

DATA SHEET

BAT56 Schottky barrier diode

Preliminary specification
File under Discrete Semiconductors, SC01

December 1993

Philips Semiconductors



PHILIPS

Schottky barrier diode

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FEATURES

- Low leakage current
- Low turn-on and high breakdown voltage
- Ultra-fast switching speed.

DESCRIPTION

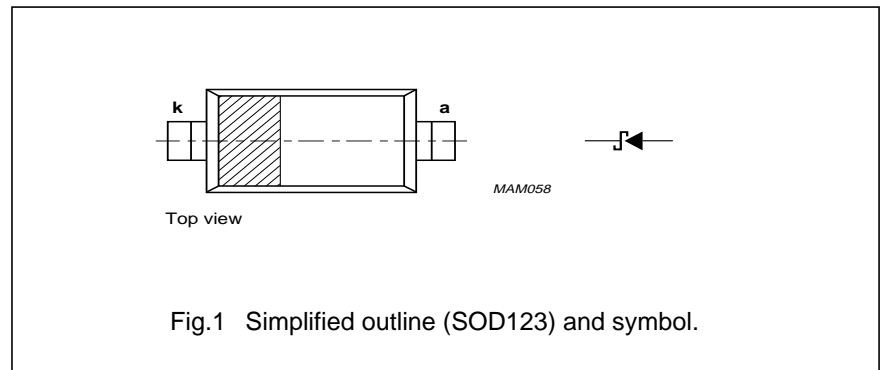
Silicon epitaxial Schottky barrier diode with an integrated guard ring for stress protection. Intended for high speed switching, circuit protection and voltage clamping applications.

The diode is encapsulated in a SOD123 SMD plastic package.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_R	continuous reverse voltage		60	V
I_F	continuous forward current		30	mA
V_F	forward voltage	$I_F = 1 \text{ mA}$	410	mV
I_R	reverse current	$V_R = 60 \text{ V}$	200	nA
T_j	junction temperature		150	°C
C_d	diode capacitance	$V_R = 1 \text{ V}$	1.6	pF

PIN CONFIGURATION



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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		–	60	V
I_F	continuous forward current		–	30	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1 \text{ s}; \delta \leq 0.5$	–	100	mA
I_{FSM}	non-repetitive peak forward current	$t_p < 10 \text{ ms}$	–	250	mA
T_{stg}	storage temperature		–65	+150	°C
T_{amb}	operating ambient temperature		–65	+150	°C
T_j	junction temperature		–	150	°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

$T_j = 25 \text{ °C}$ unless otherwise specified.

