



# BAP51-02

General purpose PIN diode

Rev. 03 — 2 January 2008

Product data sheet

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NXP Semiconductors

# General purpose PIN diode

# BAP51-02

## FEATURES

- Low diode capacitance
- Low diode forward resistance.

## APPLICATIONS

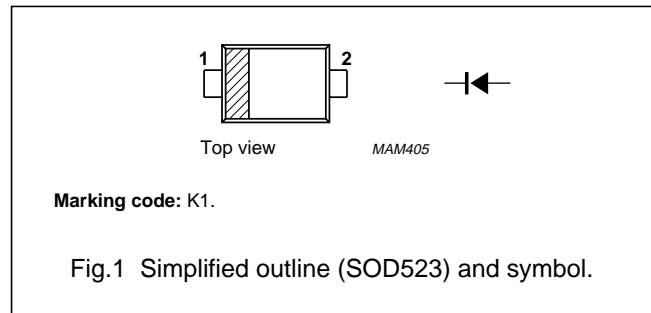
- General RF applications.

## DESCRIPTION

General purpose 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 |                      | –    | 60   | V    |
| $I_F$     | continuous forward current |                      | –    | 50   | mA   |
| $P_{tot}$ | total power dissipation    | $T_s = 90\text{ °C}$ | –    | 715  | 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                                               | MIN. | TYP. | MAX. | UNIT     |
|--------|--------------------------|----------------------------------------------------------|------|------|------|----------|
| $V_F$  | forward voltage          | $I_F = 50\text{ mA}$                                     | –    | 0.95 | 1.1  | V        |
| $V_R$  | reverse voltage          | $I_R = 10\text{ }\mu\text{A}$                            | 50   | –    | –    | V        |
| $I_R$  | reverse current          | $V_R = 50\text{ V}$                                      | –    | –    | 100  | nA       |
| $C_d$  | diode capacitance        | $V_R = 0; f = 1\text{ MHz}$                              | –    | 0.4  | –    | pF       |
|        |                          | $V_R = 1\text{ V}; f = 1\text{ MHz}$                     | –    | 0.3  | 0.55 | pF       |
|        |                          | $V_R = 5\text{ V}; f = 1\text{ MHz}$                     | –    | 0.2  | 0.35 | pF       |
| $r_D$  | diode forward resistance | $I_F = 0.5\text{ mA}; f = 100\text{ MHz}; \text{note 1}$ | –    | 5.5  | 9    | $\Omega$ |
|        |                          | $I_F = 1\text{ mA}; f = 100\text{ MHz}; \text{note 1}$   | –    | 3.6  | 6.5  | $\Omega$ |
|        |                          | $I_F = 10\text{ mA}; f = 100\text{ MHz}; \text{note 1}$  | –    | 1.5  | 2.5  | $\Omega$ |

