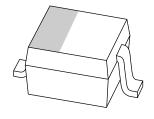
## DISCRETE SEMICONDUCTORS

# 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**

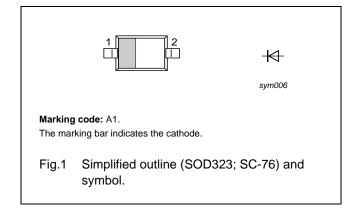
- Low loss band-switching in VHF television tuners
- Surface mount band-switching circuits.

#### **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



#### **ORDERING INFORMATION**

TYPE		PACKAGE				
NUMBER	NAME	DESCRIPTION				
BA591	_	plastic surface mounted package; 2 leads				

#### 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 <sub>F</sub>	continuous forward current		_	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>s</sub> = 90 °C	_	500	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
Tj	junction temperature		-65	+150	°C

# Band-switching diode

BA591

#### **CHARACTERISTICS**

 $T_j = 25$  °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 10 mA	-	1	V
$I_R$	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	0.8	1.05	pF
		V <sub>R</sub> = 3 V	0.65	0.9	pF
$r_D$	diode forward resistance	f = 100 MHz; note 1; see Fig.3			
		I <sub>F</sub> = 3 mA	0.45	0.7	Ω
		I <sub>F</sub> = 10 mA	0.36	0.5	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.

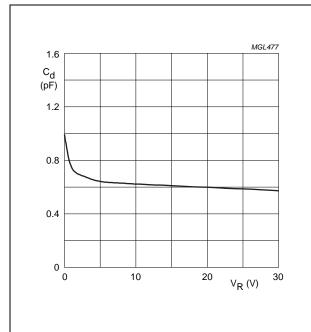
#### THERMAL CHARACTERISTICS

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**



 $T_j = 25$  °C; f = 1 MHz.

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

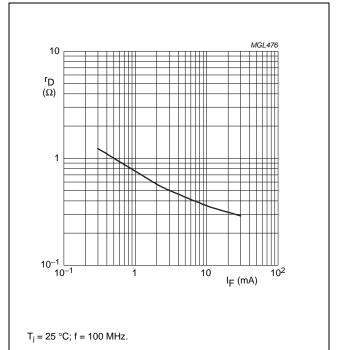


Fig.3 Diode forward resistance as a function of forward current; typical values.

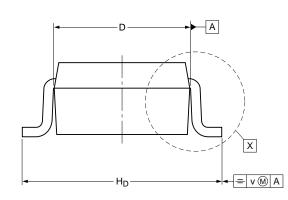
# Band-switching diode

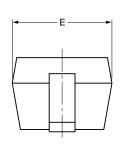
BA591

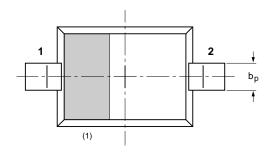
#### **PACKAGE OUTLINE**

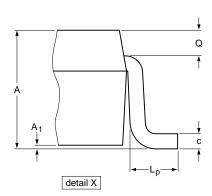
Plastic surface-mounted package; 2 leads

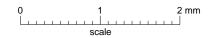
SOD323











#### DIMENSIONS (mm are the original dimensions)

UNIT	Α	A <sub>1</sub> max	bp	С	D	E	H <sub>D</sub>	Lp	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		0.2

#### Note

1. The marking bar indicates the cathode

OUTLINE		REFERENCES			EUROPEAN	ISSUE DATE
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
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.

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- 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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#### **Customer notification**

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#### **Contact information**

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