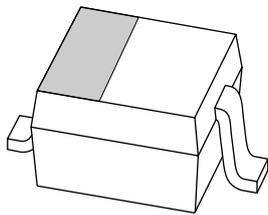


DATA SHEET



BAP65-03 Silicon PIN diode

Product specification
Supersedes data of 2001 May 11

2004 Feb 11

Silicon PIN diode

BAP65-03

FEATURES

- High voltage, current controlled
- RF resistor for RF switches
- Low diode capacitance
- Low diode forward resistance (low loss)
- Very low series inductance.

APPLICATIONS

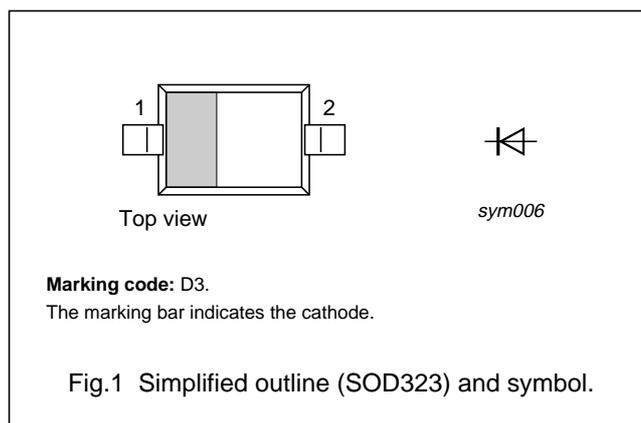
- RF attenuators and switches
- Bandswitch for TV tuners
- Series diode for mobile communication transmit/receive switch.

DESCRIPTION

Planar PIN diode in a SOD323 small SMD plastic package.

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | cathode |
| 2 | anode |



ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| BAP65-03 | – | plastic surface mounted package; 2 leads | SOD323 |

LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|----------------------------|-------------------------|------|------|------|
| V_R | continuous reverse voltage | | – | 30 | V |
| I_F | continuous forward current | | – | 100 | mA |
| P_{tot} | total power dissipation | $T_s \leq 90\text{ °C}$ | – | 500 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | –65 | +150 | °C |

Silicon PIN diode

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ELECTRICAL CHARACTERISTICST_j = 25 °C unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|--------------------------------|--------------------------|---|-------|------|------|
| V _F | forward voltage | I _F = 50 mA | 0.9 | 1.1 | V |
| I _R | reverse leakage current | V _R = 20 V | – | 20 | nA |
| C _d | diode capacitance | V _R = 0 V; f = 1 MHz | 0.65 | – | pF |
| | | V _R = 1 V; f = 1 MHz | 0.55 | 0.9 | pF |
| | | V _R = 3 V; f = 1 MHz | 0.5 | 0.8 | pF |
| | | V _R = 20 V; f = 1 MHz | 0.375 | – | pF |
| r _D | diode forward resistance | I _F = 1 mA; f = 100 MHz | 1 | – | Ω |
| | | I _F = 5 mA; f = 100 MHz; note 1 | 0.65 | 0.95 | Ω |
| | | I _F = 10 mA; f = 100 MHz; note 1 | 0.56 | 0.9 | Ω |
| | | I _F = 100 mA; f = 100 MHz | 0.35 | – | Ω |
| S ₂₁ ² | isolation | V _R = 0; f = 900 MHz | 10.2 | – | dB |
| | | V _R = 0; f = 1800 MHz | 5.8 | – | dB |
| | | V _R = 0; f = 2450 MHz | 4.1 | – | dB |
| S ₂₁ ² | insertion loss | I _F = 1 mA; f = 900 MHz | 0.1 | – | dB |
| | | I _F = 1 mA; f = 1800 MHz | 0.14 | – | dB |
| | | I _F = 1 mA; f = 2450 MHz | 0.18 | – | dB |
| S ₂₁ ² | insertion loss | I _F = 5 mA; f = 900 MHz | 0.06 | – | dB |
| | | I _F = 5 mA; f = 1800 MHz | 0.1 | – | dB |
| | | I _F = 5 mA; f = 2450 MHz | 0.14 | – | dB |
| S ₂₁ ² | insertion loss | I _F = 10 mA; f = 900 MHz | 0.06 | – | dB |
| | | I _F = 10 mA; f = 1800 MHz | 0.1 | – | dB |
| | | I _F = 10 mA; f = 2450 MHz | 0.13 | – | dB |
| S ₂₁ ² | insertion loss | I _F = 100 mA; f = 900 MHz | 0.05 | – | dB |
| | | I _F = 100 mA; f = 1800 MHz | 0.1 | – | dB |
| | | I _F = 100 mA; f = 2450 MHz | 0.14 | – | dB |
| τ _L | charge carrier life time | when switched from I _F = 10 mA to I _R = 6 mA; R _L = 100 Ω; measured at I _R = 3 mA | 0.17 | – | μs |
| L _S | series inductance | I _F = 100 mA; f = 100 MHz | 1.5 | – | nH |

