**Product data sheet** 

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**NXP Semiconductors** 



NXP Semiconductors Product specification

# **General purpose PIN diode**

**BAP50-02** 

### **FEATURES**

- Low diode capacitance
- Low diode forward resistance.

### **APPLICATIONS**

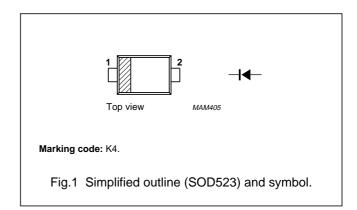
· General RF applications.

### **DESCRIPTION**

General purpose PIN diode in a SOD523 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 <sub>F</sub>	continuous forward current		_	50	mA
P <sub>tot</sub>	total power dissipation	T <sub>s</sub> = 90 °C	_	715	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
Tj	junction temperature		-65	+150	°C

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### **ELECTRICAL CHARACTERISTICS**

 $T_i = 25$  °C unless otherwise specified.

SYMBOL	YMBOL PARAMETER CONDITIONS		MIN.	TYP.	MAX.	UNIT
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 50 mA	_	0.95	1.1	V
V <sub>R</sub>	reverse voltage	I <sub>R</sub> = 10 μA	50	_	_	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 50 V	_	_	100	nA
C <sub>d</sub>	diode capacitance	ode capacitance $V_R = 0$ ; $f = 1 \text{ MHz}$		0.4	_	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	_	0.3	0.55	pF
		V <sub>R</sub> = 5 V; f = 1 MHz	_	0.22	0.35	pF
r <sub>D</sub>	diode forward resistance	I <sub>F</sub> = 0.5 mA; f = 100 MHz; note 1	_	25	40	Ω
		I <sub>F</sub> = 1 mA; f = 100 MHz; note 1	_	14	25	Ω
		I <sub>F</sub> = 10 mA; f = 100 MHz; note 1	_	3	5	Ω
S <sub>21</sub>   <sup>2</sup>	isolation	V <sub>R</sub> = 0; f = 900 MHz	_	20.4	_	dB
		V <sub>R</sub> = 0; f = 1800 MHz	_	17.3	_	dB
		V <sub>R</sub> = 0; f = 2450 MHz	_	15.5	_	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 0.5 mA; f = 900 MHz	_	1.74	_	dB
		I <sub>F</sub> = 0.5 mA; f = 1800 MHz	_	1.79	_	dB
		I <sub>F</sub> = 0.5 mA; f = 2450 MHz	_	1.88	_	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	_	1.03	_	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	_	1.09	_	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	_	1.15	_	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	_	0.26	_	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	_	0.32	_	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	_	0.34	_	dB
$\tau_{L}$	charge carrier life time	when switched from $I_F$ = 10 mA to $I_R$ = 6 mA; $R_L$ = 100 $\Omega$ ; measured at $I_R$ = 3 mA	_	1.05	_	μs
L <sub>S</sub>	series inductance	I <sub>F</sub> = 100 mA; f = 100 MHz	_	0.6	_	nH

### Note

1. Guaranteed on AQL basis: inspection level S4, AQL 1.0.

# THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point		K/W

# General purpose PIN diode

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### **GRAPHICAL DATA**

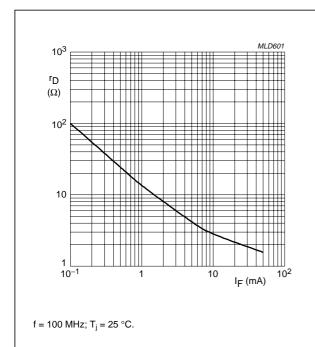
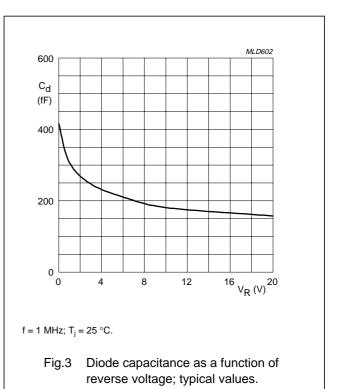
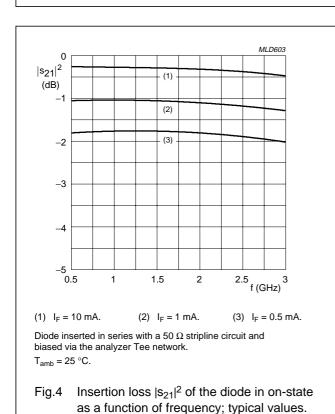
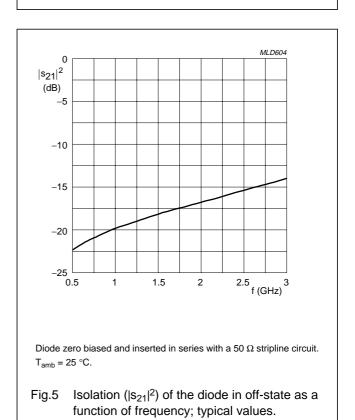


Fig.2 Forward resistance as a function of forward current; typical values.







**NXP Semiconductors** Product specification

# General purpose PIN diode

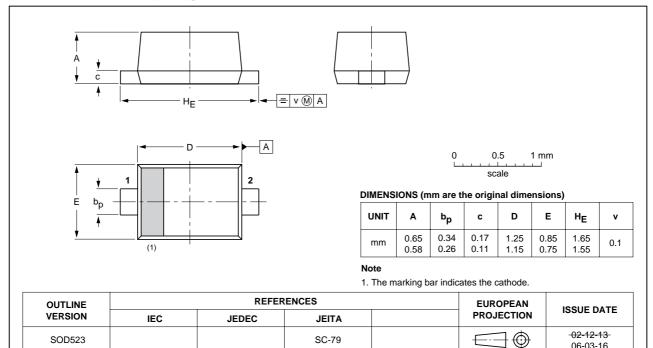
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### **PACKAGE OUTLINE**



**SOD523** 

06-03-16



NXP Semiconductors BAP50-02

### General purpose PIN diode

# Legal information

### **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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NXP Semiconductors BAP50-02

# **General purpose PIN diode**

# **Revision history**

### **Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes	
BAP50-02_N_2	20080103	Product data sheet	-	BAP50-02_1	
Modifications:   • Package outline drawing on page 5 changed					
BAP50-02_1 (9397 750 08113)	20010417	Product specification	-	-	

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