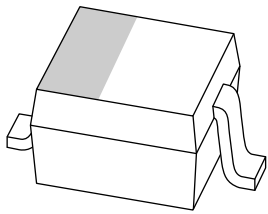


# DATA SHEET



## **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

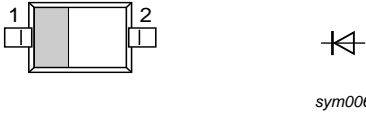
- Low loss band-switching in VHF television tuners
- Surface mount band-switching circuits.

## 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 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<sub>j</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 10 mA	–	1	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 20 V	–	20	nA
C <sub>d</sub>	diode capacitance	f = 1 MHz; note 1; see Fig.2 V <sub>R</sub> = 1 V V <sub>R</sub> = 3 V	0.8 0.65	1.05 0.9	pF pF
r <sub>D</sub>	diode forward resistance	f = 100 MHz; note 1; see Fig.3 I <sub>F</sub> = 3 mA I <sub>F</sub> = 10 mA	0.45 0.36	0.7 0.5	Ω Ω
1/g <sub>p</sub>	reverse resistance	V <sub>R</sub> = 1 V; f = 100 MHz; note 1	100	–	kΩ
L <sub>S</sub>	series inductance		2	–	nH

**Note**

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

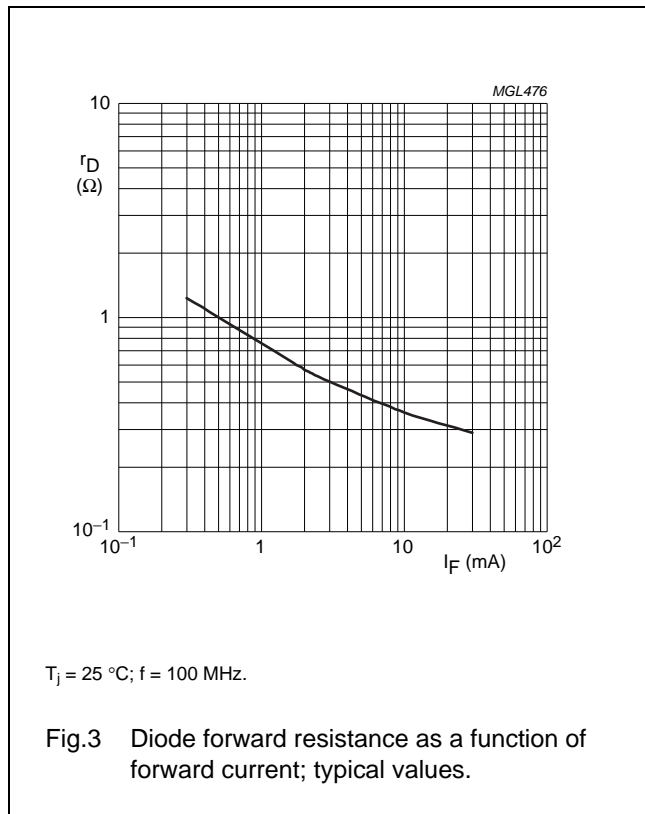
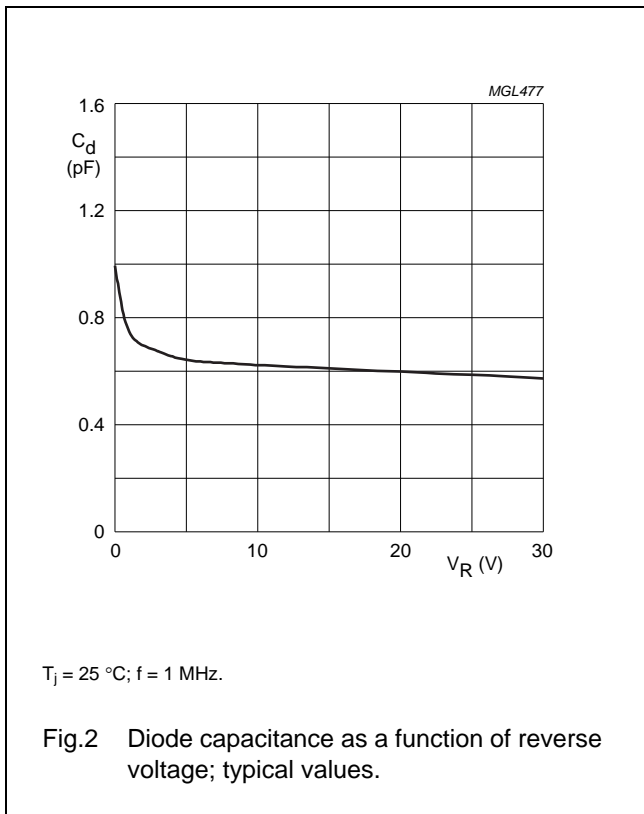
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th(j-s)</sub>	thermal resistance from junction to soldering point	120	K/W

