



# BAP70-02

Silicon PIN diode

Rev. 05 — 2 January 2008

Product data sheet

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NXP Semiconductors

# Silicon PIN diode

# BAP70-02

### FEATURES

- High voltage, current controlled RF resistor for attenuators
- Low diode capacitance
- Very low series inductance.

### APPLICATIONS

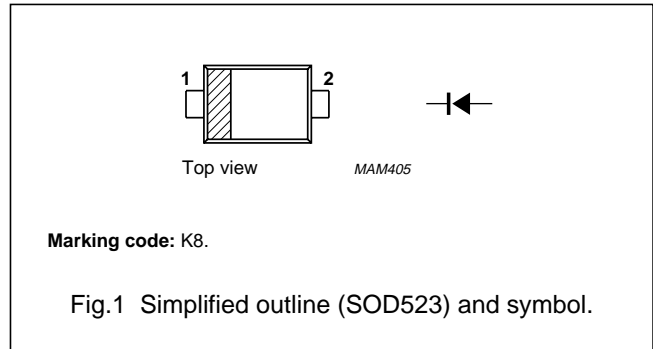
- RF attenuators
- (SAT)TV
- Car radio.

### DESCRIPTION

Planar PIN diode in a SOD523 ultra small SMD plastic package.

### PINNING

PIN	DESCRIPTION
1	cathode
2	anode



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	50	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s = 90\text{ °C}$	–	415	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–65	+150	°C

### ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 50\text{ mA}$	0.9	1.1	V
$I_R$	reverse leakage current	$V_R = 50\text{ V}$	–	100	nA
$C_d$	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}$	570	–	fF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	400	–	fF
		$V_R = 5\text{ V}; f = 1\text{ MHz}$	270	–	fF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	200	250	fF
$r_D$	diode forward resistance	$I_F = 0.5\text{ mA}; f = 100\text{ MHz}$	77	100	$\Omega$
		$I_F = 1\text{ mA}; f = 100\text{ MHz}$	40	50	$\Omega$
		$I_F = 10\text{ mA}; f = 100\text{ MHz}$	5.4	7	$\Omega$
		$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.4	1.9	$\Omega$
$\tau_L$	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	–	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100\text{ mA}; f = 100\text{ MHz}$	0.6	–	nH

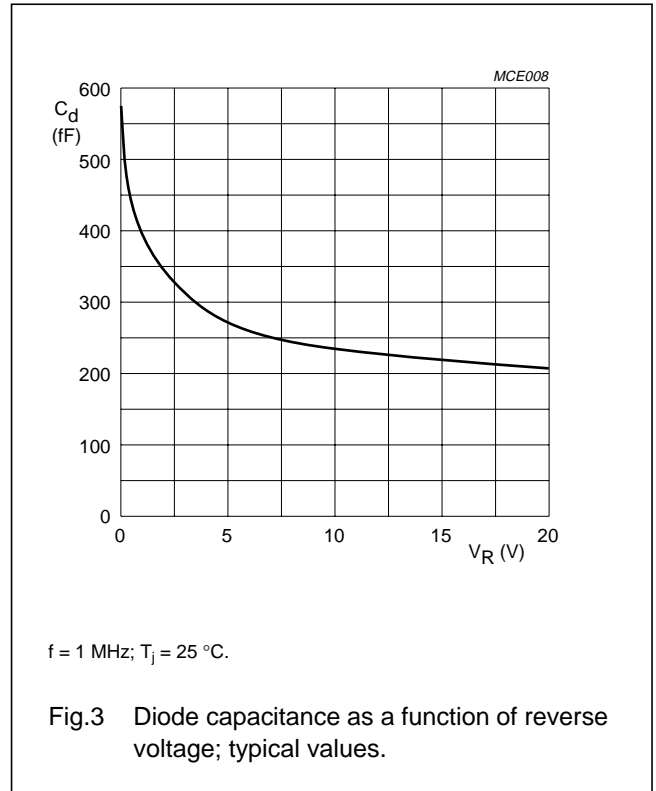
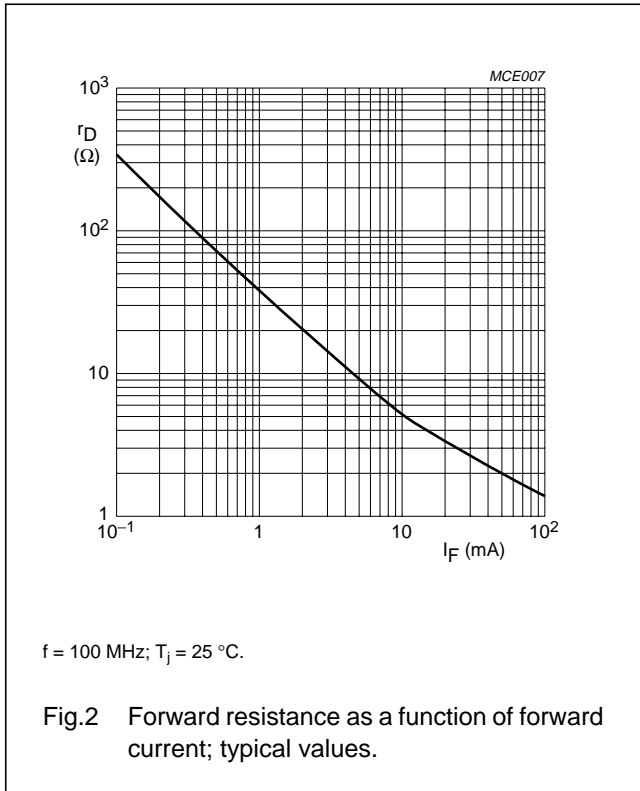
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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	145	K/W

GRAPHICAL DATA



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PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD523

**DIMENSIONS (mm are the original dimensions)**

UNIT	A	bp	c	D	E	HE	v
mm	0.65 0.58	0.34 0.26	0.17 0.11	1.25 1.15	0.85 0.75	1.65 1.55	0.1

**Note**  
1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD523			SC-79			02-12-13 06-03-16

## Legal information

### 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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## Revision history

### Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-02_N_5	20080102	Product data sheet	-	BAP70-02_N_4
Modifications:	• Package outline drawing on page 4 changed			
BAP70-02_N_4	20070322	Product data sheet	-	BAP70-02_3
BAP70-02_3 (9397 750 10093)	20020806	Product specification	-	BAP70-02_N_2
BAP70-02_N_2 (9397 750 10079)	20020702	Preliminary specification	-	BAP70-02_N_1
BAP70-02_N_1 (9397 750 09578)	20020402	Preliminary specification	-	-



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