# ne<mark>x</mark>peria

#### Important notice

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In data sheets and application notes which still contain NXP or Philips Semiconductors references, use the references to Nexperia, as shown below.

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Should be replaced with:

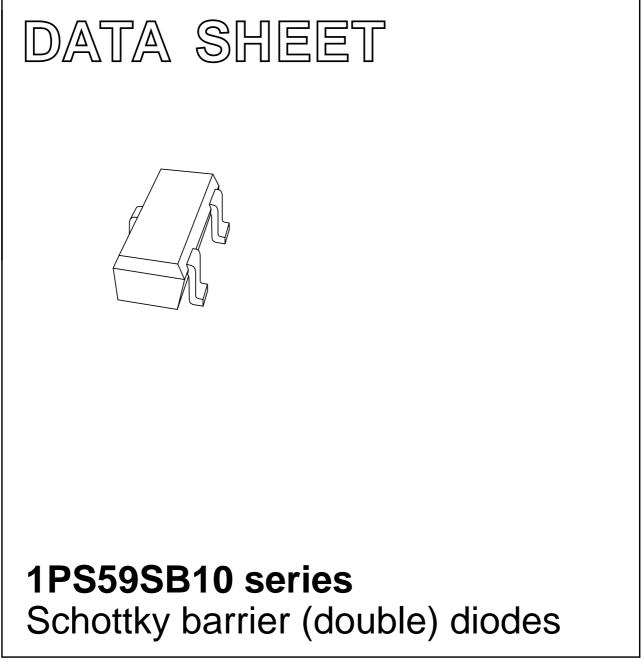
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via **salesaddresses@nexperia.com**). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# DISCRETE SEMICONDUCTORS



Product specification

1996 Sep 20



# 1PS59SB10 series

#### FEATURES

- Low forward voltage
- · Guard ring protected
- Small SMD package.

#### APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes.

#### DESCRIPTION

Planar Schottky barrier diodes encapsulated in a SC59 small plastic SMD package. Single diodes and double diodes with different pinning are available.

#### MARKING

TYPE NUMBER	MARKING CODE
1PS59SB10	10
1PS59SB14	14
1PS59SB15	15
1PS59SB16	16

#### PINNING

PIN	1PS59SB			
FIN	10	14	15	16
1	а	a <sub>1</sub>	a <sub>1</sub>	k <sub>1</sub>
2	n.c.	k <sub>2</sub>	a <sub>2</sub>	k <sub>2</sub>
3	k	k <sub>1</sub> , a <sub>2</sub>	k <sub>1</sub> , k <sub>2</sub>	a <sub>1</sub> , a <sub>2</sub>

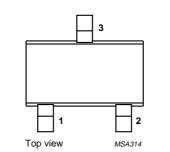


Fig.1 Simplified outline (SC59) and pin configuration.

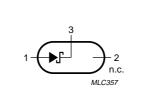


Fig.2 1PS59SB10 single diode configuration (symbol).

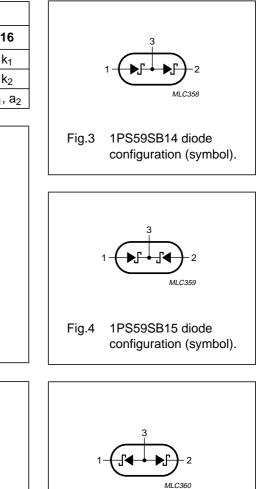


Fig.5 1PS59SB16 diode configuration (symbol).

## 1PS59SB10 series

#### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode	Per diode				
V <sub>R</sub>	continuous reverse voltage		-	30	V
I <sub>F</sub>	continuous forward current		-	200	mA
I <sub>FRM</sub>	repetitive peak forward current	$t_p \le 1 \text{ s}; \delta \le 0.5$	-	300	mA
I <sub>FSM</sub>	non-repetitive peak forward current	t <sub>p</sub> < 10 ms	-	600	mA
P <sub>tot</sub>	total power dissipation (per package)	$T_{amb} \le 25 \ ^{\circ}C$	-	250	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
Тj	junction temperature		-	125	°C

