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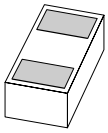


# BB179LX

## UHF variable capacitance diode

Rev. 01 — 13 April 2006 Preliminary data sheet

## 1. Product profile

### 1.1 General description

The BB179LX is a planar technology variable capacitance diode in a SOD882T ultra small leadless plastic SMD package. The excellent matching performance is achieved by gliding matching and a Direct Matching Assembly (DMA) procedure.

### 1.2 Features

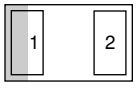
- Excellent linearity
- Excellent matching to 2 % DMA
- Ultra small leadless SMD package
- $C_{d(28V)}$: 2.1 pF; $C_{d(1V)}$ to $C_{d(28V)}$ ratio typical 9
- Low series resistance

### 1.3 Applications

- Voltage Controlled Oscillators (VCO)
- Electronic tuning in VHF television tuners

## 2. Pinning information

Table 1. Discrete pinning

| Pin | Description | Simplified outline | Symbol |
|---|---|---|---|
| 1 | cathode [1] |   Transparent top view |  sym008 |
| 2 | anode | | |

[1] The marking bar indicates the cathode.

## 3. Ordering information

Table 2. Ordering information

| Type number | Package | | |
|---|---|---|---|
| | Name | Description | Version |
| BB179LX | - | leadless ultra small plastic package; 2 terminals; body 1.0 × 0.6 × 0.4 mm | SOD882T |

PHILIPS

## 4. Marking

**Table 3. Marking**

| Type number | Marking code |
|---|---|
| BB179LX | L4 |

## 5. Limiting values

**Table 4. Limiting values**

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

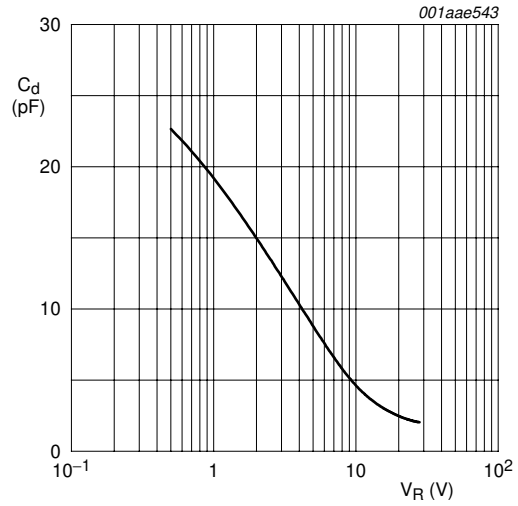
| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_R$ | reverse voltage | | - | 30 | V |
| $I_F$ | forward current | | - | 20 | mA |
| $T_{stg}$ | storage temperature | | –55 | +150 | °C |
| $T_j$ | junction temperature | | –55 | +125 | °C |

## 6. Characteristics

**Table 5. Characteristics**

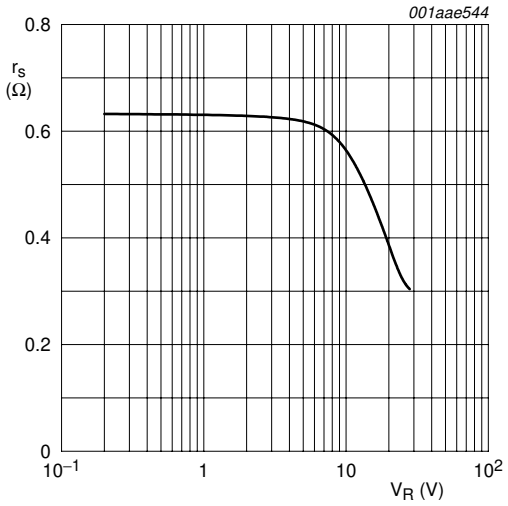
*$T_j$ = 25 °C unless otherwise specified.*

