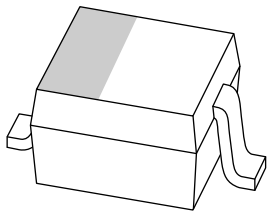


# DATA SHEET



## **BA591** Band-switching diode

Product specification  
Supersedes data of 1998 Aug 31

2004 Feb 17



# Band-switching diode

**BA591**

## FEATURES

- Very small plastic SMD package
- Low diode capacitance: max. 1.05 pF
- Low diode forward resistance: max. 0.7  $\Omega$
- Small inductance.

## APPLICATIONS

- Low loss band-switching in VHF television tuners
- Surface mount band-switching circuits.

## DESCRIPTION

The BA591 is a planar, high performance band-switching diode in the very small SOD323 (SC-76) SMD plastic package.

## PINNING

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


*sym006*

**Marking code:** A1.

The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD323; SC-76) and symbol.

## ORDERING INFORMATION

| TYPE<br>NUMBER | PACKAGE |                                          |         |
|----------------|---------|------------------------------------------|---------|
|                | NAME    | DESCRIPTION                              | VERSION |
| BA591          | –       | plastic surface mounted package; 2 leads | SOD323  |

## LIMITING VALUES

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

| SYMBOL    | PARAMETER                  | CONDITIONS                         | MIN. | MAX. | UNIT               |
|-----------|----------------------------|------------------------------------|------|------|--------------------|
| $V_R$     | continuous reverse voltage |                                    | –    | 35   | V                  |
| $I_F$     | continuous forward current |                                    | –    | 100  | mA                 |
| $P_{tot}$ | total power dissipation    | $T_s = 90\text{ }^{\circ}\text{C}$ | –    | 500  | mW                 |
| $T_{stg}$ | storage temperature        |                                    | –65  | +150 | $^{\circ}\text{C}$ |
| $T_j$     | junction temperature       |                                    | –65  | +150 | $^{\circ}\text{C}$ |

## Band-switching diode

BA591

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

| SYMBOL  | PARAMETER                | CONDITIONS                                                                              | TYP.         | MAX.        | UNIT                 |
|---------|--------------------------|-----------------------------------------------------------------------------------------|--------------|-------------|----------------------|
| $V_F$   | forward voltage          | $I_F = 10\text{ mA}$                                                                    | –            | 1           | V                    |
| $I_R$   | reverse current          | $V_R = 20\text{ V}$                                                                     | –            | 20          | nA                   |
| $C_d$   | diode capacitance        | $f = 1\text{ MHz}$ ; note 1; see Fig.2<br>$V_R = 1\text{ V}$<br>$V_R = 3\text{ V}$      | 0.8<br>0.65  | 1.05<br>0.9 | pF<br>pF             |
| $r_D$   | diode forward resistance | $f = 100\text{ MHz}$ ; note 1; see Fig.3<br>$I_F = 3\text{ mA}$<br>$I_F = 10\text{ mA}$ | 0.45<br>0.36 | 0.7<br>0.5  | $\Omega$<br>$\Omega$ |
| $1/g_p$ | reverse resistance       | $V_R = 1\text{ V}$ ; $f = 100\text{ MHz}$ ; note 1                                      | 100          | –           | k $\Omega$           |
| $L_S$   | series inductance        |                                                                                         | 2            | –           | nH                   |

