

DATA SHEET

BAT93 Schottky barrier diode

Product specification
File under Discrete Semiconductors, SC01

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Philips Semiconductors



PHILIPS

Schottky barrier diode

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FEATURES

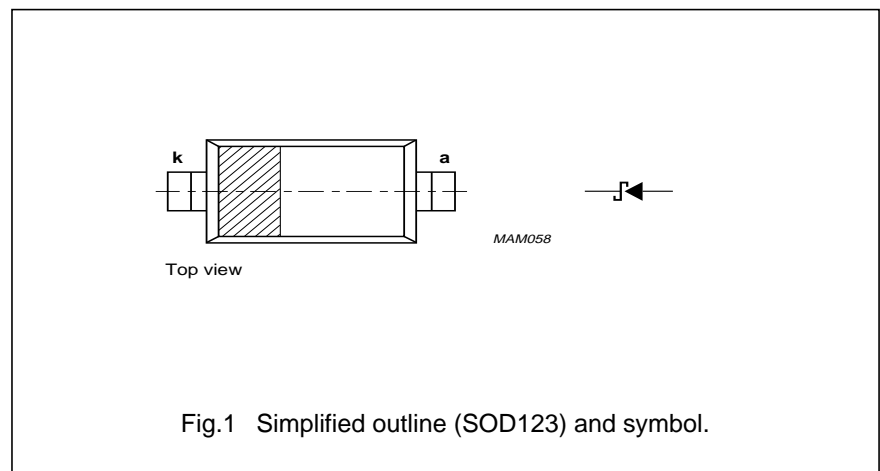
- Ultra-fast switching speed
- Low forward voltage
- Two-pin SMD package.

DESCRIPTION

Silicon epitaxial Schottky barrier diode with an integrated guard ring for stress protection. Intended for high speed switching, circuit protection and voltage clamping applications. The diode is encapsulated in a SOD123 SMD plastic package.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_R	continuous reverse voltage		30	V
I_F	continuous forward current		200	mA
V_F	forward voltage	$I_F = 10 \text{ mA}$	400	mV
I_R	reverse current	$V_R = 25 \text{ V}$	2	μA
T_j	junction temperature		150	$^{\circ}\text{C}$
C_d	diode capacitance	$V_R = 1 \text{ V}$	10	pF



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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	30	V
I_F	continuous forward current		–	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	–	300	mA
I_{FSM}	non-repetitive peak forward current	$t_p < 10$ ms	–	600	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ\text{C}$	–	250	mW
T_{stg}	storage temperature		–65	+150	$^\circ\text{C}$
T_{amb}	operating ambient temperature		–65	+150	$^\circ\text{C}$
T_j	junction temperature		–	150	$^\circ\text{C}$

THERMAL RESISTANCE

SYMBOL	PARAMETER	THERMAL RESISTANCE
$R_{th\ j-a}$	from junction to ambient; note 1	500 K/W

