



BAP50-05

Silicon PIN diode

Rev. 3.1 — 8 February 2019

Product data sheet

1 Product profile

1.1 General description

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

1.2 Features and benefits

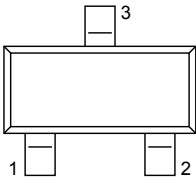
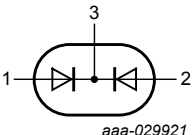
- Two elements in common cathode configuration in a small-sized plastic SMD package
- Low diode capacitance
- Low diode forward resistance

1.3 Applications

- General RF application

2 Pinning information

Table 1. Discrete pinning

| Pin | Description | Simplified outline | Graphic symbol |
|-----|----------------|--|---|
| 1 | anode |  <p>Top view</p> |  <p>aaa-029921</p> |
| 2 | anode | | |
| 3 | common cathode | | |



3 Ordering information

Table 2. Ordering information

| Type number | Package | | |
|-------------|---------|--|---------|
| | Name | Description | Version |
| BAP50-05 | - | plastic surface-mounted package; 3 leads | SOT023 |

4 Marking

Table 3. Marking code

| Type number | Marking code |
|-------------|--------------|
| BAP50-05 | 1C% |

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 | continuous reverse voltage | | - | 50 | V |
| I_F | continuous forward current | | - | 50 | mA |
| P_{tot} | total power dissipation | $T_{sp} \leq 90\text{ °C}$ | - | 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

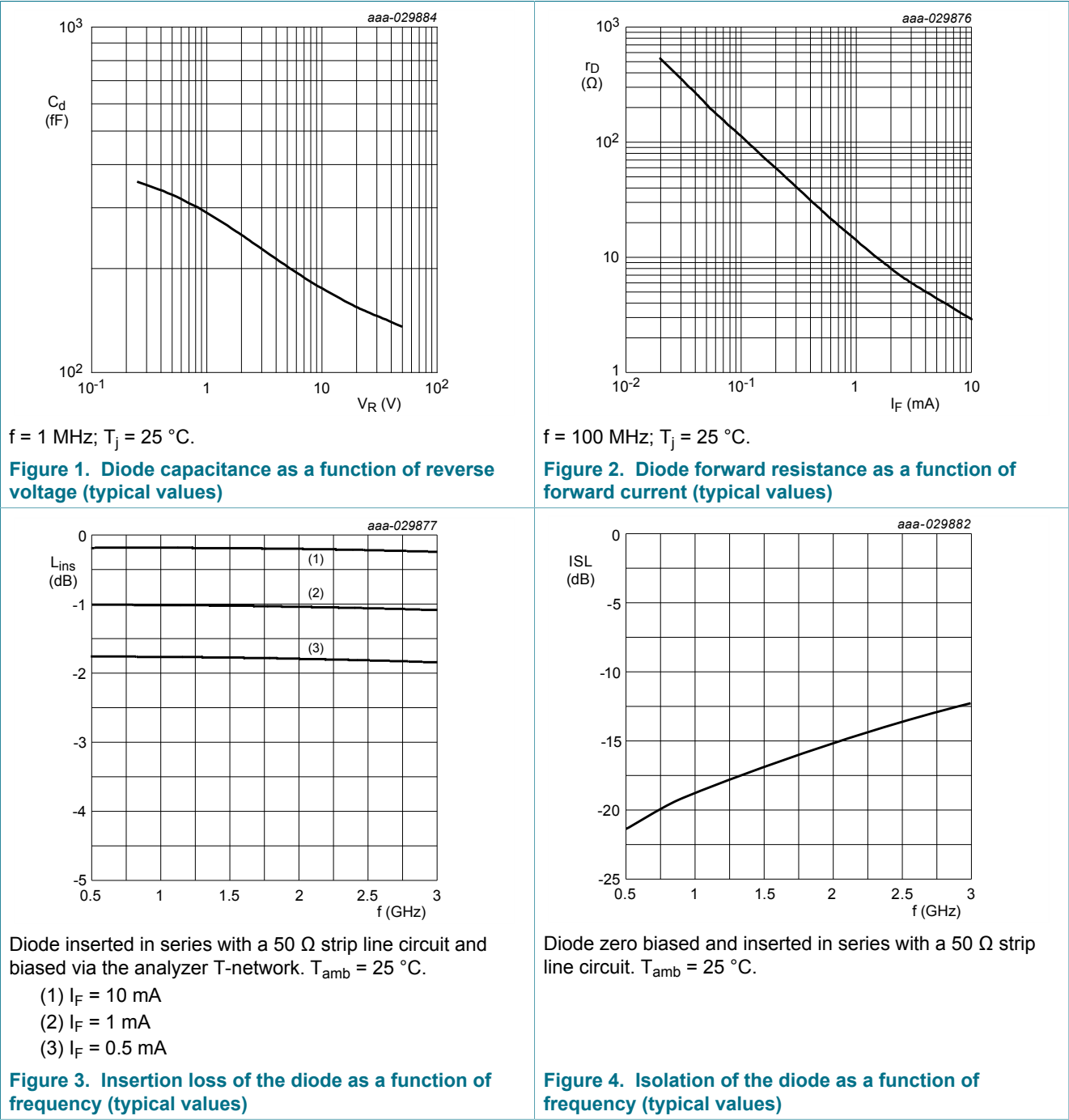
Table 6. Characteristics

$T_j = 25\text{ °C}$ 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 | $f = 1\text{ MHz}$ (see Figure 1) | | | | | |
| | | $V_R = 0\text{ V}$ | | - | 0.45 | - | pF |
| | | $V_R = 1\text{ V}$ | | - | 0.35 | 0.6 | pF |
| | | $V_R = 5\text{ V}$ | | - | 0.3 | 0.5 | pF |
| r_D | diode forward resistance | $f = 100\text{ MHz}$ (see Figure 2) | | | | | |
| | | $I_F = 0.5\text{ mA}$ | [1] | - | 25 | 40 | Ω |
| | | $I_F = 1\text{ mA}$ | [1] | - | 14 | 25 | Ω |
| | | $I_F = 10\text{ mA}$ | [1] | - | 3 | 5 | Ω |

