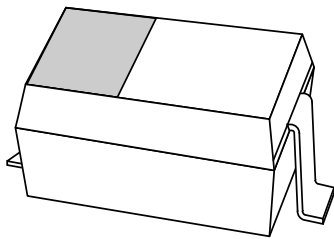


DATA SHEET



BB154 UHF variable capacitance diode

Preliminary specification

1999 May 12

UHF variable capacitance diode

BB154

FEATURES

- Excellent linearity
- Excellent matching to 2% DMA
- Very small plastic SMD package
- C28: 2.0 pF; ratio: 9.7
- Very low series resistance.

APPLICATIONS

- Electronic tuning in UHF television tuners
- Voltage controlled oscillators (VCO).

DESCRIPTION

The BB154 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD323 very small SMD package.

The excellent matching performance is achieved by gliding matching and a direct matching assembly procedure.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|--------------------------------|---|------|------|------|
| V_R | continuous reverse voltage | | – | 30 | V |
| V_{RM} | peak reverse voltage | in series with a 10 k Ω resistor | – | 35 | V |
| I_F | continuous forward current | | – | 20 | mA |
| T_{stg} | storage temperature | | –55 | +150 | °C |
| T_j | operating junction temperature | | –55 | +150 | °C |

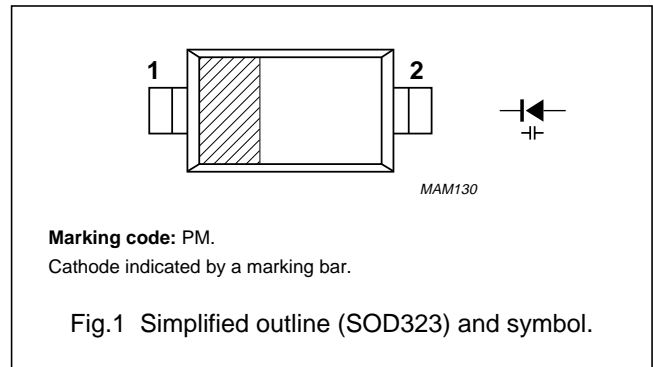
ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|--------------------------------|-------------------------|--|------|------|-------|----------|
| I_R | reverse current | $V_R = 30\text{ V}$; see Fig.3 | – | – | 10 | nA |
| | | $V_R = 30\text{ V}$; $T_j = 85\text{ }^\circ\text{C}$; see Fig.3 | – | – | 200 | nA |
| r_s | diode series resistance | $f = 470\text{ MHz}$; V_R is the value at which $C_d = 9\text{ pF}$ | – | 0.60 | 0.75 | Ω |
| C_d | diode capacitance | $V_R = 1\text{ V}$; $f = 1\text{ MHz}$; see Figs 2 and 4 | 18.5 | – | 21.25 | pF |
| | | $V_R = 28\text{ V}$; $f = 1\text{ MHz}$; see Figs 2 and 4 | 1.9 | – | 2.2 | pF |
| $\frac{C_{d(1V)}}{C_{d(28V)}}$ | capacitance ratio | $f = 1\text{ MHz}$ | 9. | 9.7 | 11 | |
| $\frac{\Delta C_d}{C_d}$ | capacitance matching | $V_R = 1\text{ to }28\text{ V}$; in a sequence of 15 diodes (gliding) | – | – | 2 | |