**Note**

1. Guaranteed on AQL basis; inspection level S4, AQL 1.0.

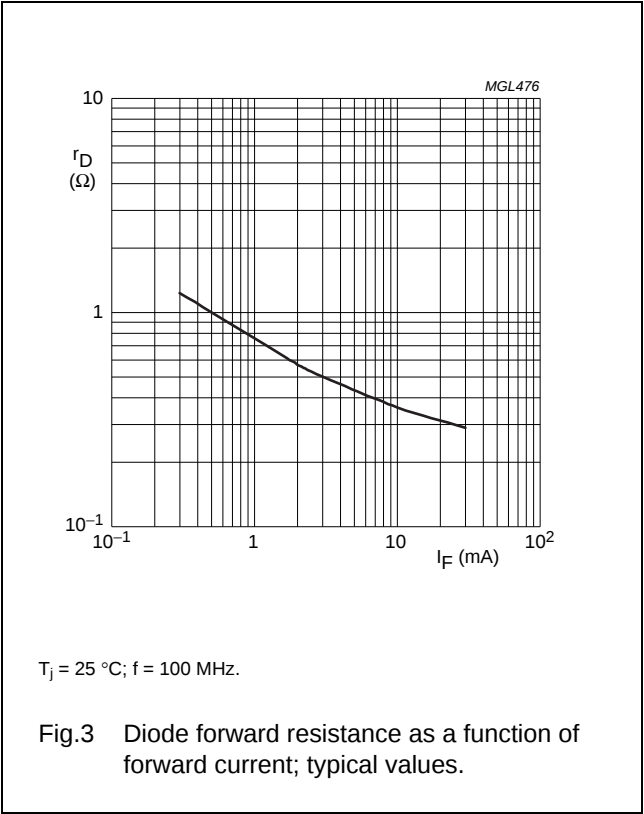
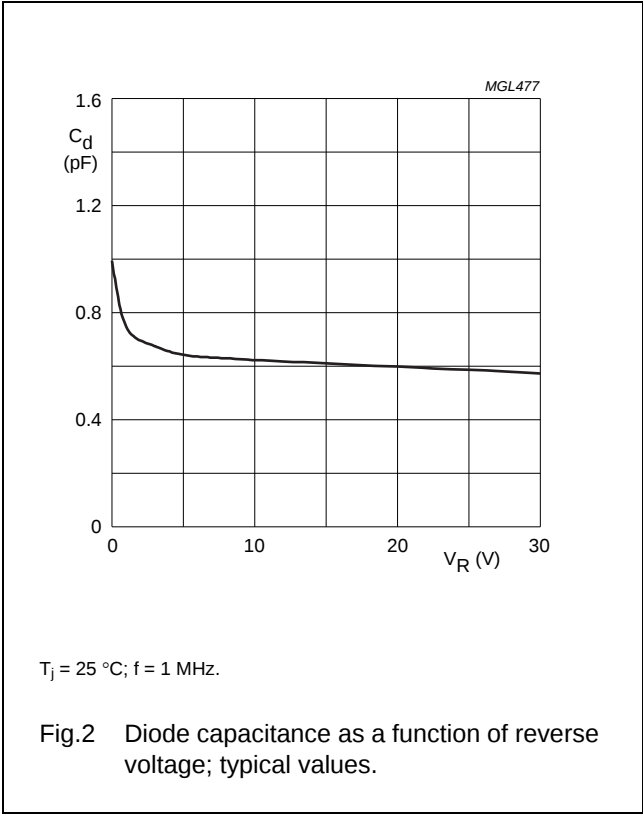
**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                                           | VALUE | UNIT |
|---------------|-----------------------------------------------------|-------|------|
| $R_{th(j-s)}$ | thermal resistance from junction to soldering point | 120   | K/W  |