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

8 Graphical data



9 Package outline

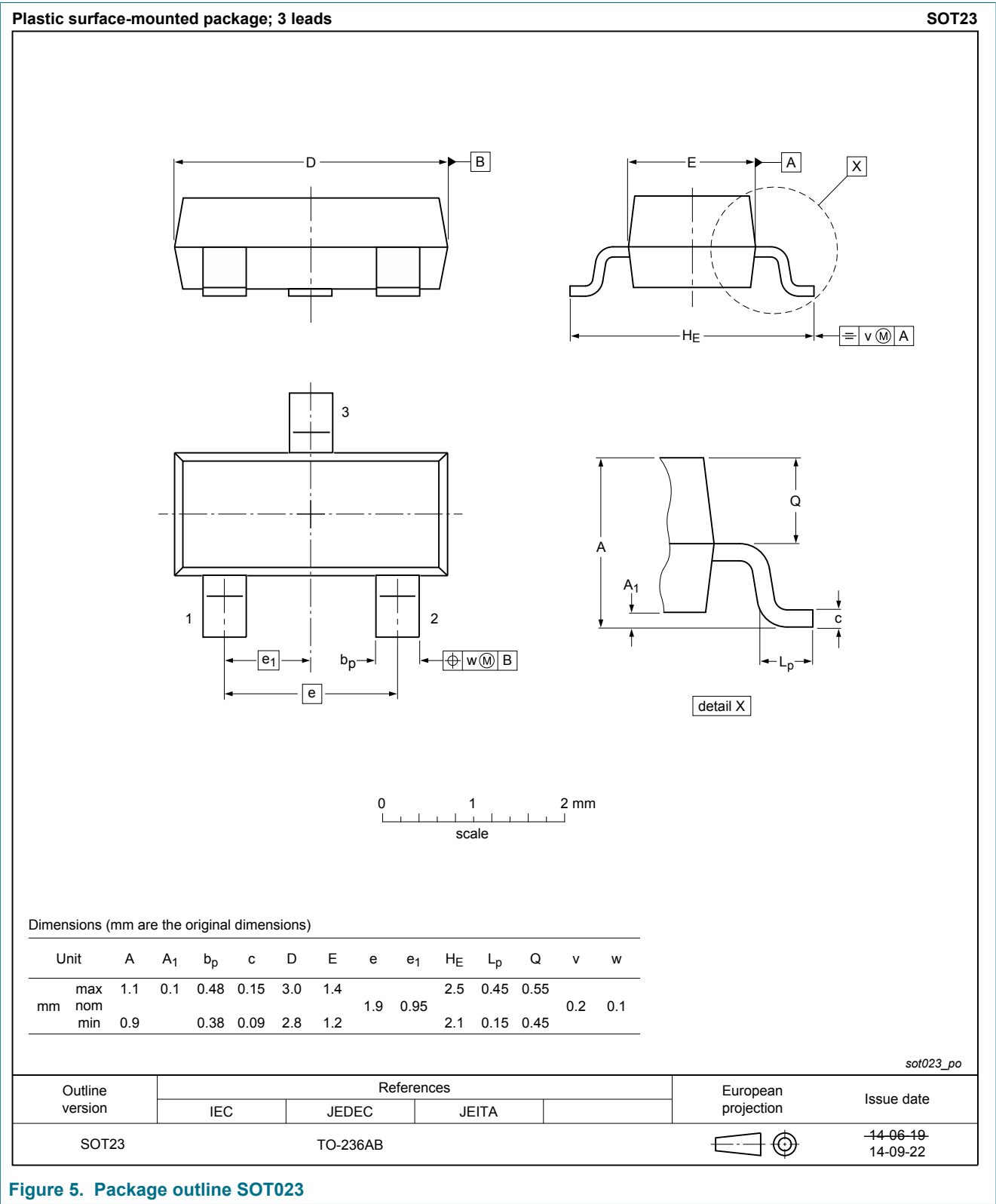


Figure 5. Package outline SOT023

10 Abbreviations

Table 7. Abbreviations

| Acronym | Description |
|---------|----------------------------|
| AQL | acceptable quality level |
| PIN | P-type, intrinsic, N-type |
| RF | radio frequency |
| S4 | special inspection level 4 |
| SMD | surface-mounted device |

11 Revision history

Table 8. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|----------------|---|--------------------|---------------|----------------|
| BAP50-05 v.3.1 | 20190208 | Product data sheet | - | BAP50-05 v.3 |
| Modifications: | • aligned the title of the data sheet with the description on the Internet | | | |
| BAP50-05 v.3 | 20181126 | Product data sheet | - | BAP50-05 v.2.1 |
| Modifications: | • Section 1.2 "Features and benefits" has been updated. • The "Legal information" pages have been updated. | | | |
| BAP50-05 v.2.1 | 19990510 | Product data sheet | - | BAP50-05 v.1 |

12 Legal information

12.1 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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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Date of release: 8 February 2019
Document identifier: BAP50-05