PINNING

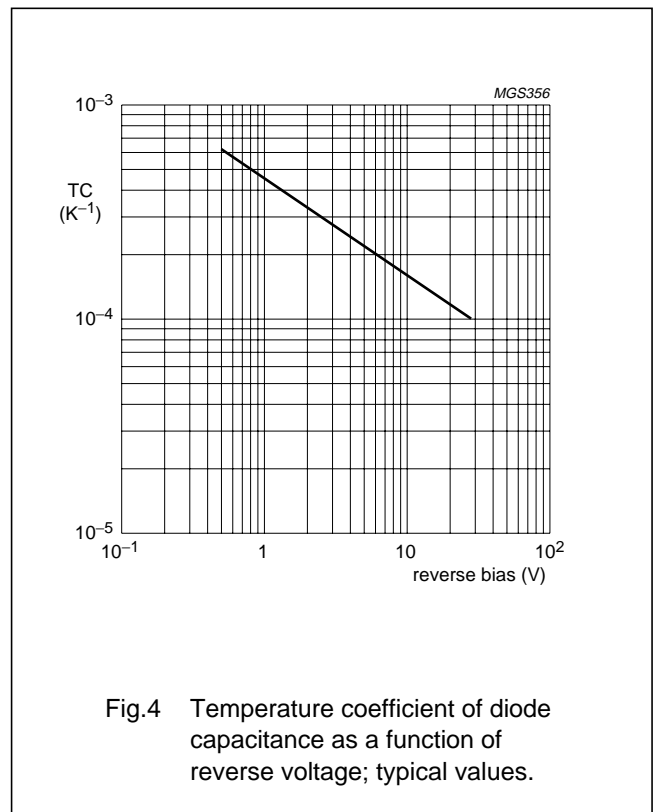
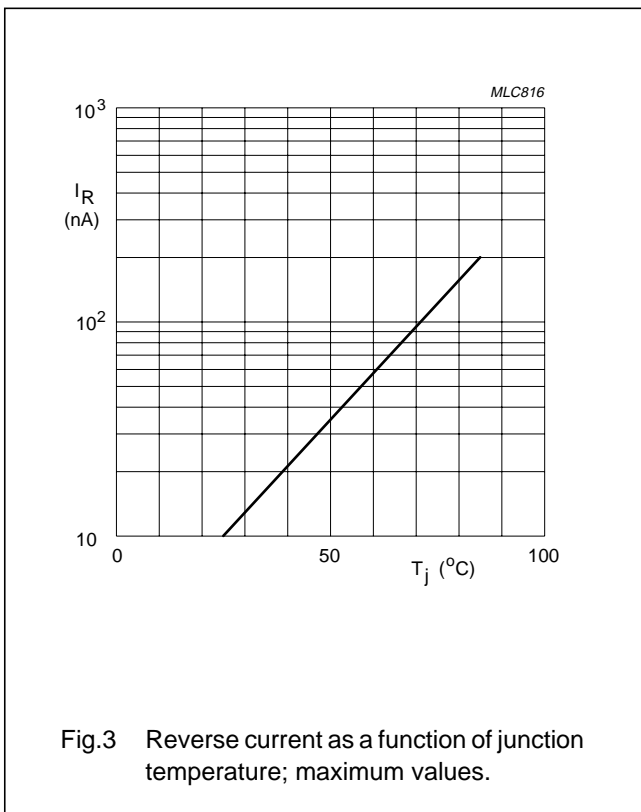
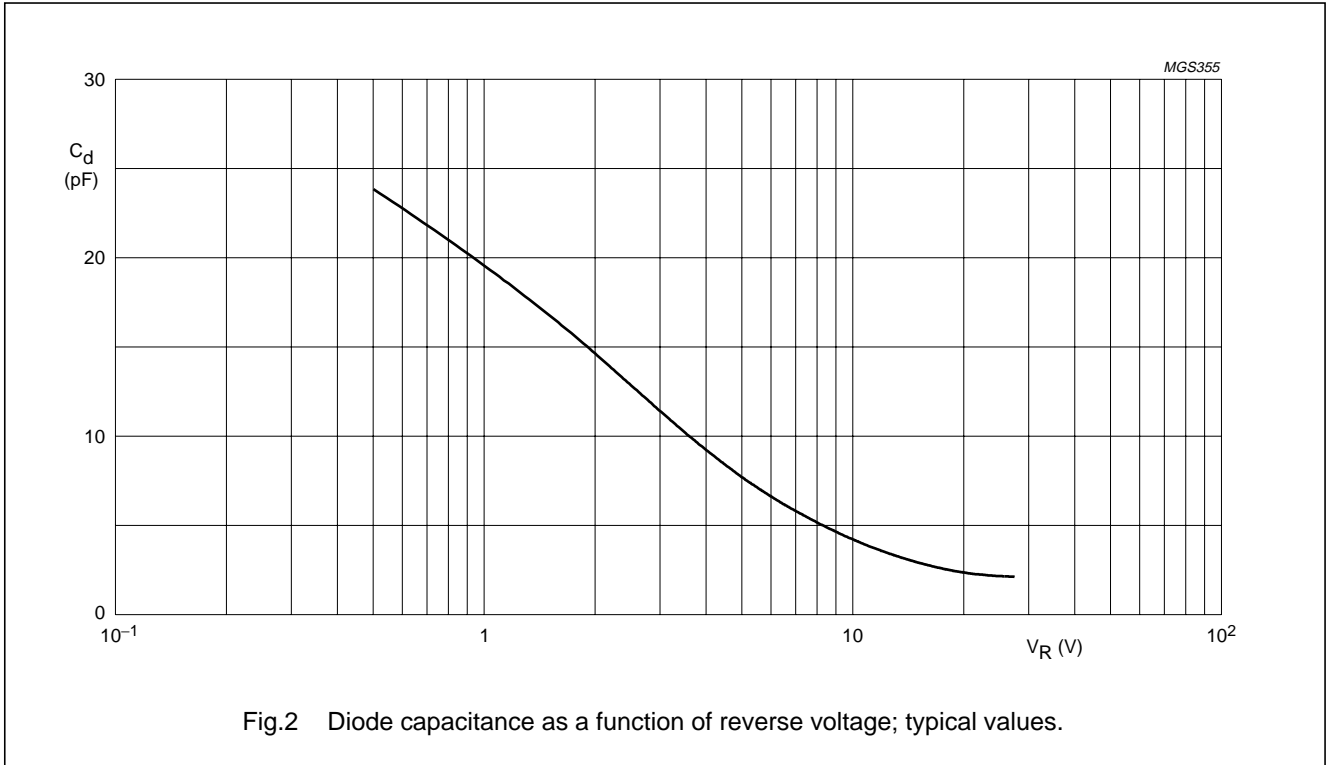
| PIN | DESCRIPTION |
|-----|-------------|
| 1 | cathode |
| 2 | anode |