Band-switching diode

BA591

GRAPHICAL DATA



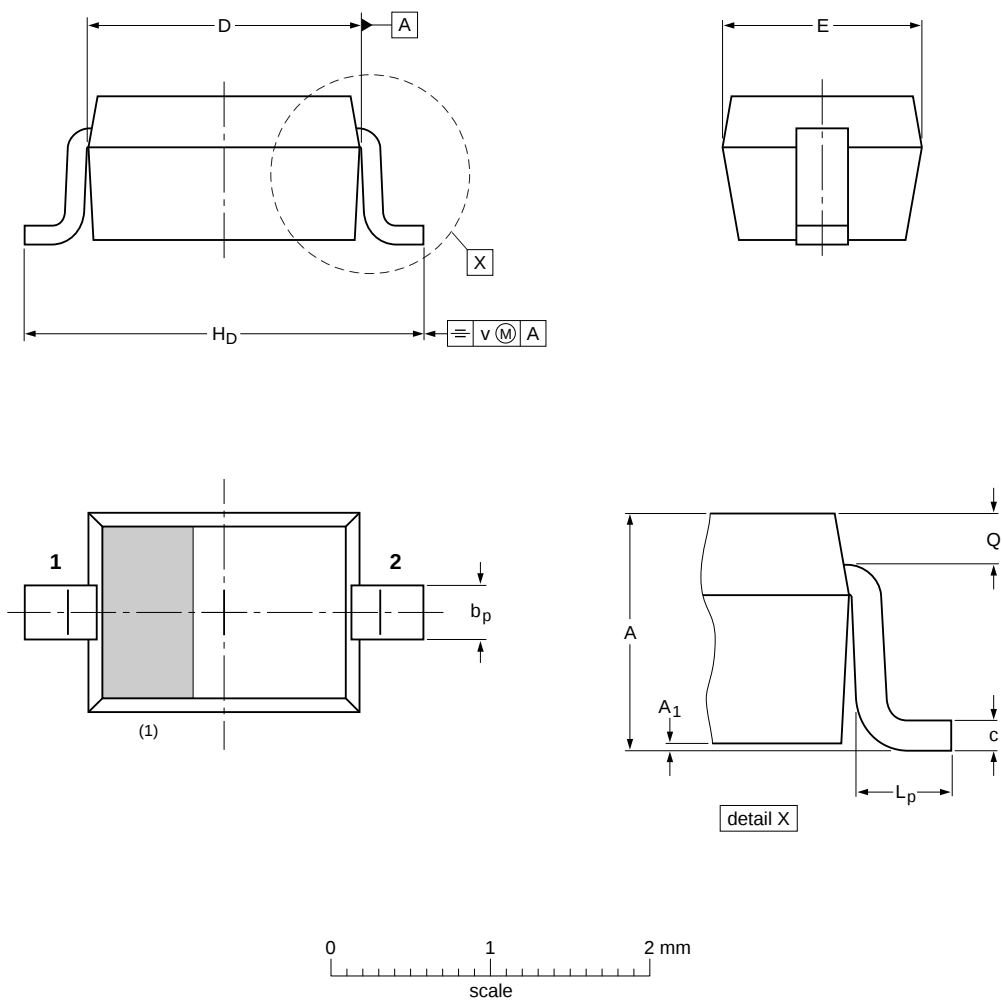
Band-switching diode

BA591

PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | A <sub>1</sub><br>max | b <sub>p</sub> | c            | D          | E            | H <sub>D</sub> | L <sub>p</sub> | Q            | v   |
|------|------------|-----------------------|----------------|--------------|------------|--------------|----------------|----------------|--------------|-----|
| mm   | 1.1<br>0.8 | 0.05                  | 0.40<br>0.25   | 0.25<br>0.10 | 1.8<br>1.6 | 1.35<br>1.15 | 2.7<br>2.3     | 0.45<br>0.15   | 0.25<br>0.15 | 0.2 |

Note  
1. The marking bar indicates the cathode

| OUTLINE<br>VERSION | REFERENCES |       |       |  | EUROPEAN<br>PROJECTION | ISSUE DATE                      |
|--------------------|------------|-------|-------|--|------------------------|---------------------------------|
|                    | IEC        | JEDEC | JEITA |  |                        |                                 |
| SOD323             |            |       | SC-76 |  |                        | <del>03-12-17</del><br>06-03-16 |

## Band-switching diode

BA591

## DATA SHEET STATUS

| DOCUMENT STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | 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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## Band-switching diode

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