Note

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

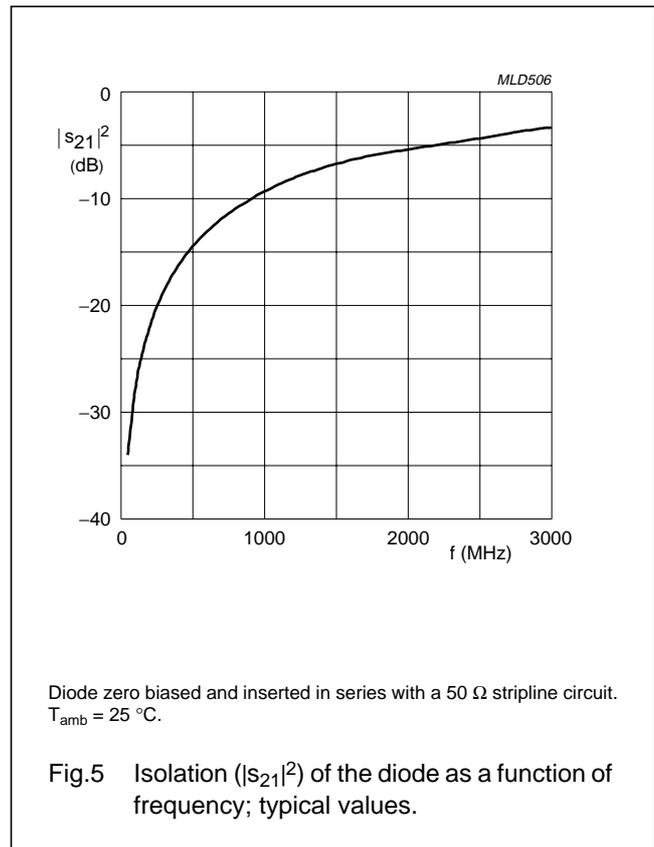
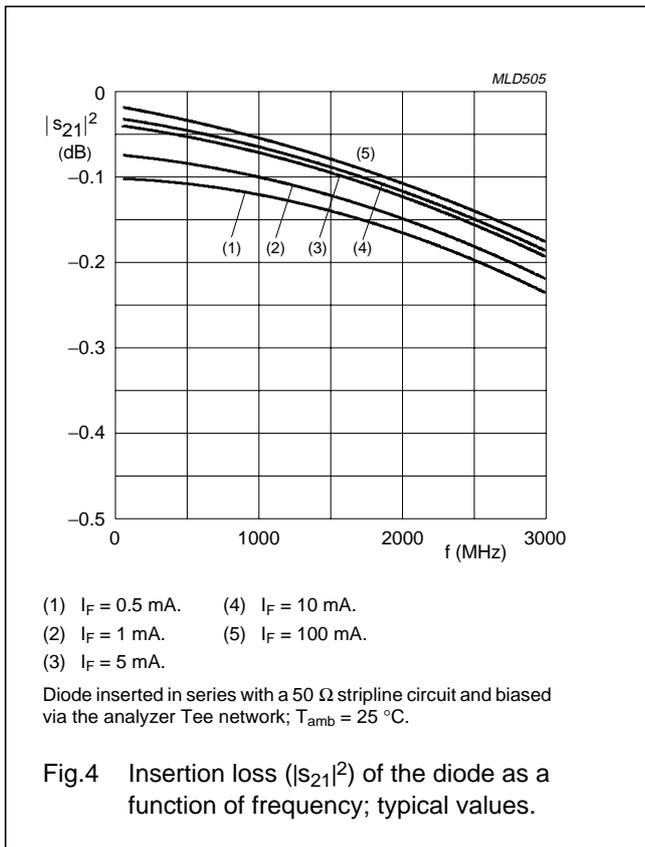
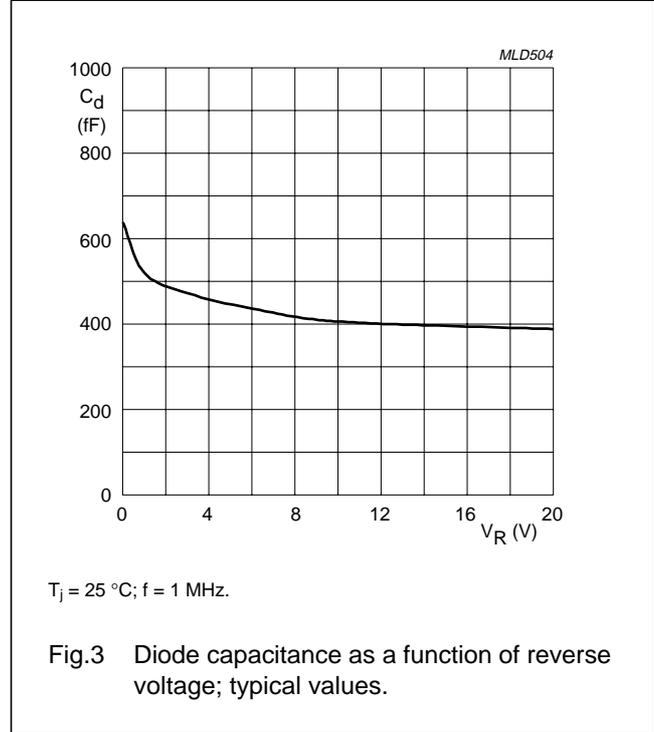
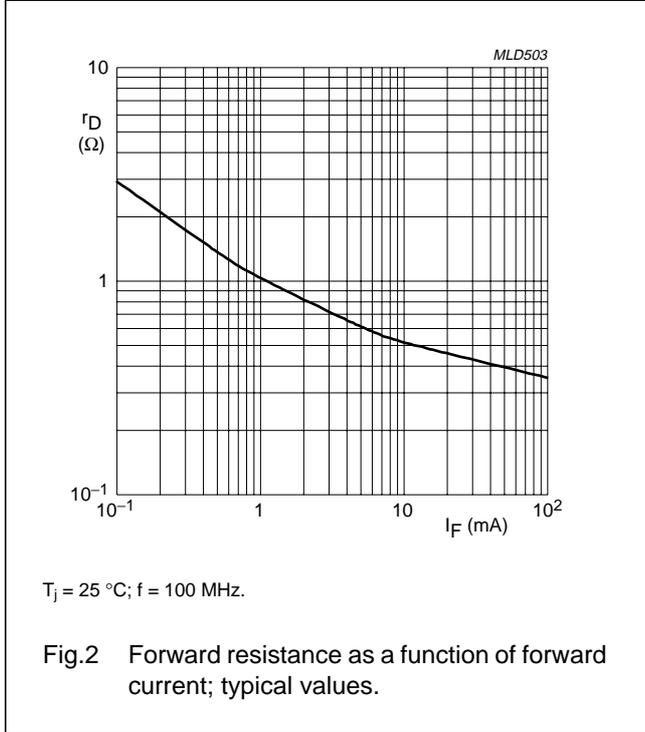
THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | VALUE | UNIT |
|----------------------|---|-------|------|
| R _{th(j-s)} | thermal resistance from junction to soldering point | 120 | K/W |