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $I_R$ | reverse current | see Figure 3 | | | | |
| | | $V_R$ = 30 V | - | - | 10 | nA |
| | | $V_R$ = 30 V; $T_j$ = 85 °C | - | - | 200 | nA |
| $r_s$ | diode series resistance | f = 470 MHz; $C_d$ = 30 pF; see Figure 2 | - | 0.65 | - | Ω |
| $C_d$ | diode capacitance | see Figure 1 and Figure 4; f = 1 MHz; | | | | |
| | | $V_R$ = 1 V | 18.2 | - | 21.3 | pF |
| | | $V_R$ = 28 V | 1.95 | 2.1 | 2.22 | pF |
| $\frac{C_{d(1V)}}{C_{d(2V)}}$ | diode capacitance ratio | f = 1 MHz | - | 1.27 | - | |
| $\frac{C_{d(1V)}}{C_{d(28V)}}$ | diode capacitance ratio | f = 1 MHz | 8.45 | 9 | 10.9 | |
| $\frac{C_{d(25V)}}{C_{d(28V)}}$ | diode capacitance ratio | f = 1 MHz | - | 1.05 | - | |
| $\frac{\Delta C_d}{C_d}$ | diode capacitance matching | $V_R$ = 1 V to 28 V; in sequence of 5 diodes (gliding) | - | - | 2 | % |




f = 1 MHz; $T_j$ = 25 °C.

**Fig 1. Diode capacitance as a function of reverse voltage; typical values**




f = 470 MHz; $T_j$ = 25 °C.

**Fig 2. Diode serial resistance as a function of reverse voltage; typical values**

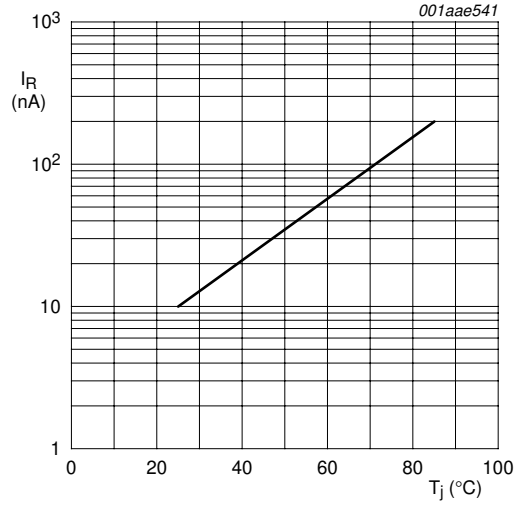
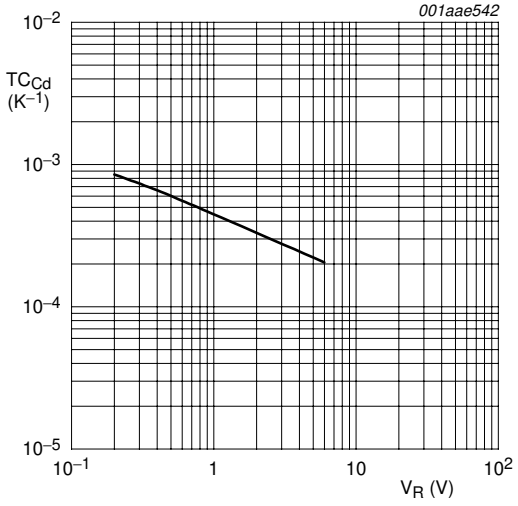



