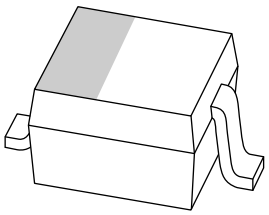
DATA SHEET



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 Ω
- Small inductance.

APPLICATIONS

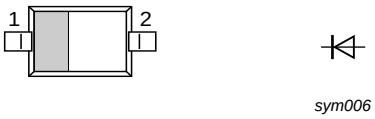
- Low loss band-switching in VHF television tuners
- Surface mount band-switching circuits.

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



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 °C	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

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

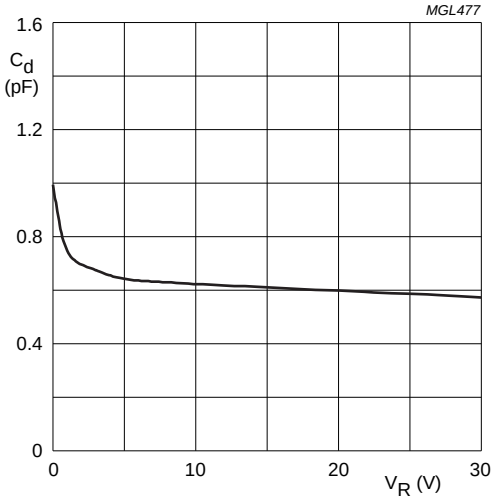
Note

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

THERMAL CHARACTERISTICS

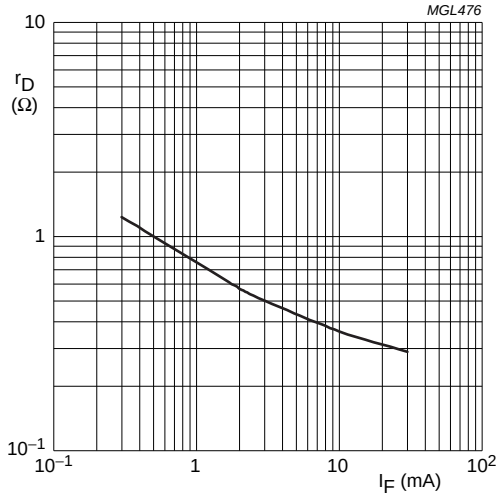
SYMBOL	PARAMETER	VALUE	UNIT
$R_{th(j-s)}$	thermal resistance from junction to soldering point	120	K/W

GRAPHICAL DATA



T_j = 25 °C; f = 1 MHz.

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

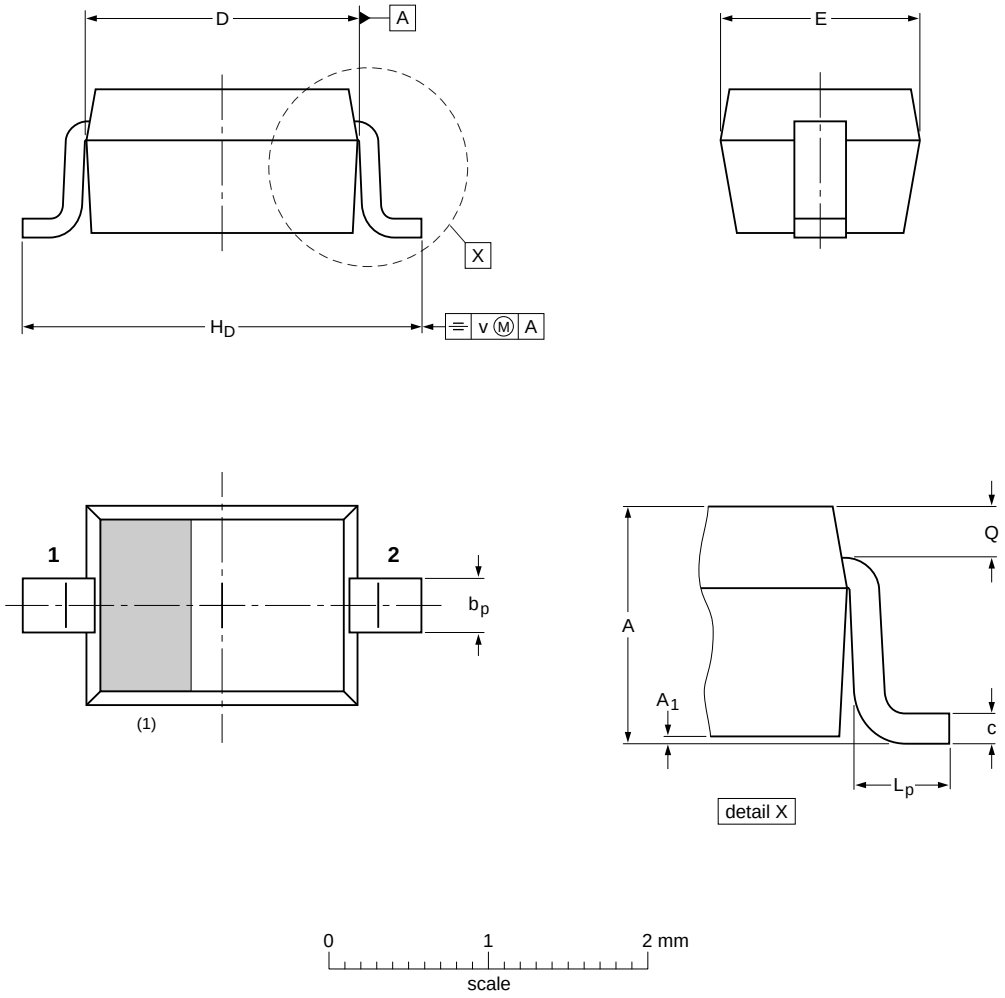


T_j = 25 °C; f = 100 MHz.

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

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_D	L_p	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			~~03-12-17~~ 06-03-16

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	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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Customer notification

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.

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