

BB181LX

VHF variable capacitance diode

Rev. 01 — 19 February 2009

Product data sheet

1. Product profile

1.1 General description

The BB181LX is a planar technology variable capacitance diode in a SOD882T ultra small leadless plastic SMD package.

1.2 Features

- Excellent linearity
- Ultra small leadless SMD package
- $C_{d(28V)}$: 1 pF; ratio: 14

1.3 Applications

- Voltage Controlled Oscillators (VCO)
- Electronic tuning in satellite tuners
- Tunable coupling

2. Pinning information

Table 1. Pinning

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

[1] The marking bar indicates the cathode.

3. Ordering information

Table 2. Ordering information

| Type number | Package | | Version |
|-------------|---------|--------------------------------------------------------------------------|---------|
| | Name | Description | |
| BB181LX | - | leadless ultra small plastic package; 2 terminals; body 1 × 0.6 × 0.4 mm | SOD882T |

4. Marking

Table 3. Marking codes

| Type number | Marking code |
|-------------|--------------|
| BB181LX | L6 |

5. Limiting values

Table 4. Limiting values

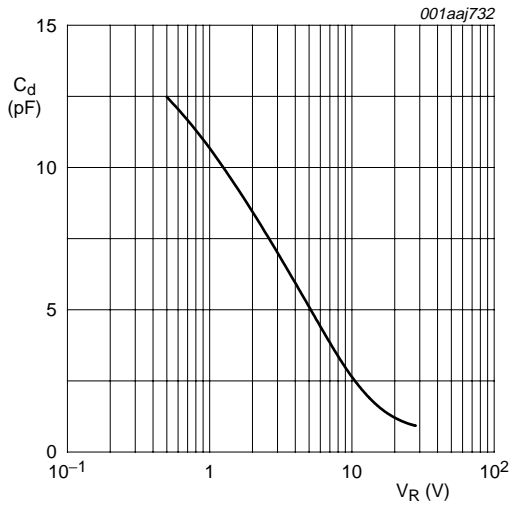
In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol | Parameter | Conditions | Min | Max | Unit |
|-----------|----------------------|------------|-----|------|------|
| V_R | reverse voltage | | - | 32 | V |
| I_F | forward current | | - | 20 | mA |
| T_{stg} | storage temperature | | -55 | +150 | °C |
| T_j | junction temperature | | -55 | +125 | °C |

6. Characteristics

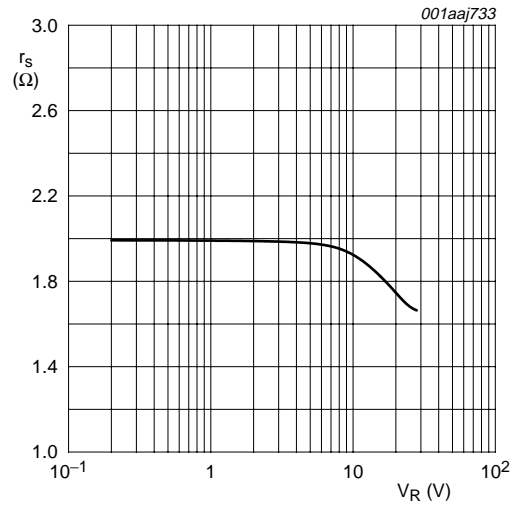
Table 5. Characteristics

| 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 at $C_d = 9$ pF; see Figure 2 | - | 2.0 | - | Ω |
| C_d | diode capacitance | $f = 1$ MHz; see Figure 1 and Figure 4 | | | | |
| | | $V_R = 0.5$ V | 8 | - | 17 | pF |
| | | $V_R = 28$ V | 0.7 | - | 1.055 | pF |
| $C_{d(0V5)}/C_{d(28V)}$ | diode capacitance ratio (0.5 V to 28 V) | $f = 1$ MHz | 12 | - | 16 | |



$f = 1 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

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



$f = 470 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

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

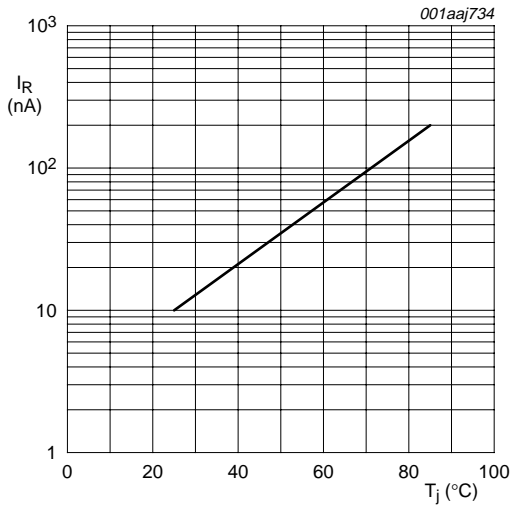
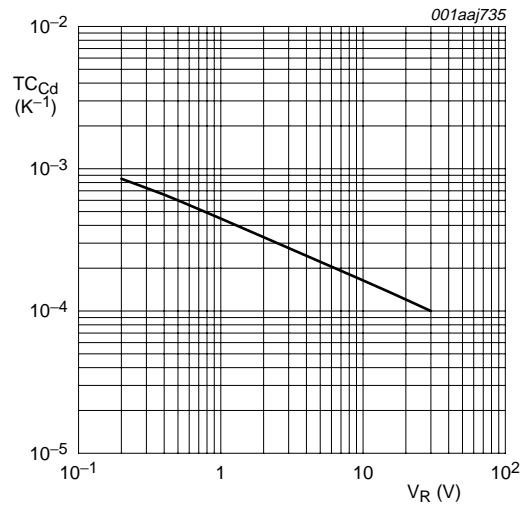


