



**THE DATASHEET OF  
BA591,115**





# BA591

## Band-switching diode

Rev. 4 — 26 November 2018

Product data sheet

## 1 Product profile

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### 1.1 General description

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

### 1.2 Features and benefits

- Very small plastic SMD package
- Low diode capacitance: maximum 1.05 pF
- Low diode forward resistance: max. 0.7  $\Omega$
- Small inductance
- AEC-Q101 qualified



### 1.3 Applications

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



## 2 Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Graphic symbol
1	cathode	 Top view	 sym006
2	anode		

## 3 Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BA591	-	plastic surface-mounted package; 2 leads	SOD323

## 4 Marking code

Table 3. Marking

Type number	Marking code
BA591	A1 <sup>[1]</sup>

[1] The marking bar indicates the cathode (see simplified outline graphic in [Table 1](#))

## 5 Limiting values

Table 4. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	continuous reverse voltage		-	35	V
$I_F$	continuous forward current		-	100	mA
$P_{tot}$	total power dissipation	$T_{sp} \leq 90\text{ °C}$	-	500	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-65	+150	°C

## 6 Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		120	K/W

## 7 Characteristics

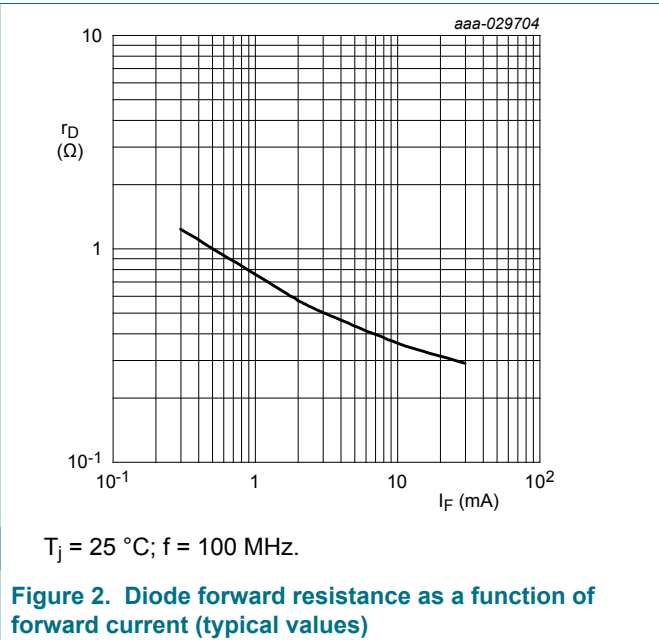
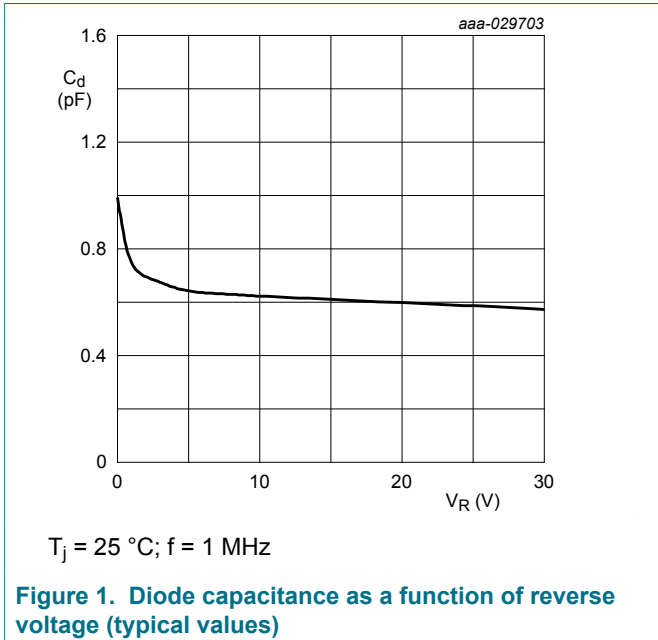
**Table 6. Characteristics**

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

Symbol	Parameter	Conditions	Min	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	$f = 1\text{ MHz}$ (see <a href="#">Figure 1</a> )					
		$V_R = 1\text{ V}$	[1]	-	0.8	1.05	pF
		$V_R = 3\text{ V}$	[1]	-	0.65	0.9	pF
$r_D$	diode forward resistance	$f = 100\text{ MHz}$ (see <a href="#">Figure 2</a> )					
		$I_F = 3\text{ mA}$	[1]	-	0.45	0.7	$\Omega$
		$I_F = 10\text{ mA}$	[1]	-	0.36	0.5	$\Omega$
$1/g_p$	reverse resistance	$V_R = 1\text{ V}; f = 100\text{ MHz}$	[1]	-	100	k $\Omega$	
$L_S$	series inductance		-	2	-	nH	

