



# BAP70-05

Silicon PIN diode

Rev. 5 — 7 March 2014

Product data sheet

## 1. Product profile

### 1.1 General description

Two planar PIN diodes in common cathode configuration in a SOT23 small SMD plastic package.

### 1.2 Features and benefits

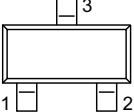
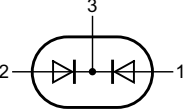
- High voltage; current controlled
- Low diode capacitance
- Low series inductance

### 1.3 Applications

- RF attenuators and switches

## 2. Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	anode (a1)		 <i>sym027</i>
2	anode (a2)		
3	common cathode		

## 3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP70-05	-	plastic surface-mounted package; 3 leads	SOT23

## 4. Marking

Table 3. Marking

Type number	Marking code
BAP70-05	8Kp



## 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	$T_{sp} = 90\text{ °C}$	-	250	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-65	+150	°C

## 6. Thermal characteristics

**Table 5. Thermal characteristics**

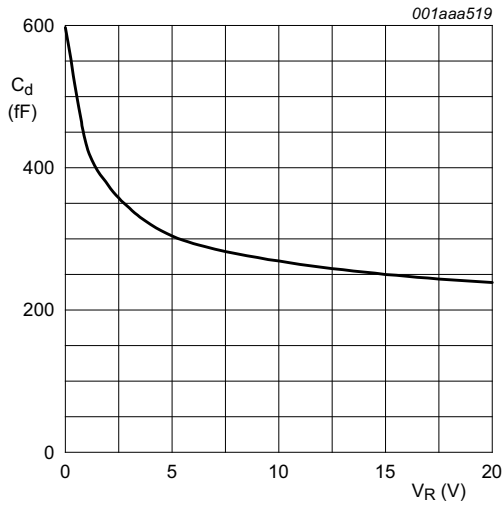
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		220	K/W

## 7. Characteristics

**Table 6. Characteristics**

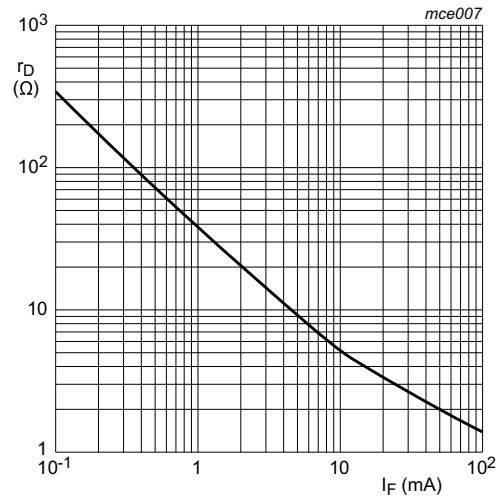
$T_{amb} = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 50\text{ mA}$	-	0.95	1.1	V
$I_R$	reverse current	$V_R = 50\text{ V}$	-	-	100	nA
$C_d$	diode capacitance	see <a href="#">Figure 1</a> ; $f = 1\text{ MHz}$ ;				
		$V_R = 0\text{ V}$	-	600	-	fF
		$V_R = 1\text{ V}$	-	430	-	fF
		$V_R = 20\text{ V}$	-	250	300	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	$I_F = 10\text{ mA}$ to	-	1.25	-	$\mu\text{s}$
		$I_R = 6\text{ mA}$ ; $R_L = 100\ \Omega$ ; measured at $I_R = 3\text{ mA}$				
$L_S$	series inductance	$I_F = 100\text{ mA}$ ; $f = 100\text{ MHz}$	-	1.4	-	nH



