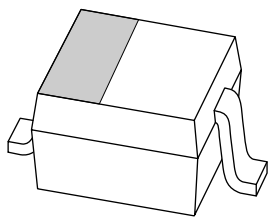


DATA SHEET



BB159

UHF variable capacitance diode

Product specification
Supersedes data of 1996 Oct 03

2004 Mar 02

UHF variable capacitance diode

BB159

FEATURES

- Excellent linearity
- Very small plastic SMD package
- C28: 2.1 pF; ratio 9
- Low series resistance.

APPLICATIONS

- Electronic tuning in UHF television tuners
- VCO.

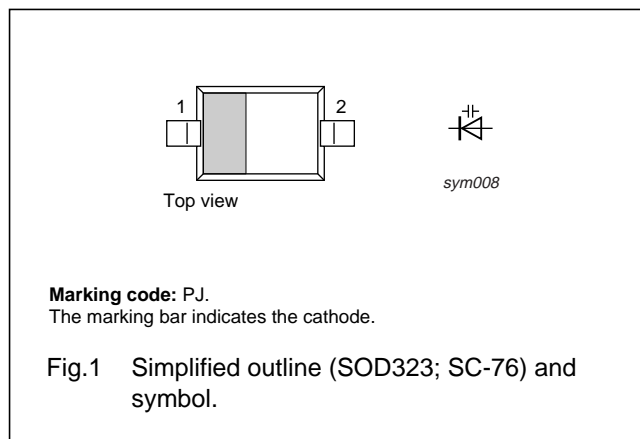
DESCRIPTION

The BB159 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD323 very small plastic SMD package.

The matched type, BB149 has the same specification.

PINNING

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



ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| BB159 | - | plastic surface mounted package; 2 leads | SOD323 |

LIMITING VALUES

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

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|-----------|--------------------------------|------|------|------|
| V_R | continuous reverse voltage | - | 30 | V |
| I_F | continuous forward current | - | 20 | mA |
| T_{stg} | storage temperature | -55 | +150 | °C |
| T_j | operating junction temperature | -55 | +125 | °C |

