



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

6. Thermal characteristics

Table 5. Thermal characteristics

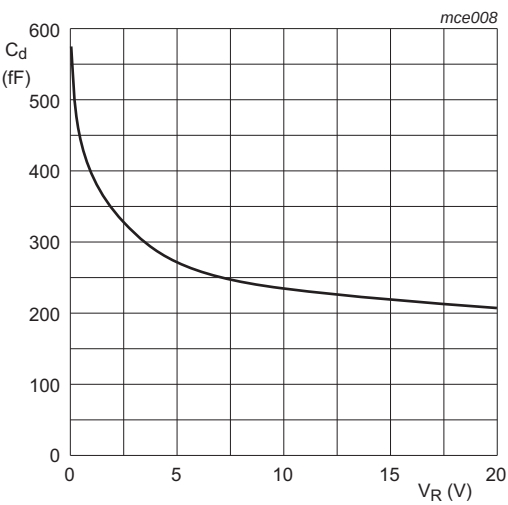
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		145	K/W

7. Characteristics

Table 6. Characteristics

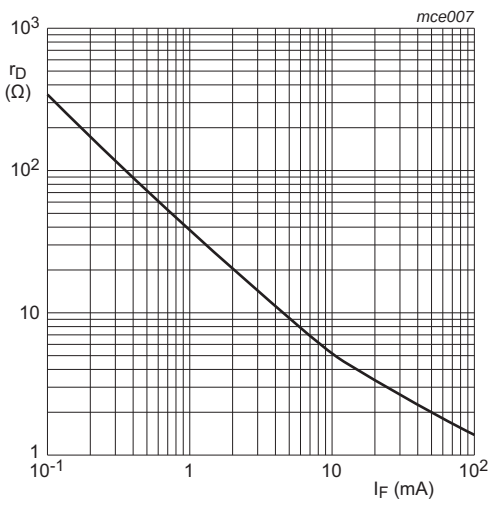
$T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

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 Figure 1 ; $f = 1\text{ MHz}$;				
		$V_R = 0\text{ V}$	-	570	-	fF
		$V_R = 1\text{ V}$	-	400	-	fF
		$V_R = 5\text{ V}$	-	270	-	fF
		$V_R = 20\text{ V}$	-	200	250	fF
r_D	diode forward resistance	see Figure 2 ; $f = 100\text{ MHz}$;				
		$I_F = 0.5\text{ mA}$	-	77	100	Ω
		$I_F = 1\text{ mA}$	-	40	50	Ω
		$I_F = 10\text{ mA}$	-	5.4	7	Ω
		$I_F = 100\text{ mA}$	-	1.4	1.9	Ω
τ_L	charge carrier life time	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	-	μs
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

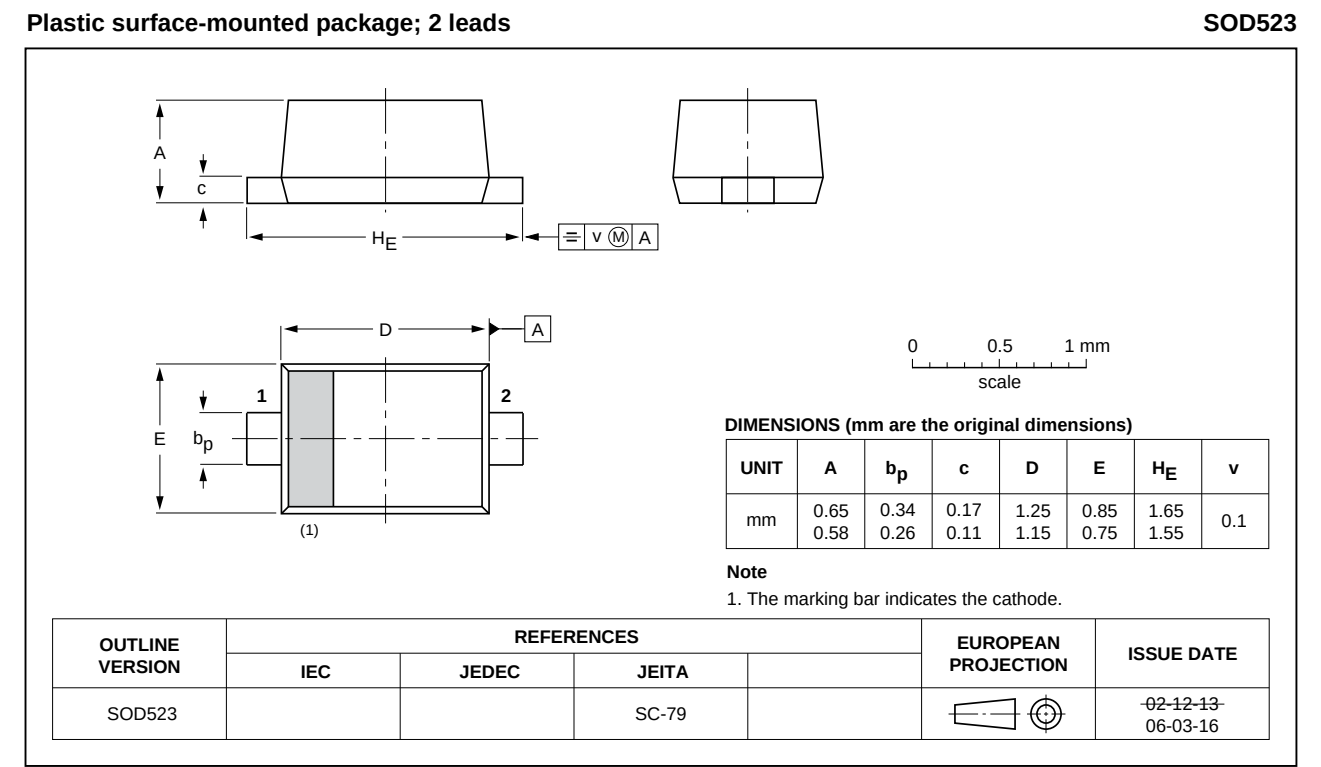


Fig 3. Package outline SOD523

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 ^{[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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13. Contents

1	Product profile	1
1.1	General description	1
1.2	Features and benefits	1
1.3	Applications	1
2	Pinning information	1
3	Ordering information	1
4	Marking	1
5	Limiting values	2
6	Thermal characteristics	2
7	Characteristics	2
8	Package outline	4
9	Abbreviations	4
10	Revision history	5
11	Legal information	6
11.1	Data sheet status	6
11.2	Definitions	6
11.3	Disclaimers	6
11.4	Trademarks	7
12	Contact information	7
13	Contents	8

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