Fig 3. Reverse current as a function of junction temperature; maximum values



$T_j = 0 \text{ }^\circ\text{C} \text{ to } 85 \text{ }^\circ\text{C}.$

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

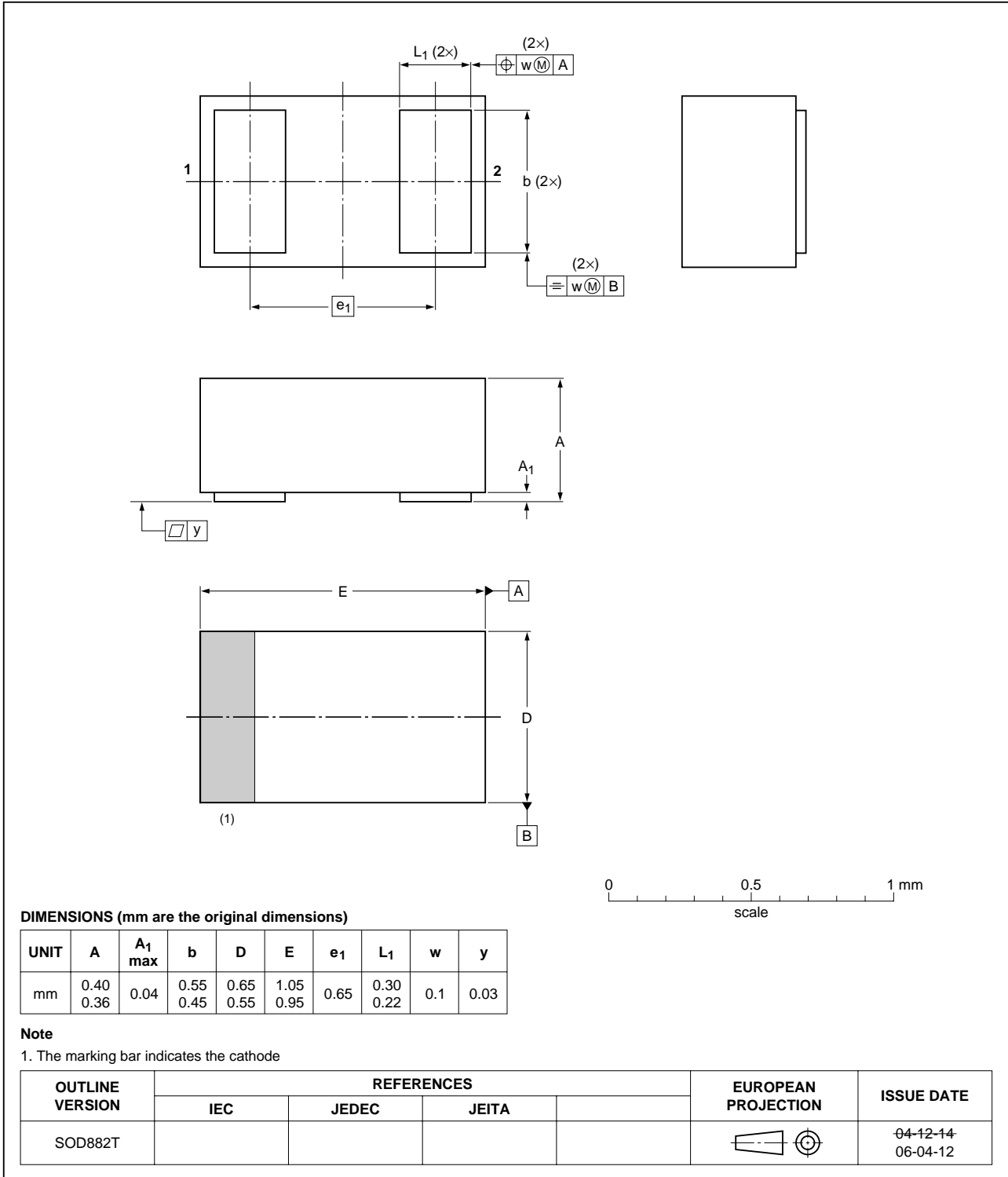


Fig 5. Package outline SOD882T

8. Abbreviations

Table 6. Abbreviations

| Acronym | Description |
|---------|------------------------|
| SMD | Surface Mounted Device |
| VHF | Very High Frequency |

9. Revision history

Table 7. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|-------------|--------------|--------------------|---------------|------------|
| BB181LX_1 | 20090219 | Product data sheet | - | - |

10. Legal information

10.1 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".

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