**Fig 3. Reverse current as function of junction temperature; maximum values**

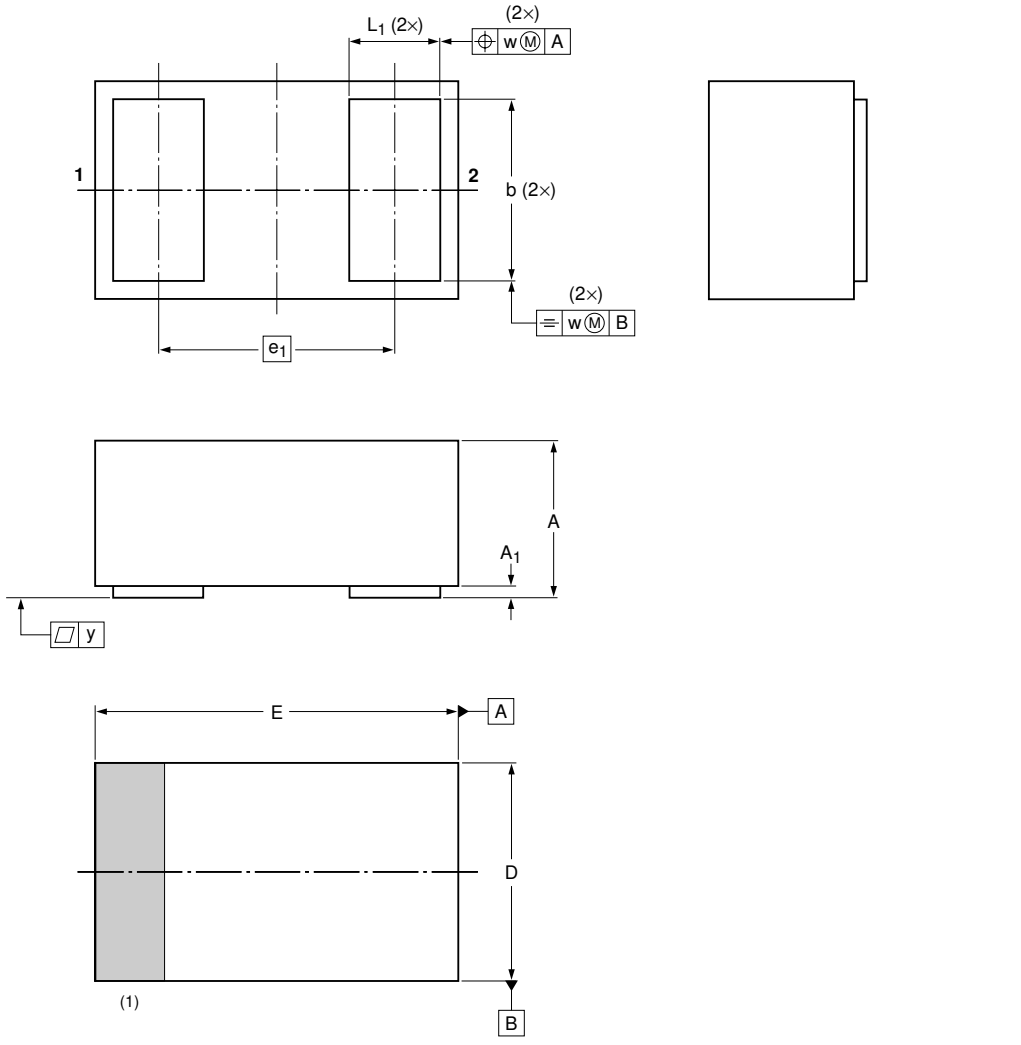



$T_j$ = 25 °C to 85 °C.

**Fig 4. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values**

# 7. Package outline

**Leadless ultra small plastic package; 2 terminals; body 1 x 0.6 x 0.4 mm** **SOD882T**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ max | b | D | E | $e_1$ | $L_1$ | w | y |
|---|---|---|---|---|---|---|---|---|---|
| mm | 0.40<br>0.36 | 0.04 | 0.55<br>0.45 | 0.65<br>0.55 | 1.05<br>0.95 | 0.65 | 0.30<br>0.22 | 0.1 | 0.03 |

**Note**

1. The marking bar indicates the cathode

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOD882T | | | | | | ~~04-12-14~~<br>06-04-12 |

**Fig 5. Package outline SOD882T**

## 8. Revision history

Table 6. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| BB179LX_1 | 20060413 | Preliminary data sheet | - | - |

# 9. Legal information

## 9.1 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.semiconductors.philips.com.

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