Note

1. Printed-circuit board mounting (SOD123 standard conditions).

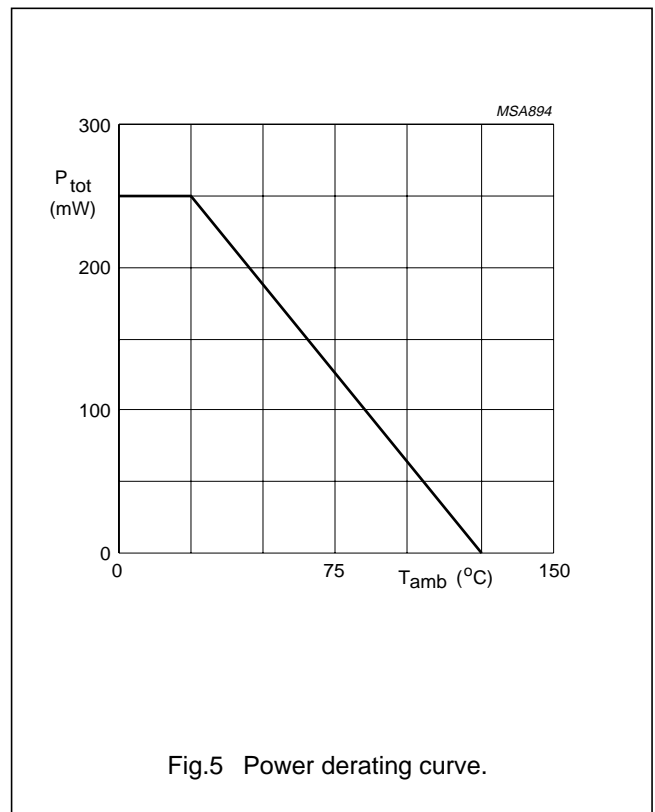
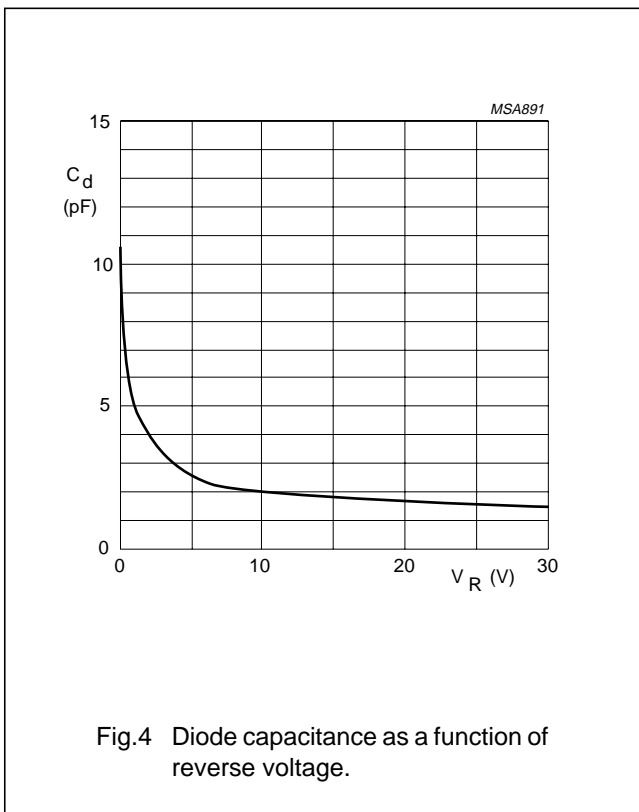
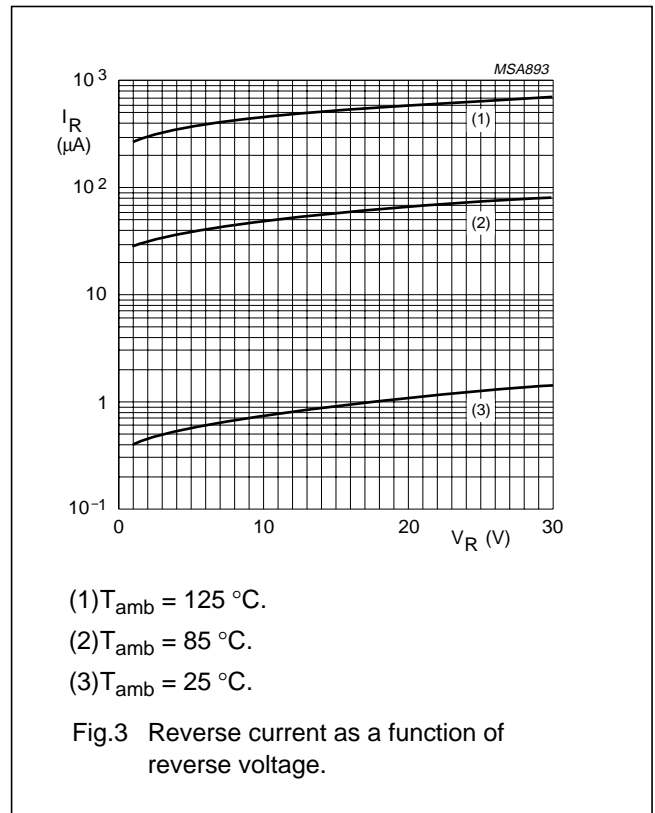
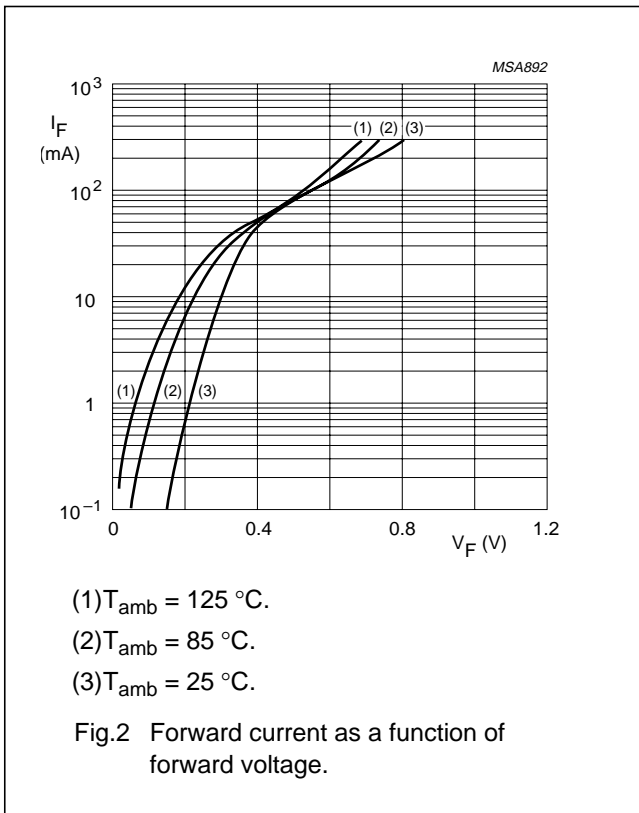
CHARACTERISTICS $T_j = 25^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage	$I_F = 0.1$ mA	–	240	mV
		$I_F = 1$ mA	–	320	mV
		$I_F = 10$ mA	–	400	mV
		$I_F = 30$ mA	–	500	mV
		$I_F = 100$ mA	–	800	mV
$V_{(BR)R}$	reverse breakdown voltage	$I_R = 10$ μA	30	–	V
I_R	reverse current	$V_R = 25$ V; note 1	–	2	μA
C_d	diode capacitance	$V_R = 1$ V; $f = 1$ MHz	–	10	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10$ mA to $I_R = 10$ mA; $R_L = 100$ Ω ; measured at $I_R = 1$ mA	–	5	ns

