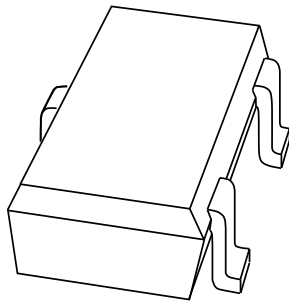


DATA SHEET



BAP63-05W Silicon PIN diode

Product specification
Supersedes data of 2001 Apr 04

2001 May 18



Silicon PIN diode

BAP63-05W

FEATURES

- High speed switching for RF signals
- Low diode capacitance
- Low diode forward resistance
- Low series inductance
- For applications up to 3 GHz.

APPLICATIONS

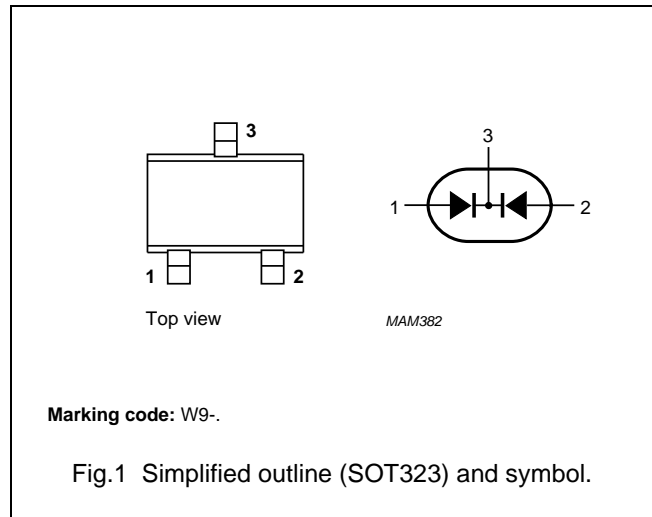
- RF attenuators and switches.

DESCRIPTION

Two planar PIN diodes in common cathode configuration in a SOT323 small SMD plastic package.

PINNING

| PIN | DESCRIPTION |
|-----|----------------|
| 1 | anode (a1) |
| 2 | anode (a2) |
| 3 | common cathode |



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 | | – | 100 | mA |
| P_{tot} | total power dissipation | $T_s \leq 90\text{ °C}$ | – | 240 | 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 |
|--------------------------------|--------------------------|---|------|------|------|
| Per diode | | | | | |
| V _F | forward voltage | I _F = 50 mA | 0.95 | 1.1 | V |
| I _R | reverse current | V _R = 35 V | – | 10 | nA |
| C _d | diode capacitance | V _R = 0; f = 1 MHz | 0.4 | – | pF |
| | | V _R = 1 V; f = 1 MHz | 0.35 | – | pF |
| | | V _R = 20 V; f = 1 MHz | 0.3 | 0.35 | pF |
| r _D | diode forward resistance | I _F = 0.5 mA; f = 100 MHz; note 1 | 2.5 | 3.5 | Ω |
| | | I _F = 1 mA; f = 100 MHz; note 1 | 1.95 | 3 | Ω |
| | | I _F = 10 mA; f = 100 MHz; note 1 | 1.17 | 1.8 | Ω |
| | | I _F = 100 mA; f = 100 MHz; note 1 | 0.9 | 1.5 | Ω |
| s ₂₁ ² | isolation | V _R = 0; f = 900 MHz | 14.5 | – | dB |
| | | V _R = 0; f = 1800 MHz | 9.5 | – | dB |
| | | V _R = 0; f = 2450 MHz | 7.0 | – | dB |
| s ₂₁ ² | insertion loss | I _F = 0.5 mA; f = 900 MHz | 0.23 | – | dB |
| | | I _F = 0.5 mA; f = 1800 MHz | 0.27 | – | dB |
| | | I _F = 0.5 mA; f = 2450 MHz | 0.33 | – | dB |
| s ₂₁ ² | insertion loss | I _F = 1 mA; f = 900 MHz | 0.19 | – | dB |
| | | I _F = 1 mA; f = 1800 MHz | 0.24 | – | dB |
| | | I _F = 1 mA; f = 2450 MHz | 0.30 | – | dB |
| s ₂₁ ² | insertion loss | I _F = 10 mA; f = 900 MHz | 0.14 | – | dB |
| | | I _F = 10 mA; f = 1800 MHz | 0.19 | – | dB |
| | | I _F = 10 mA; f = 2450 MHz | 0.25 | – | dB |
| s ₂₁ ² | insertion loss | I _F = 100 mA; f = 900 MHz | 0.11 | – | dB |
| | | I _F = 100 mA; f = 1800 MHz | 0.17 | – | dB |
| | | I _F = 100 mA; f = 2450 MHz | 0.23 | – | 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 | 310 | – | ns |
| 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.