# Band-switching diode

BA591

## GRAPHICAL DATA



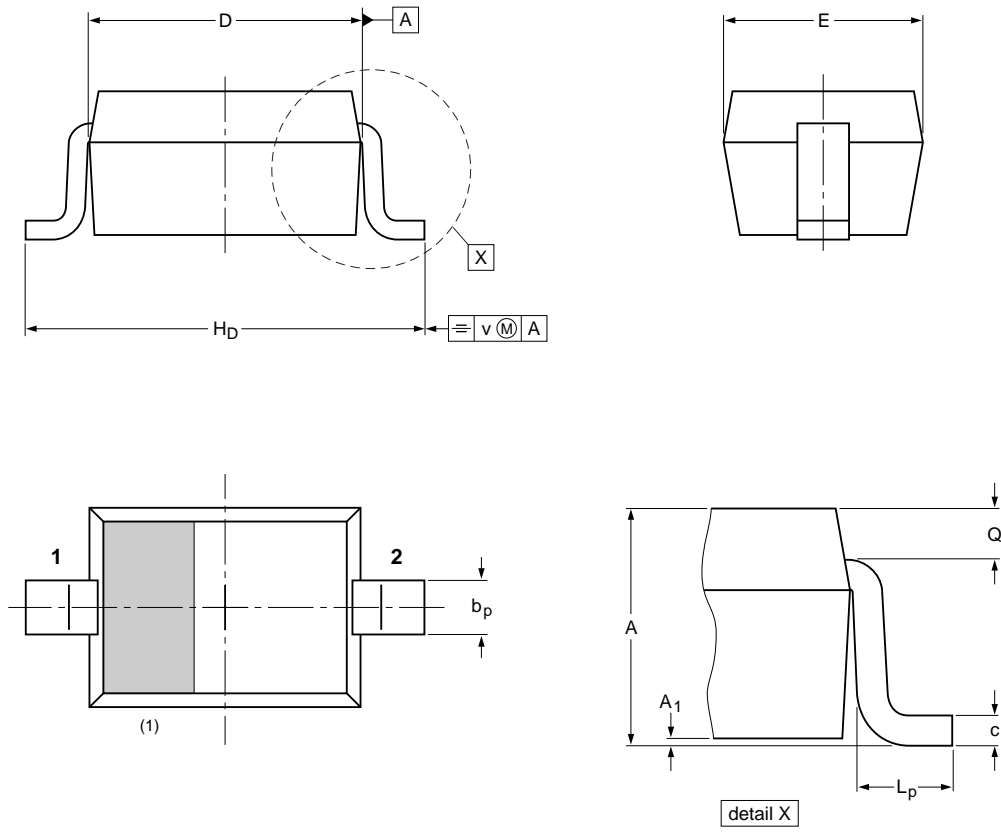
Band-switching diode

BA591

PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	H <sub>D</sub>	L <sub>p</sub>	Q	v
mm	1.1 0.8	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	JEITA		
SOD323			SC-76		<del>03-12-17</del> 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.

## Notes

1. Please consult the most recently issued document before initiating or completing a design.
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## Band-switching diode

## BA591

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This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

For additional information please visit: <http://www.nxp.com>

For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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