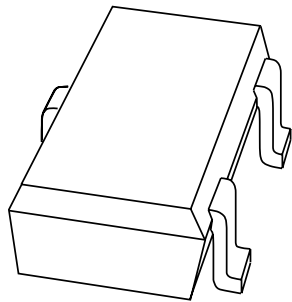


DATA SHEET



BAP50-04W General purpose PIN diode

Product specification

2001 Jan 29

General purpose PIN diode

BAP50-04W

FEATURES

- Two elements in series configuration in a small SMD plastic package
- Low diode capacitance
- Low diode forward resistance.

APPLICATIONS

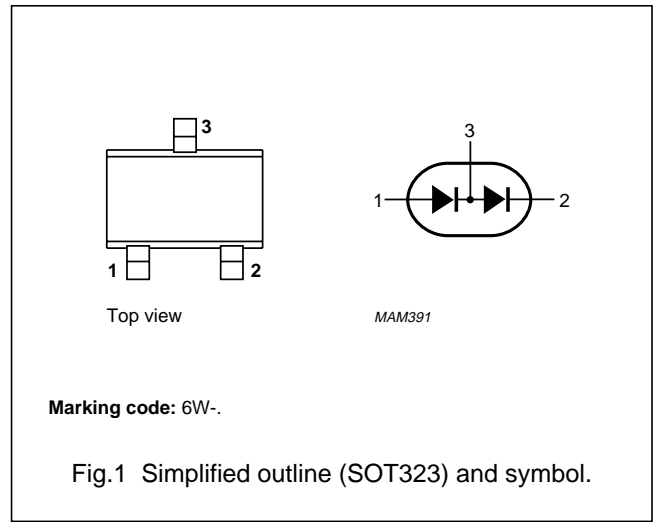
- General RF applications.

DESCRIPTION

Two planar PIN diodes in series configuration in an SOT323 small SMD plastic package.

PINNING

| PIN | DESCRIPTION |
|-----|-------------------|
| 1 | anode |
| 2 | cathode |
| 3 | common connection |



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|----------------------------|----------------------|------|------|------|
| Per diode | | | | | |
| V_R | continuous reverse voltage | | – | 50 | V |
| I_F | continuous forward current | | – | 50 | mA |
| P_{tot} | total power dissipation | $T_s = 90\text{ °C}$ | – | 240 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | –65 | +150 | °C |

General purpose PIN diode

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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------|------|------|------|---------------|
| Per diode | | | | | | |
| 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 | $V_R = 0$; $f = 1\text{ MHz}$ | – | 0.45 | – | pF |
| | | $V_R = 1\text{ V}$; $f = 1\text{ MHz}$ | – | 0.35 | 0.6 | pF |
| | | $V_R = 5\text{ V}$; $f = 1\text{ MHz}$ | – | 0.30 | 0.5 | pF |
| r_D | diode forward resistance | $I_F = 0.5\text{ mA}$; $f = 100\text{ MHz}$; note 1 | – | 25 | 40 | Ω |
| | | $I_F = 1\text{ mA}$; $f = 100\text{ MHz}$; note 1 | – | 14 | 25 | Ω |
| | | $I_F = 10\text{ mA}$; $f = 100\text{ MHz}$; note 1 | – | 3 | 5 | Ω |
| τ_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 $I_R = 3\text{ mA}$ | – | 1.05 | – | μs |
| L_S | series inductance | $I_F = 10\text{ mA}$; $f = 100\text{ MHz}$ | – | 1.60 | – | nH |