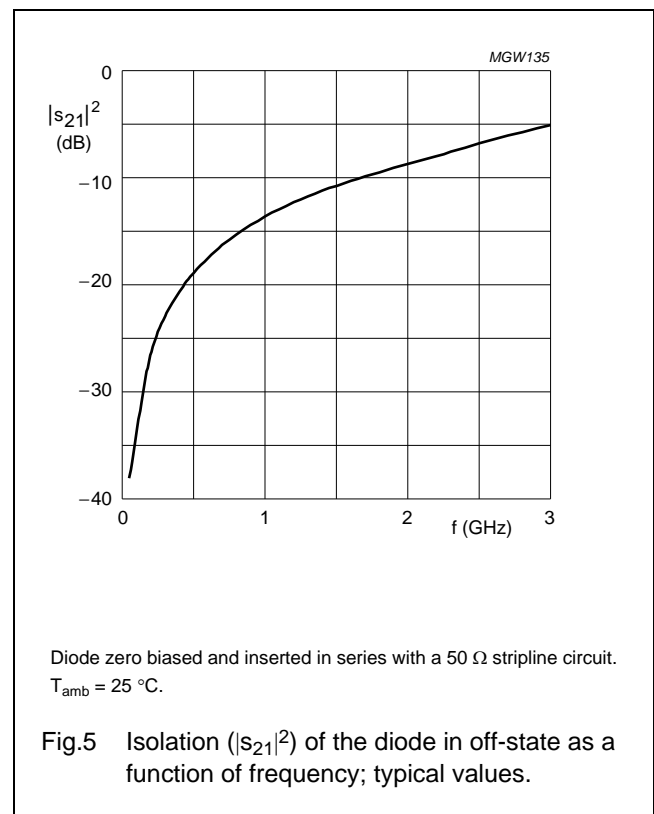
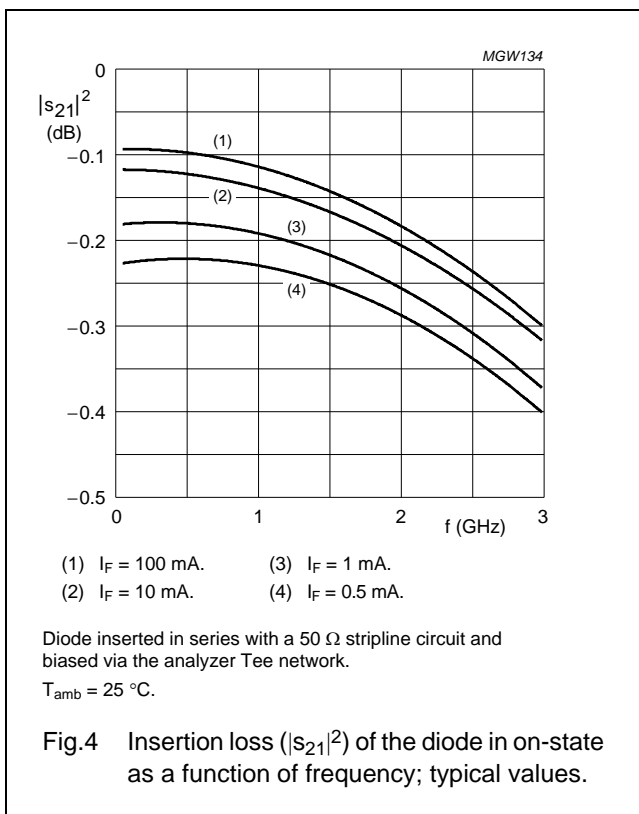
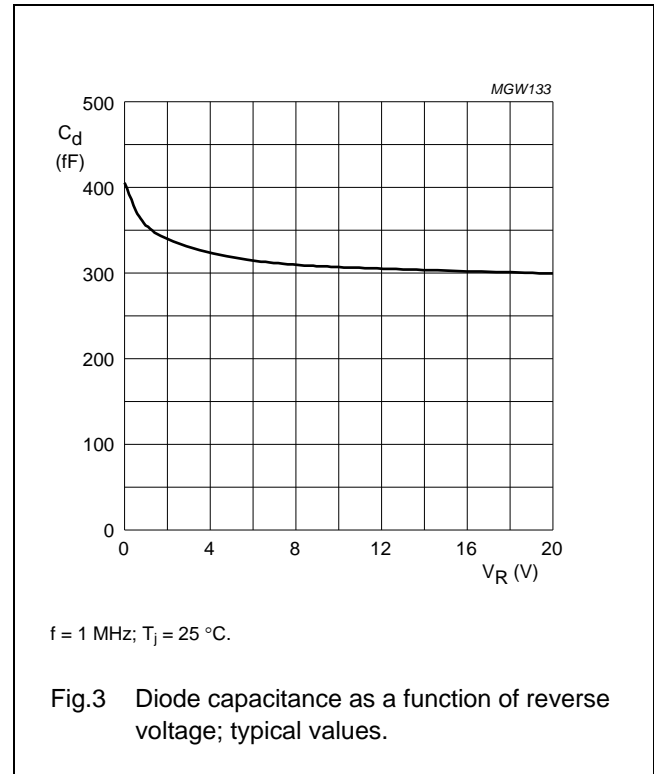
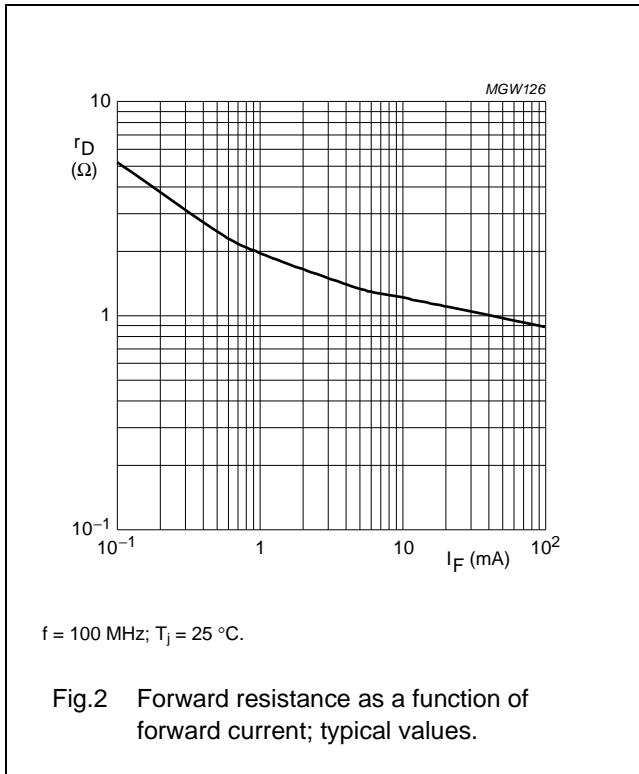
THERMAL CHARACTERISTICS