UHF variable capacitance diode

BB154

GRAPHICAL DATA



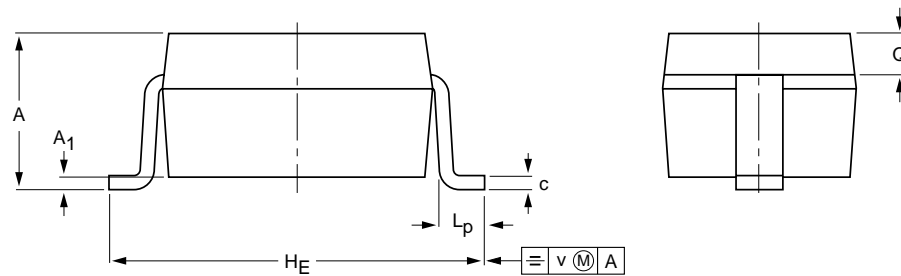
UHF variable capacitance diode

BB154

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 _E | L _p | Q | v |
|------|------------|------------------------|----------------|--------------|------------|--------------|----------------|----------------|--------------|-----|
| mm | 1.1 0.8 | +0.05 -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 | EIAJ | | |
| SOD323 | | | | | 98-09-14 |

UHF variable capacitance diode

BB154

DEFINITIONS

| | |
|---|---|
| Data sheet status | |
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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UHF variable capacitance diode

BB154

NOTES

UHF variable capacitance diode

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