UHF variable capacitance diode

BB159

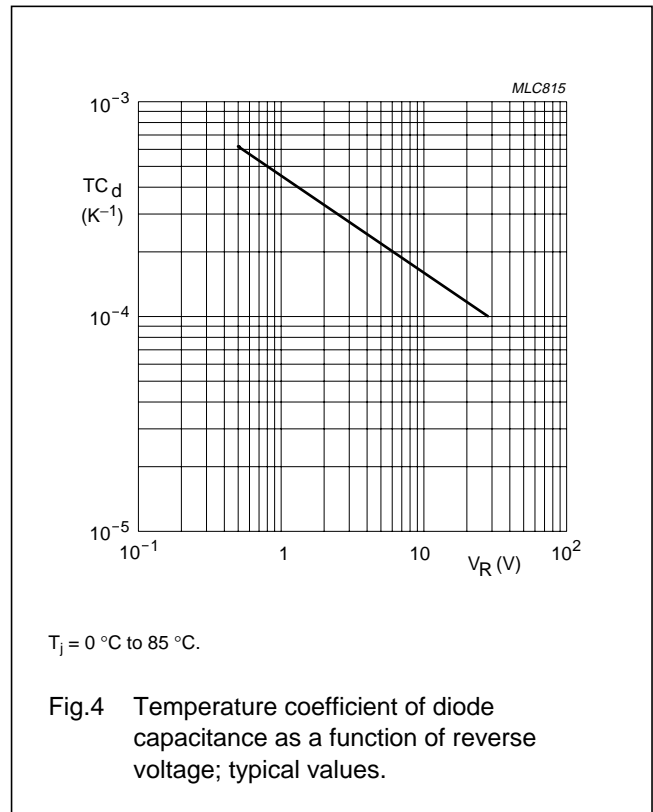
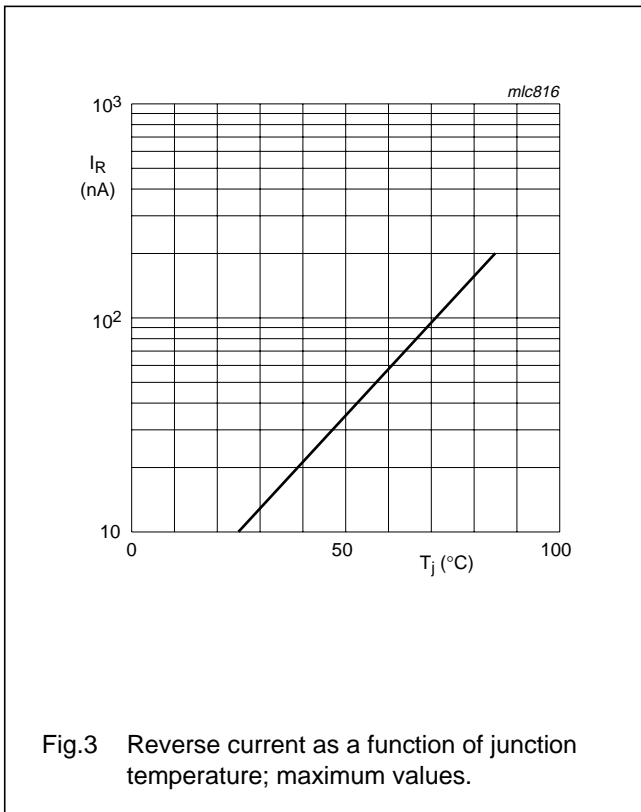
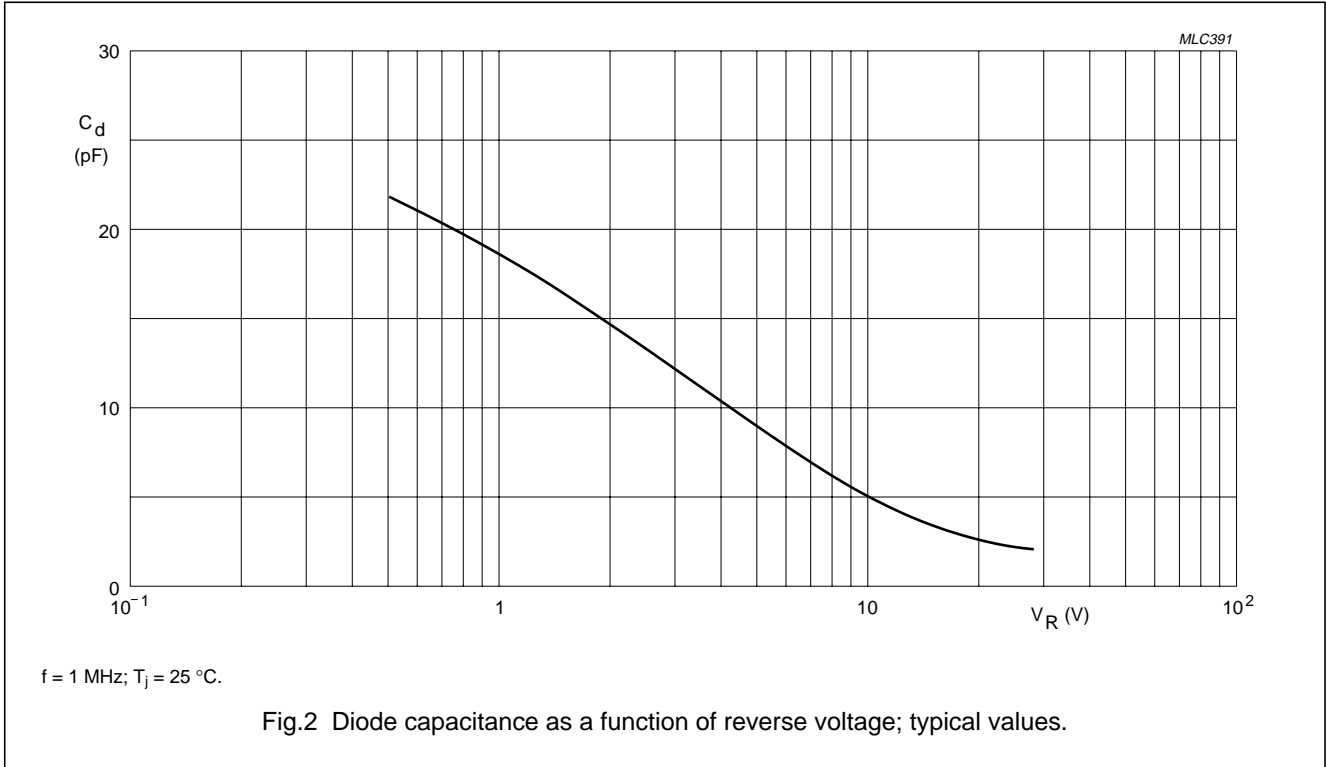
ELECTRICAL CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---------------------------------|-------------------------|---|------|------|------|----------|
| I_R | reverse current | $V_R = 30\text{ V}$; see Fig.3 | – | – | 10 | nA |
| | | $V_R = 30\text{ V}$; $T_j = 85\text{ °C}$; see Fig.3 | – | – | 200 | nA |
| r_s | diode series resistance | $f = 470\text{ MHz}$; $C_d = 9\text{ pF}$ | – | – | 0.75 | Ω |
| C_d | diode capacitance | $V_R = 1\text{ V}$; $f = 1\text{ MHz}$; see Figs 2 and 4 | 18 | – | 19.5 | pF |
| | | $V_R = 28\text{ V}$; $f = 1\text{ MHz}$; see Figs 2 and 4 | 1.9 | – | 2.25 | pF |
| $\frac{C_{d(1V)}}{C_{d(28V)}}$ | capacitance ratio | $f = 1\text{ MHz}$ | 8.2 | – | 10 | |
| $\frac{C_{d(19V)}}{C_{d(28V)}}$ | capacitance ratio | $f = 1\text{ MHz}$ | 1.2 | – | – | |