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

Silicon PIN diode

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GRAPHICAL DATA



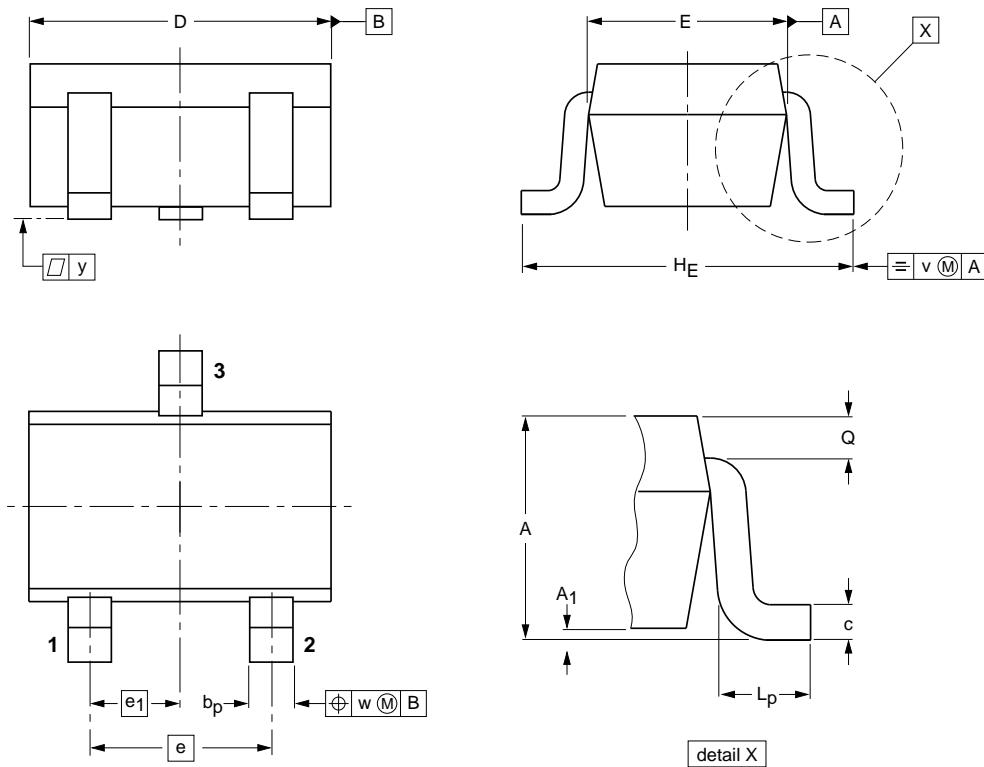
Silicon PIN diode

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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 | JEITA | | | |
| SOT323 | | | SC-70 | | | 04-11-04 06-03-16 |

Silicon PIN diode

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DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITION |
|--------------------------------|-------------------------------|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

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