Note

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

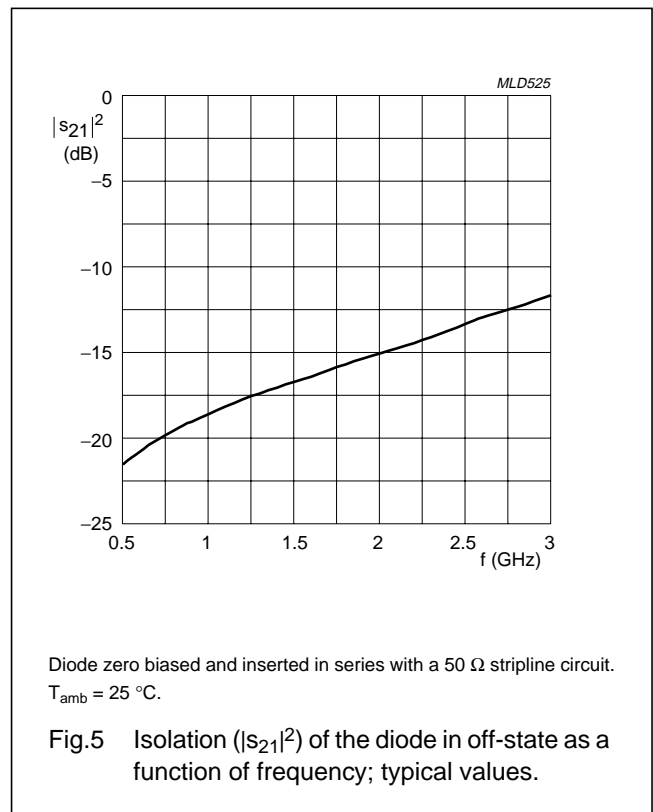
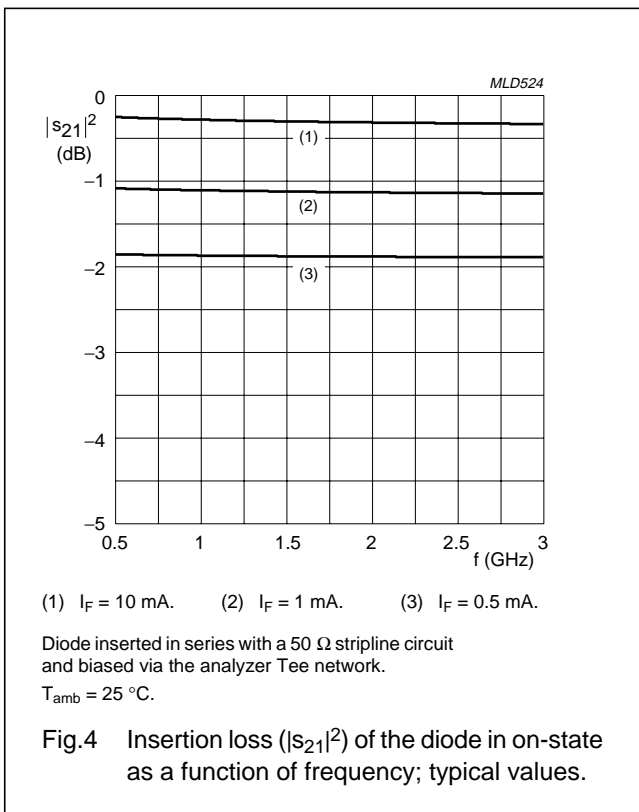
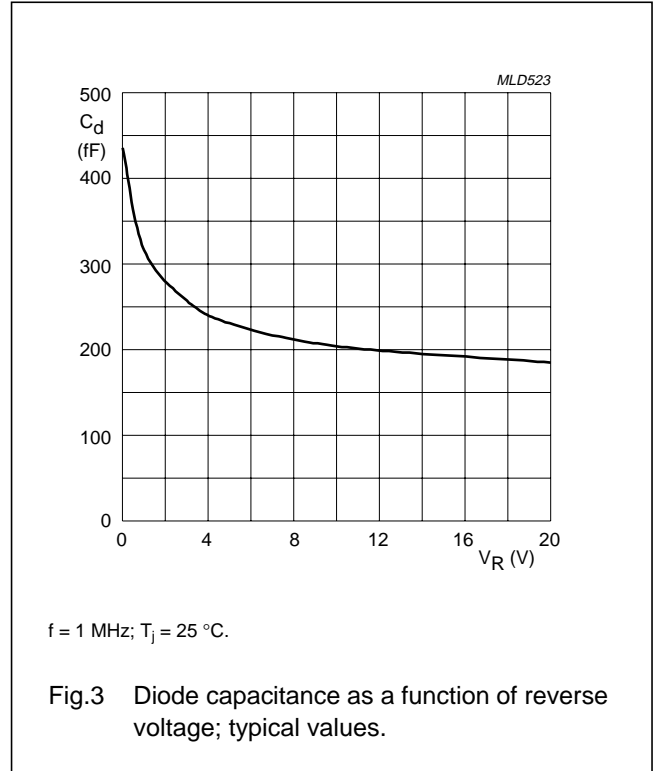
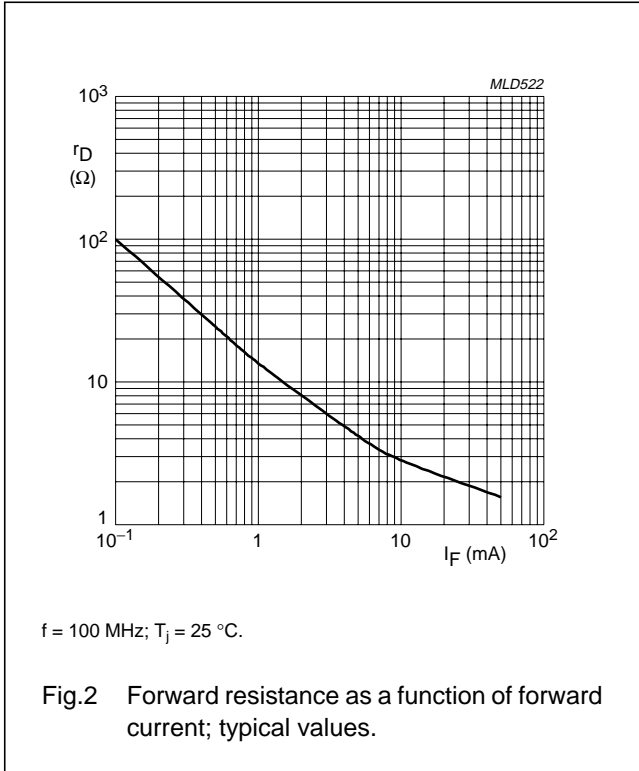
THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|-----------------------------------------------------|-------|------|
| $R_{th\ j-s}$ | thermal resistance from junction to soldering point | 250 | K/W |