Note1. Pulsed test: $t_p = 300$ μs ; $\delta = 0.02$.

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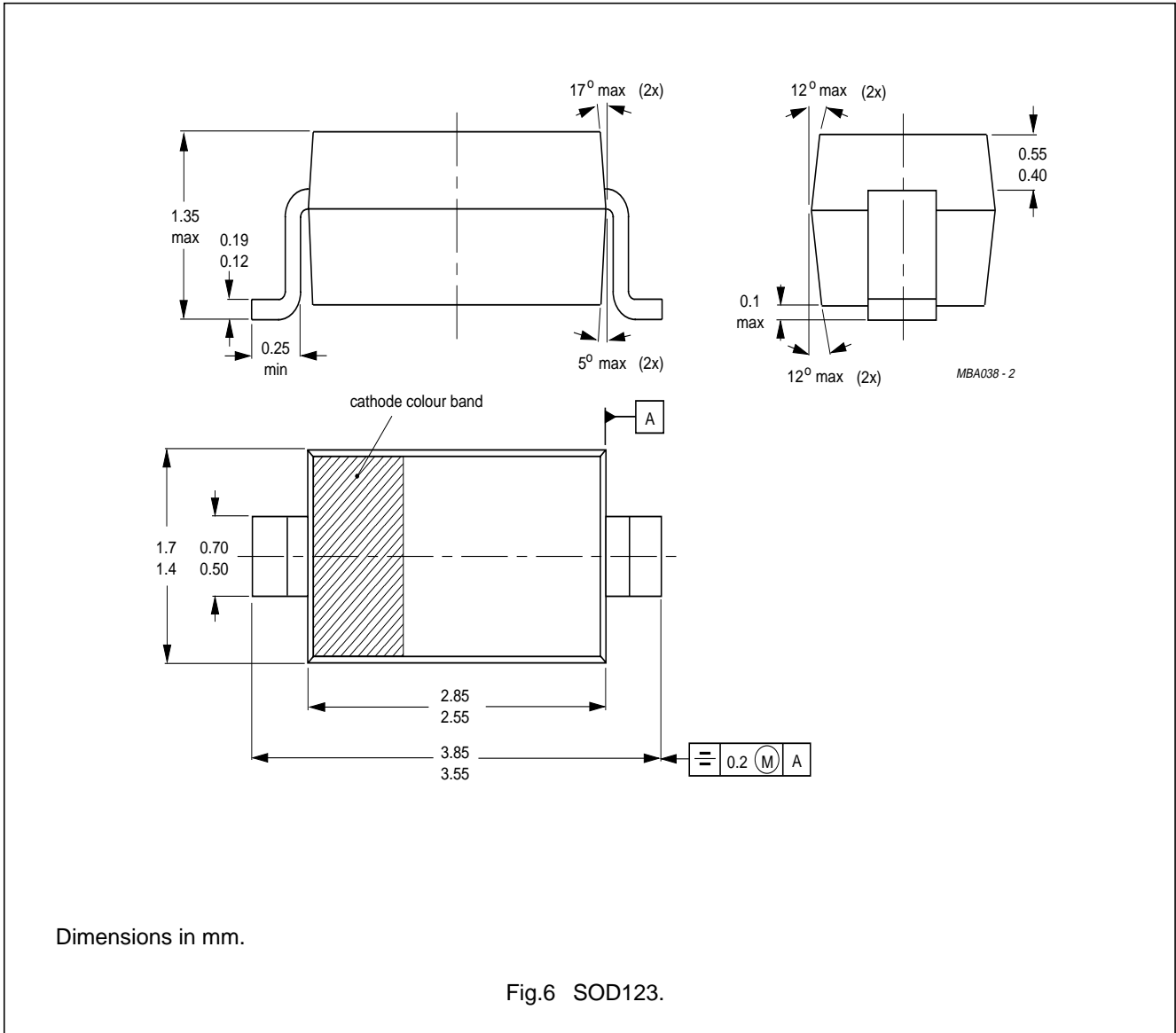
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PACKAGE OUTLINE



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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 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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