Silicon PIN diode

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GRAPHICAL DATA



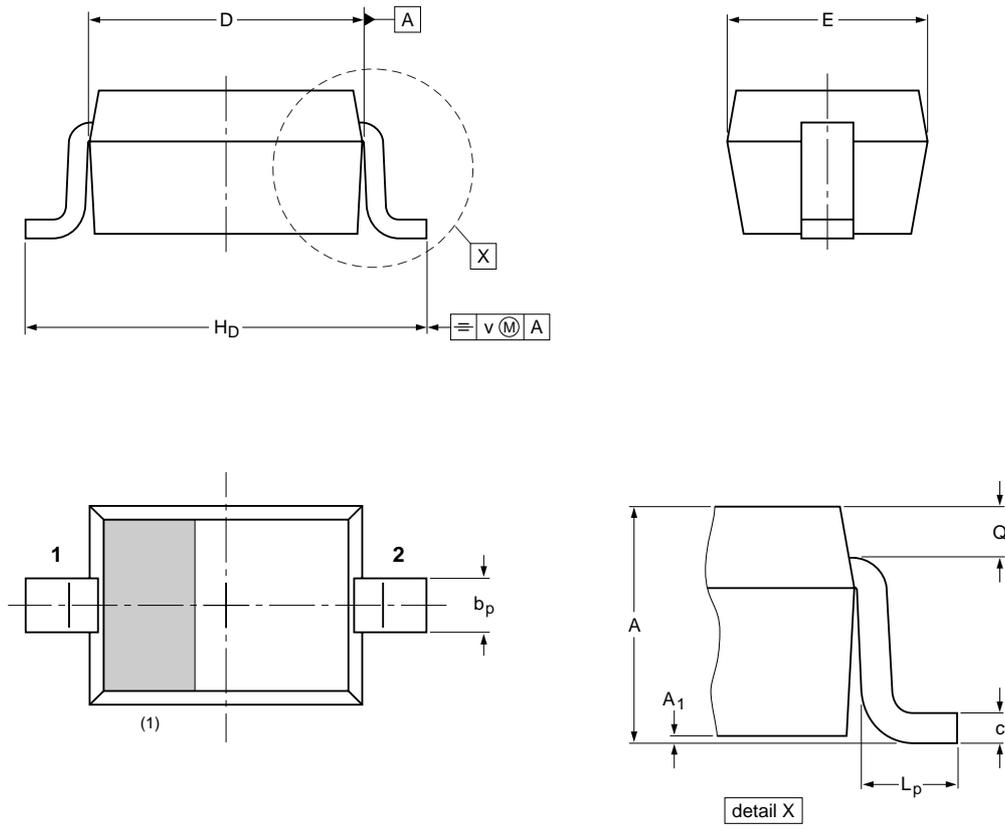
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | c | D | E | H _D | L _p | Q | v |
|------|------------|-----------------------|----------------|--------------|------------|--------------|----------------|----------------|--------------|-----|
| mm | 1.1 0.8 | 0.05 | 0.40 0.25 | 0.25 0.10 | 1.8 1.6 | 1.35 1.15 | 2.7 2.3 | 0.45 0.15 | 0.25 0.15 | 0.2 |

Note

1. The marking bar indicates the cathode

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|--------------------|------------|-------|-------|--|------------------------|----------------------|
| | IEC | JEDEC | JEITA | | | |
| SOD323 | | | SC-76 | | | 99-09-13 03-12-17 |

Silicon PIN diode

BAP65-03

DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾⁽³⁾ | DEFINITION |
|-------|----------------------------------|----------------------------------|--|
| I | Objective data | Development | This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice. |
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Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: +31 40 27 24825

For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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