General purpose PIN diode

BAP50-04W

GRAPHICAL DATA



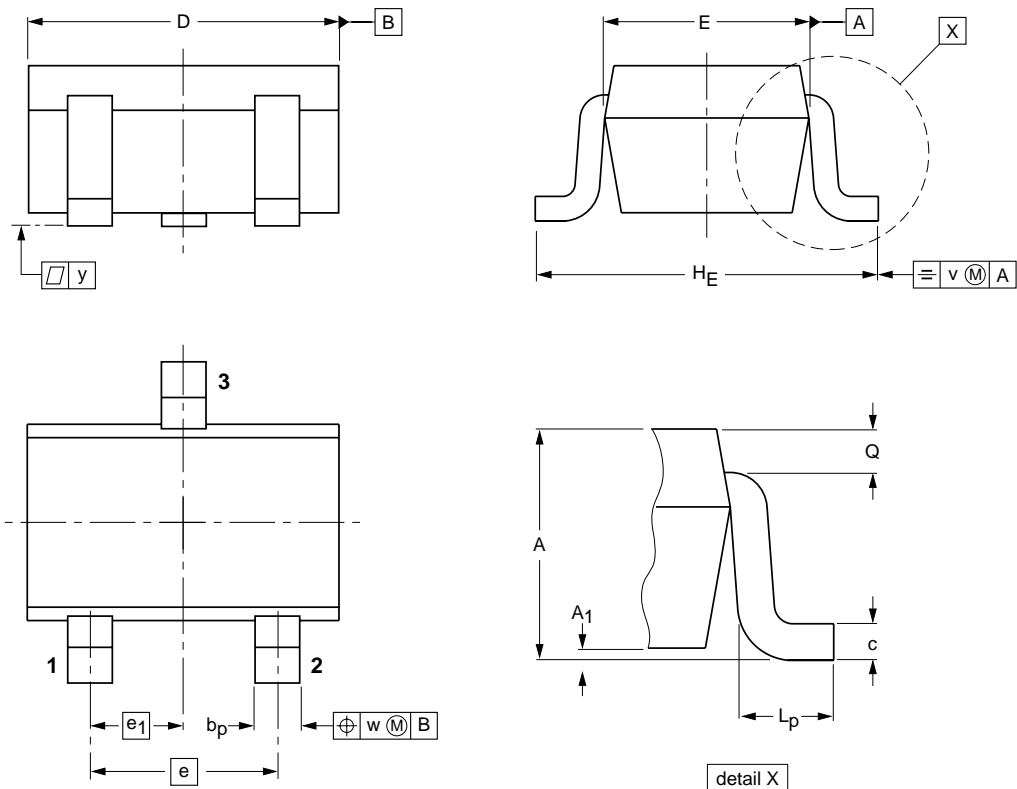
General purpose PIN diode

BAP50-04W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | c | D | E | e | e ₁ | H _E | L _p | Q | v | w |
|------|------------|-----------------------|----------------|--------------|------------|--------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm | 1.1 0.8 | 0.1 | 0.4 0.3 | 0.25 0.10 | 2.2 1.8 | 1.35 1.15 | 1.3 | 0.65 | 2.2 2.0 | 0.45 0.15 | 0.23 0.13 | 0.2 | 0.2 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|-------|--|---------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT323 | | | SC-70 | | | 97-02-28 |

General purpose PIN diode

BAP50-04W

DATA SHEET STATUS

| DATA SHEET STATUS | PRODUCT STATUS | DEFINITIONS ⁽¹⁾ |
|---------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Objective specification | Development | This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice. |
| Preliminary specification | Qualification | This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |
| Product specification | Production | This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |

Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

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Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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General purpose PIN diode

BAP50-04W

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