[1] Guaranteed on AQL basis; inspection level S4, AQL 1.0

8 Graphical data



9 Package outline

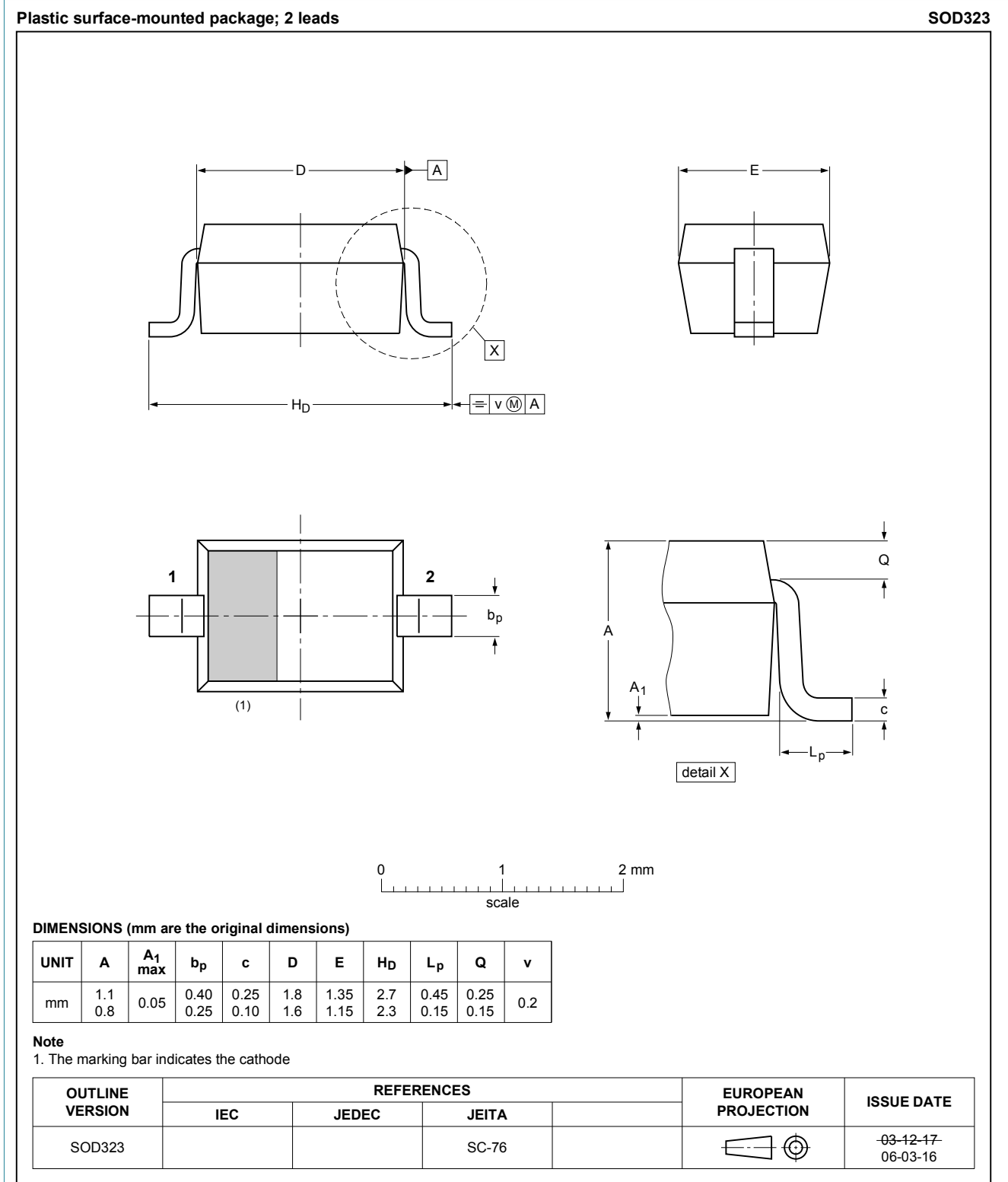


Figure 3. Package outline SOD323

## 10 Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BA591 v.4	20181126	Product data sheet	-	BA591 v.3.1
Modifications:	<ul style="list-style-type: none"><li>• <a href="#">Section 1.2</a> "Features and benefits" has been updated.</li><li>• The "Legal information" pages have been updated.</li><li>• sheet has been adapted to the latest NXP rules</li><li>• The condition under Limiting values is changed to <math>T_{j-sp} \leq 90 \text{ }^{\circ}\text{C}</math></li></ul>			
BA591 v.3.1	20040217	Product data sheet	-	-

## 11 Legal information

### 11.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	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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