### Note

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

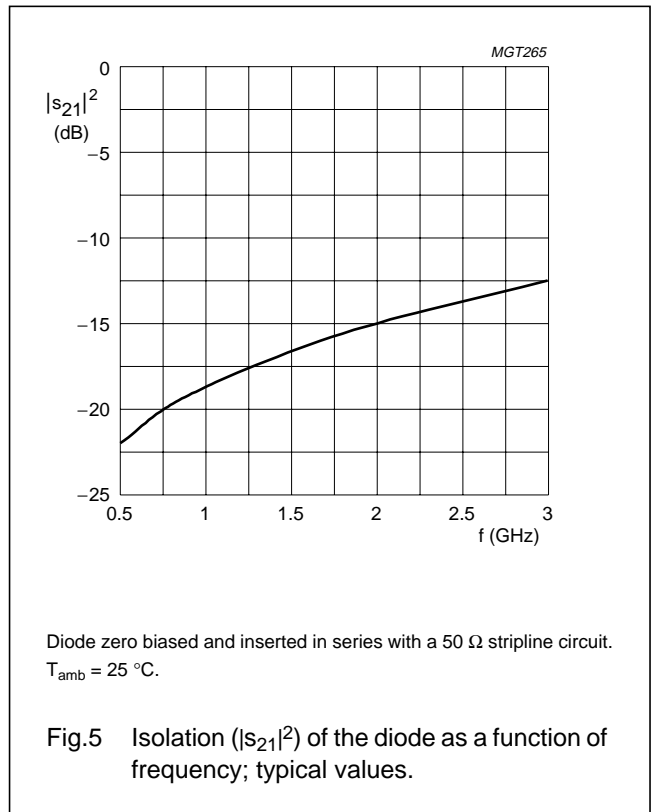
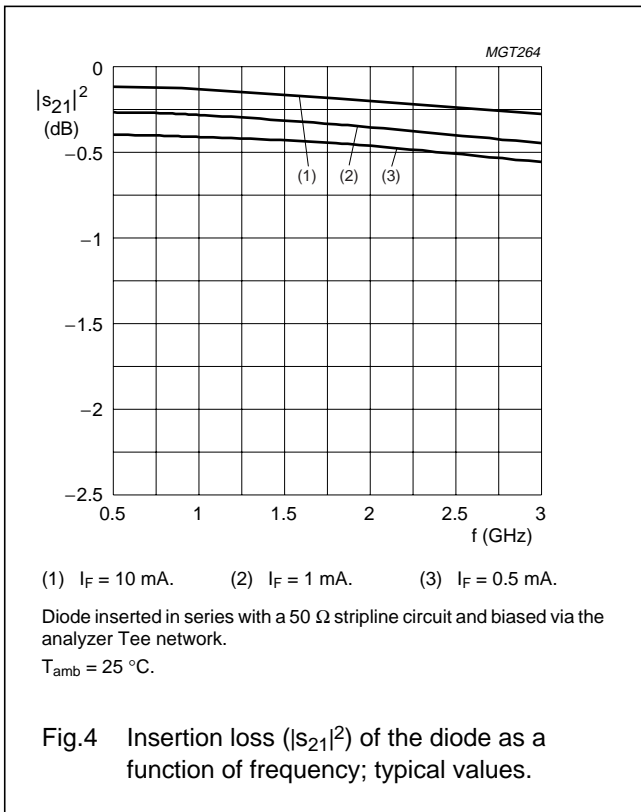
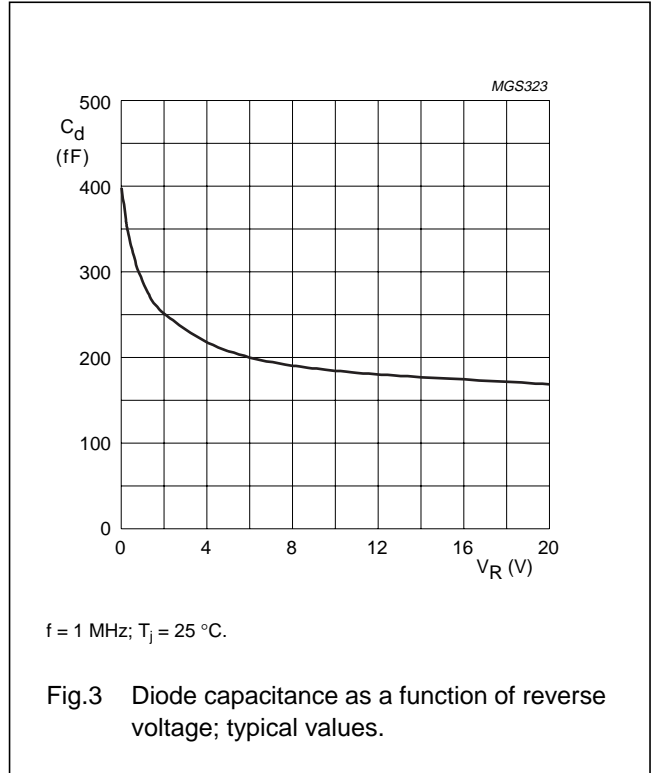
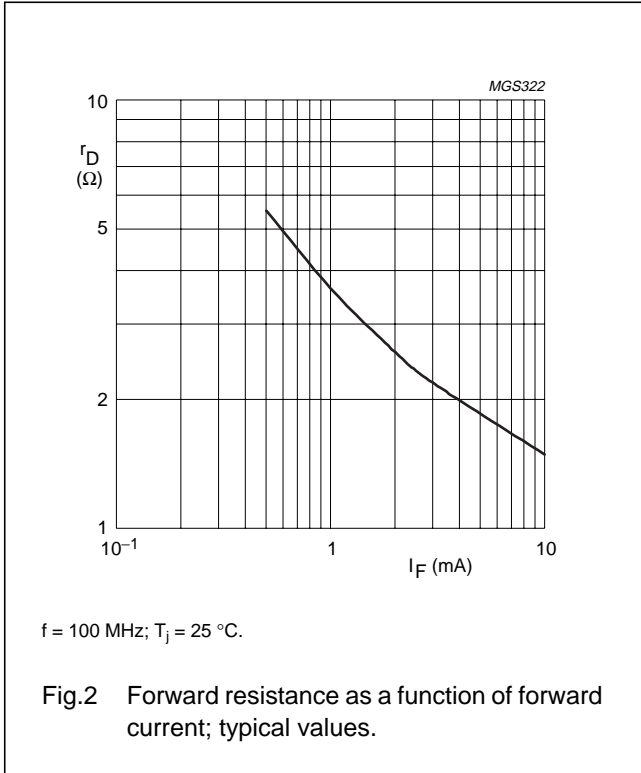
## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                           | VALUE | UNIT |
|---------------|-----------------------------------------------------|-------|------|
| $R_{th\ j-s}$ | thermal resistance from junction to soldering point | 85    | K/W  |

General purpose PIN diode

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GRAPHICAL DATA



General purpose PIN diode

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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 | 0.34 | 0.17 | 1.25 | 0.85 | 1.65 | 0.1 |
|      | 0.58 | 0.26 | 0.11 | 1.15 | 0.75 | 1.55 |     |

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

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

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### 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   |
|----------------------------------|---------------------------------------------|---------------------------|---------------|--------------|
| BAP51-02_N_3                     | 20080102                                    | Product data sheet        | -             | BAP51-02_2   |
| Modifications:                   | • Package outline drawing on page 4 changed |                           |               |              |
| BAP51-02_2<br>(9397 750 07151)   | 20000706                                    | Product specification     | -             | BAP51-02_N_1 |
| BAP51-02_N_1<br>(9397 750 06152) | 19990628                                    | Preliminary specification | -             | -            |

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