#### ELECTRICAL CHARACTERISTICS

 $T_{amb} = 25 \ ^{\circ}C$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode		· ·	•	
V <sub>F</sub>	forward voltage	see Fig.6		
		I <sub>F</sub> = 0.1 mA	240	mV
		I <sub>F</sub> = 1 mA	320	mV
		I <sub>F</sub> = 10 mA	400	mV
		I <sub>F</sub> = 30 mA	500	mV
		I <sub>F</sub> = 100 mA	800	mV
I <sub>R</sub>	reverse current	V <sub>R</sub> = 25 V; see Fig.7	2	μΑ
t <sub>rr</sub>	reverse recovery time	when switched from $I_F = 10 \text{ mA}$ to $I_R = 10 \text{ mA}$ ; $R_L = 100 \Omega$ ; measured at $I_R = 1 \text{ mA}$ ; see Fig.9	5	ns
C <sub>d</sub>	diode capacitance	$f = 1 \text{ MHz}; V_R = 1 \text{ V}; \text{ see Fig.8}$	10	pF

#### THERMAL CHARACTERISTICS

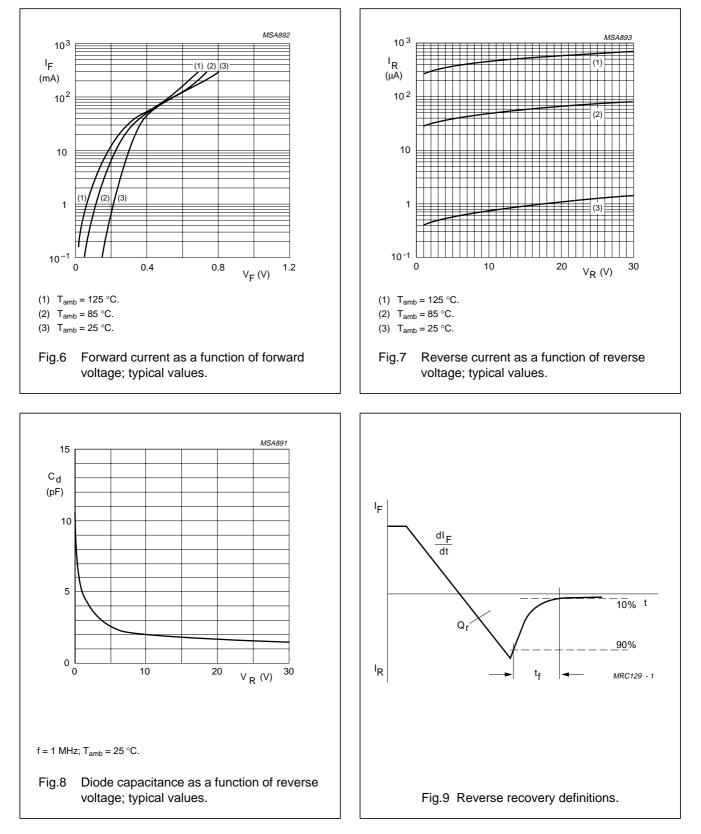
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	500	K/W

#### Note

1. Refer to SC59 standard mounting conditions.

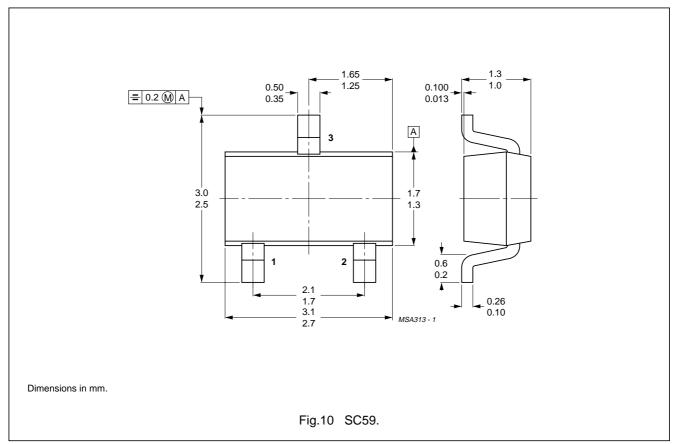
### 1PS59SB10 series

#### **GRAPHICAL DATA**



## 1PS59SB10 series

#### PACKAGE OUTLINE



#### DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in	accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or

Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

#### **Application information**

Where application information is given, it is advisory and does not form part of the specification.

#### LIFE SUPPORT APPLICATIONS

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