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BAP70-03

Silicon PIN diode

Rev. 6 — 7 March 2014

Product data sheet

1. Product profile

1.1 General description

Planar PIN diode in a SOD323 (SC-76) 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	Graphic symbol
1	cathode		 <i>sym006</i>
2	anode		

3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP70-03	-	plastic surface-mounted package; 2 leads	SOD323

4. Marking

Table 3. Marking

Type number	Marking code
BAP70-03	A9



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	$T_{sp} = 90\text{ °C}$	-	500	mW
T_{stg}	storage temperature		-65	+150	°C
T_j	junction temperature		-65	+150	°C

6. Thermal characteristics

Table 5. Thermal characteristics

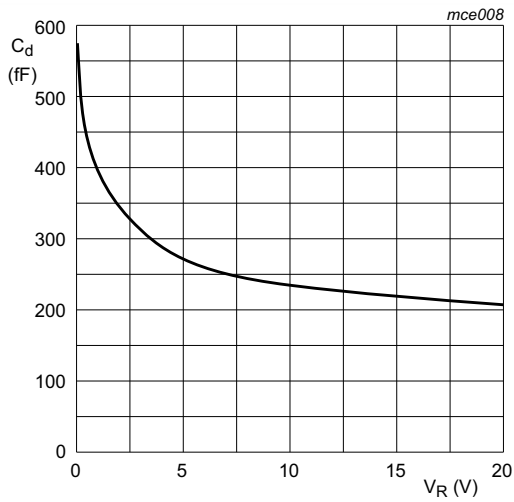
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		120	K/W

7. Characteristics

Table 6. Characteristics

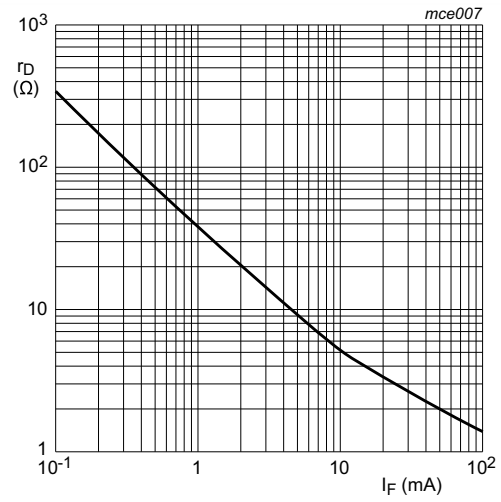
$T_{amb} = 25\text{ °C}$ unless otherwise specified.

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 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
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
τ_L	charge carrier life time	$I_F = 100\text{ mA}$	-	1.4	1.9	Ω
		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	$I_F = 100\text{ mA}$; $f = 100\text{ MHz}$	-	1.5	-	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

SOD323

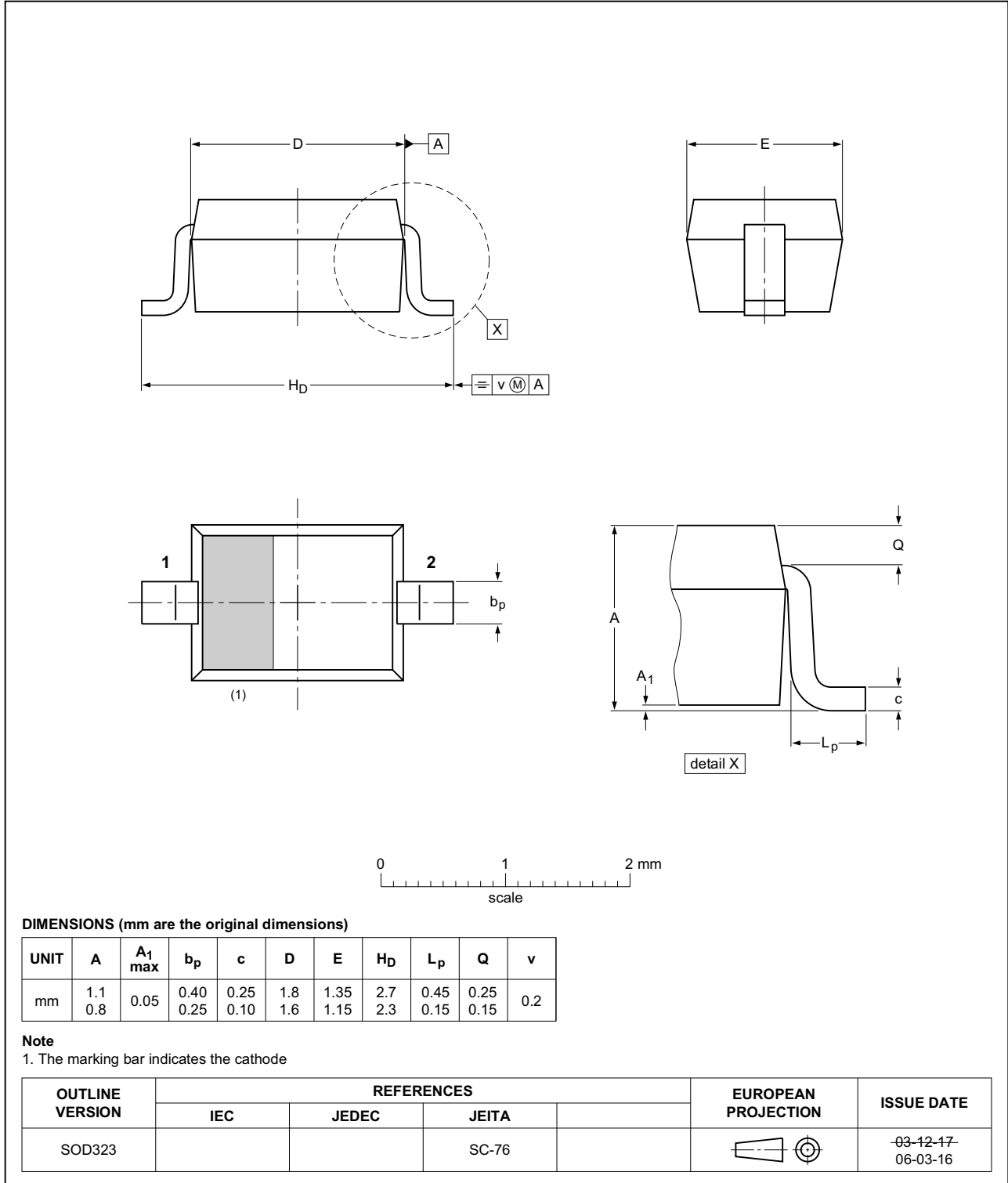


Fig 3. Package outline SOD323

9. Abbreviations

Table 7. Abbreviations

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

10. Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-03 v.6	20140307	Product data sheet	-	BAP70-03_N v.5
Modifications:	<ul style="list-style-type: none"> The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. Legal texts have been adapted to the new company name where appropriate. 			
BAP70-03_N v.5	20070327	Product data sheet	-	BAP70-03 v.4
BAP70-03 v.4 (9397 750 12636)	20040210	Product data sheet	-	BAP70-03 v.3
BAP70-03 v.3 (9397 750 10094)	20020806	Product data sheet	-	BAP70-03_N v.2
BAP70-03_N v.2 (9397 750 10081)	20020702	Preliminary data sheet	-	BAP70-03_N v.1
BAP70-03_N v.1 (9397 750 09579)	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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