UHF variable capacitance diode

BB159

GRAPHICAL DATA



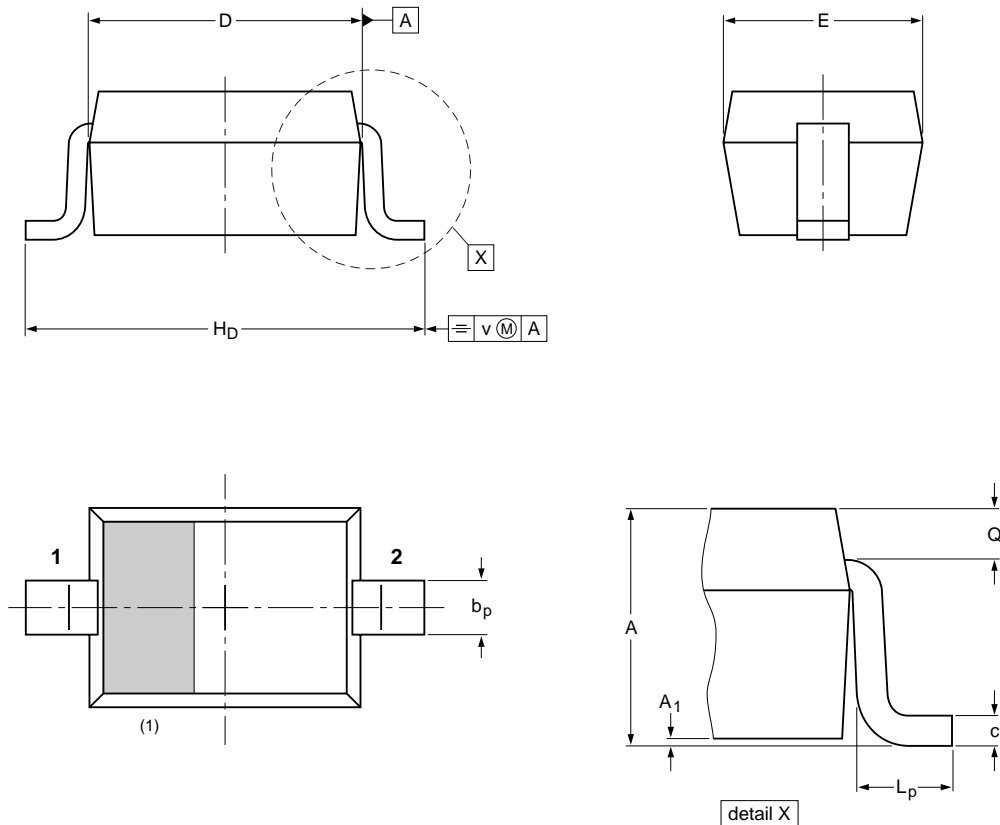
UHF variable capacitance diode

BB159

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 |

UHF variable capacitance diode

BB159

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. |
| II | Preliminary data | Qualification | This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product. |
| III | Product data | Production | This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). |

Notes

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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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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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