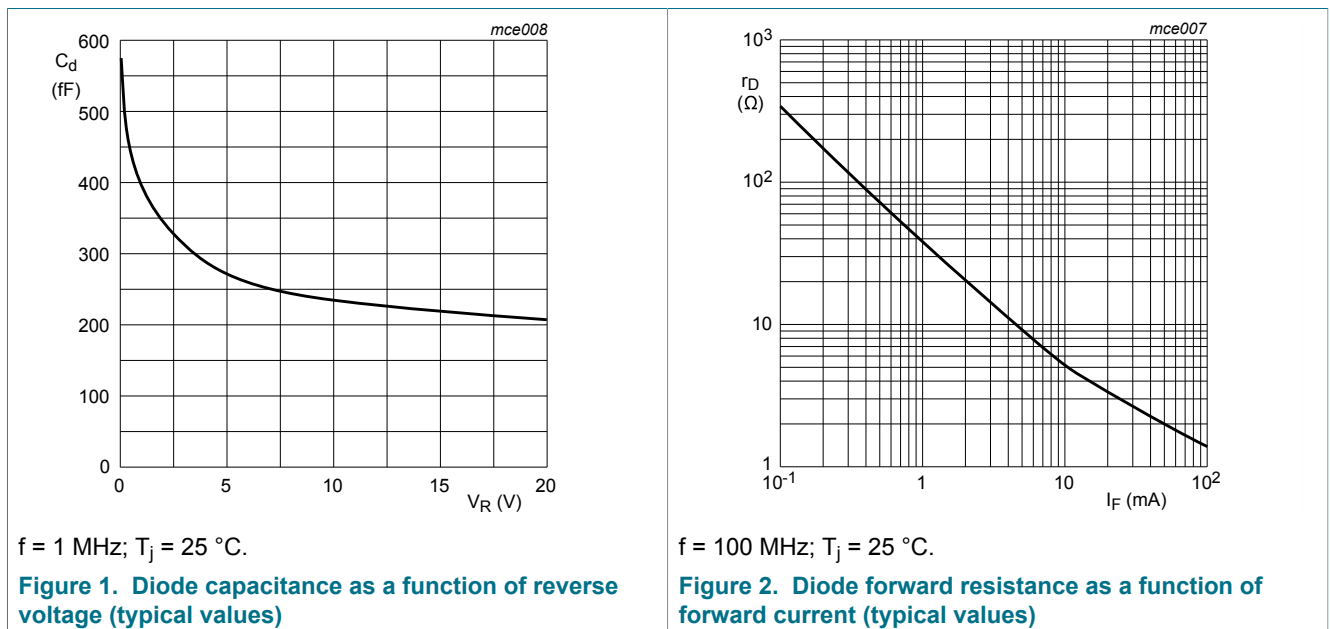
Table 6. Characteristics

$T_j = 25\text{ °C}$ 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 Figure 1)				
		$V_R = 0\text{ V}$	-	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 Figure 2)						
		$I_F = 0.5 \text{ mA}$	-	77	100	Ω		
		$I_F = 1 \text{ mA}$	-	40	50	Ω		
		$I_F = 10 \text{ mA}$	-	5.4	7	Ω		
τ_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	-	μs		
		$I_F = 100 \text{ mA}$	-	1.4	1.9	Ω		
		L_S	series inductance	$I_F = 100 \text{ mA}$; $f = 100 \text{ MHz}$	-	0.6	-	nH

8 Graphical data



9 Package outline

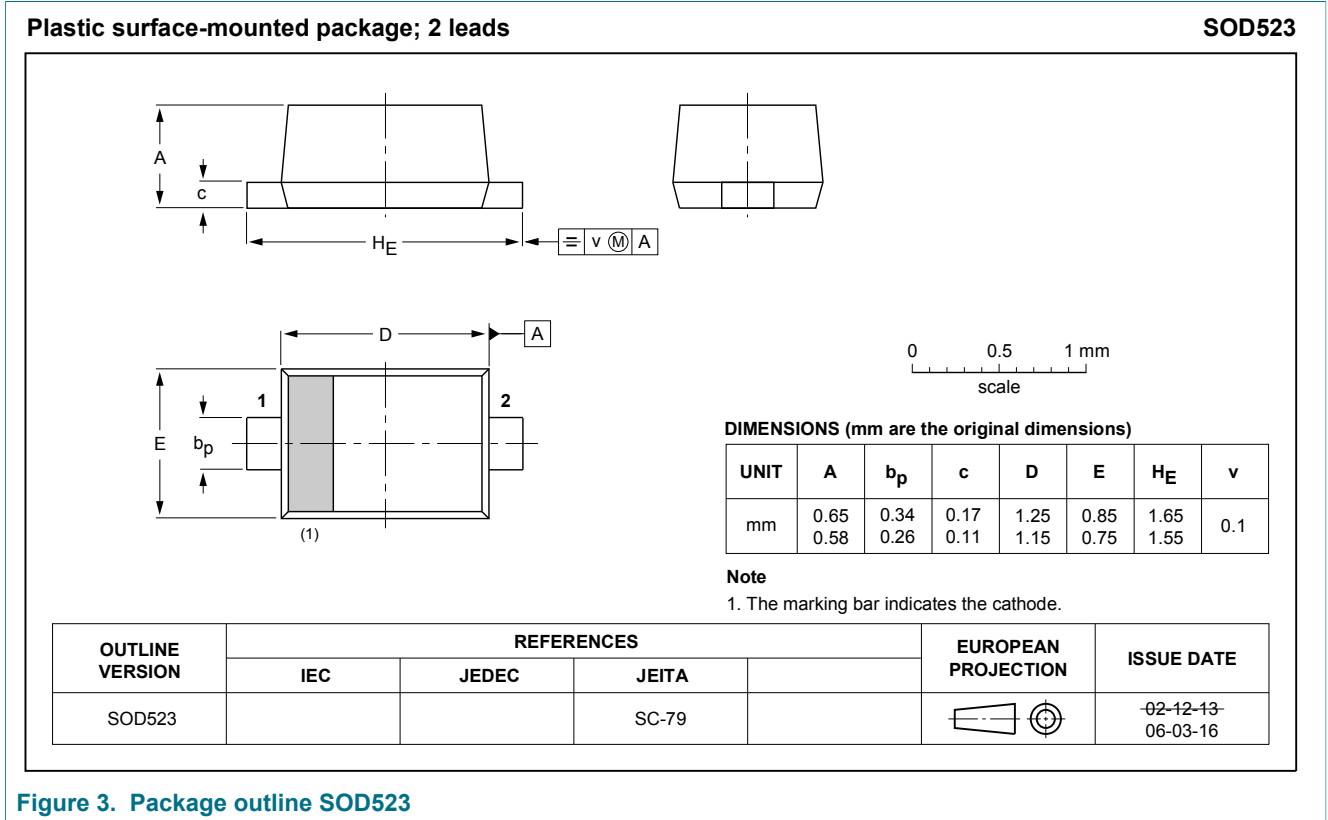


Figure 3. Package outline SOD523

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"> • Section 1.2 "Features and benefits" has been updated. • The "Legal information" pages have been updated. 			
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 ^{[1][2]}	Product status ^[3]	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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