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

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



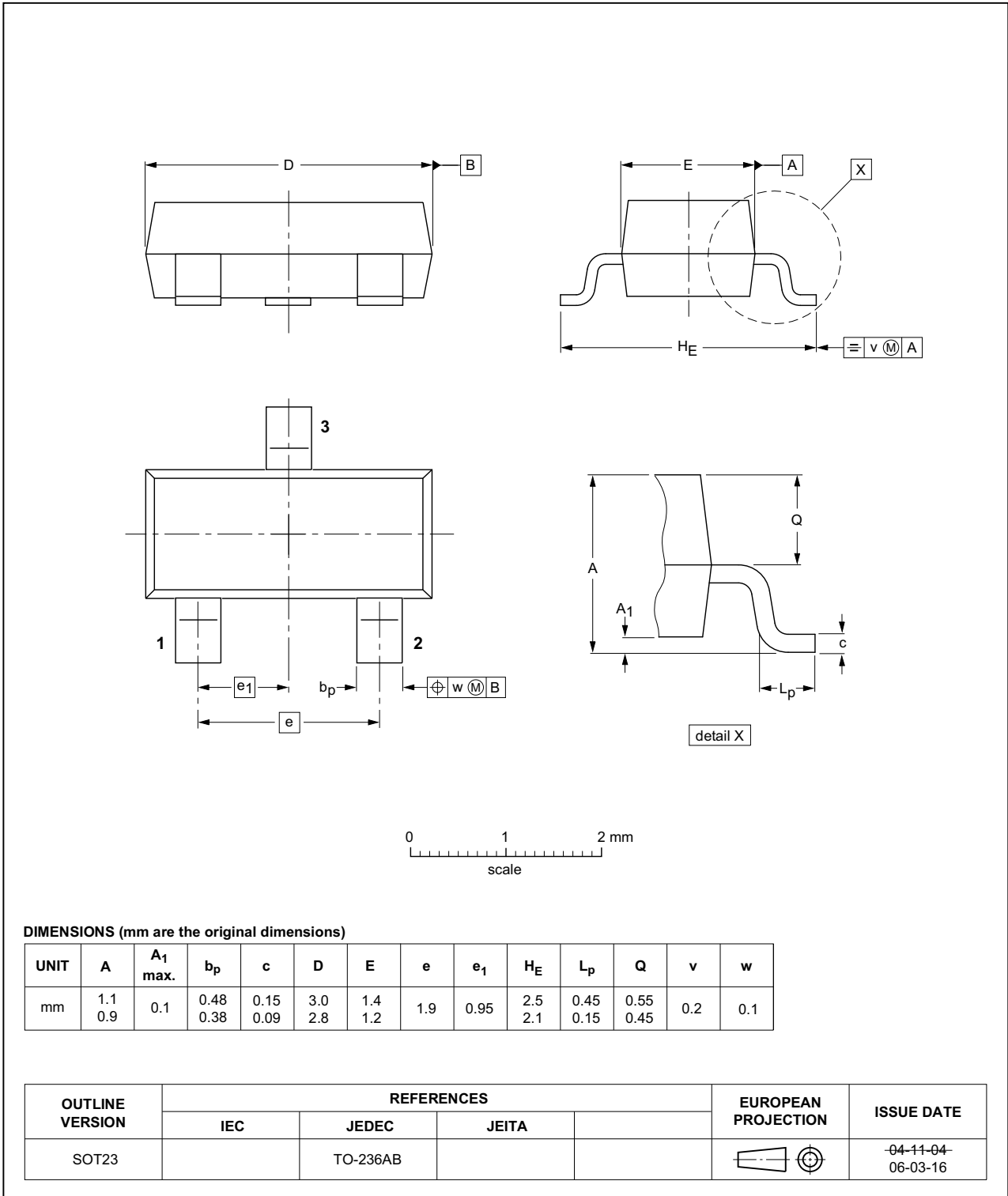
$f = 100 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

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

**8. Package outline**

Plastic surface-mounted package; 3 leads

SOT23



**Fig 3. Package outline SOT23**

## 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
BAP70-05 v.5	20140307	Product data sheet		BAP70-05 v.4
Modifications:	• Rollback to previous version			
BAP70-05 v.4	20140127	Product data sheet	-	BAP70-05 v.3
BAP70-05 v.3	20070405	Product data sheet	-	BAP70-05 v.2
BAP70-05 v.2	20061221	Product data sheet	-	BAP70-05 v.1
BAP70-05 v.1 (9397 750 12811)	20040405	Product data sheet	-	-

## 11. Legal information

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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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