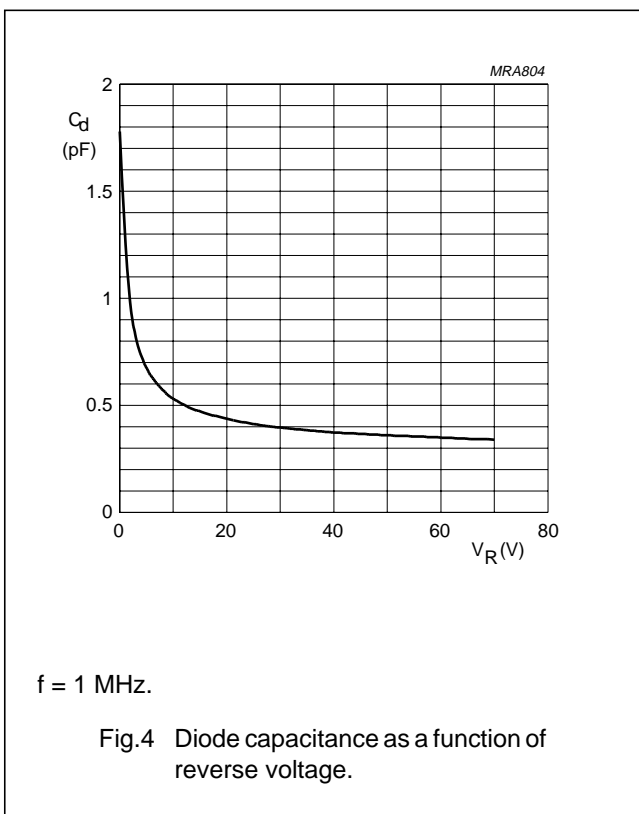
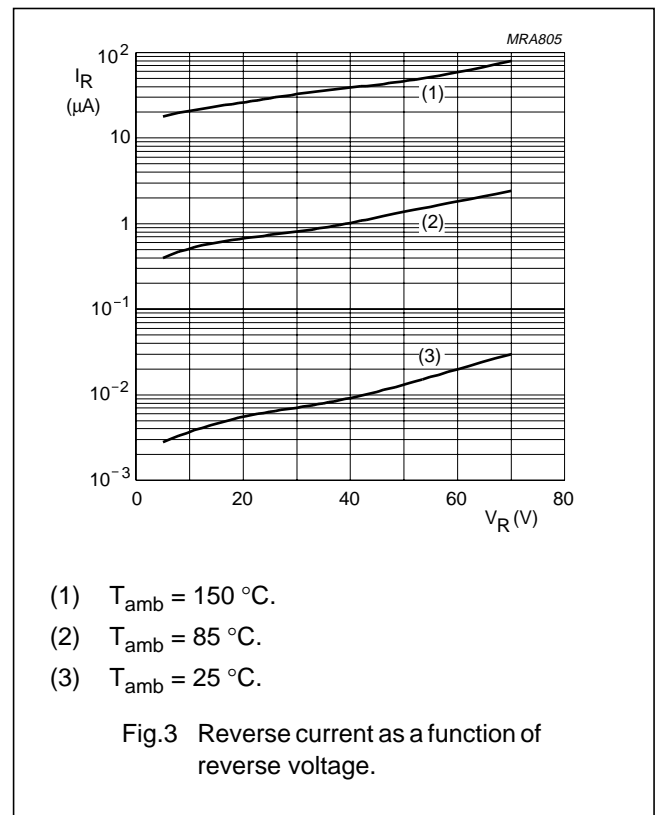
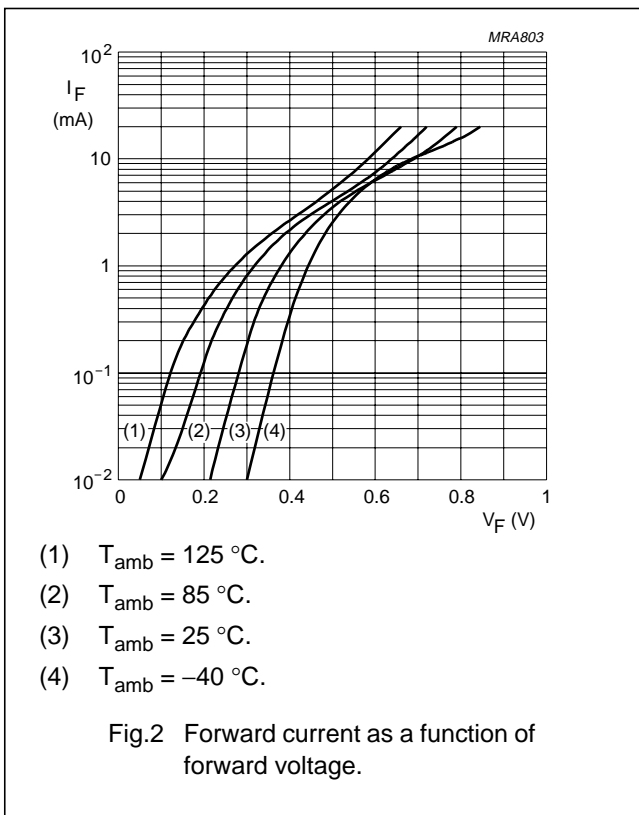
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage	$I_F = 0.1 \text{ mA}$	–	330	mV
		$I_F = 1 \text{ mA}$	–	410	mV
		$I_F = 15 \text{ mA}$	–	1	V
$V_{(BR)R}$	reverse breakdown voltage	$I_R = 10 \text{ }\mu\text{A}$	60	–	V
I_R	reverse current	$V_R = 30 \text{ V}$; note 1	–	100	nA
		$V_R = 60 \text{ V}$; note 1	–	200	nA
C_d	diode capacitance	$V_R = 1 \text{ V}$; $f = 1 \text{ MHz}$	–	1.6	pF

Note

1. Pulsed test: $t_p = 300 \text{ }\mu\text{s}$; $\delta = 0.02$.

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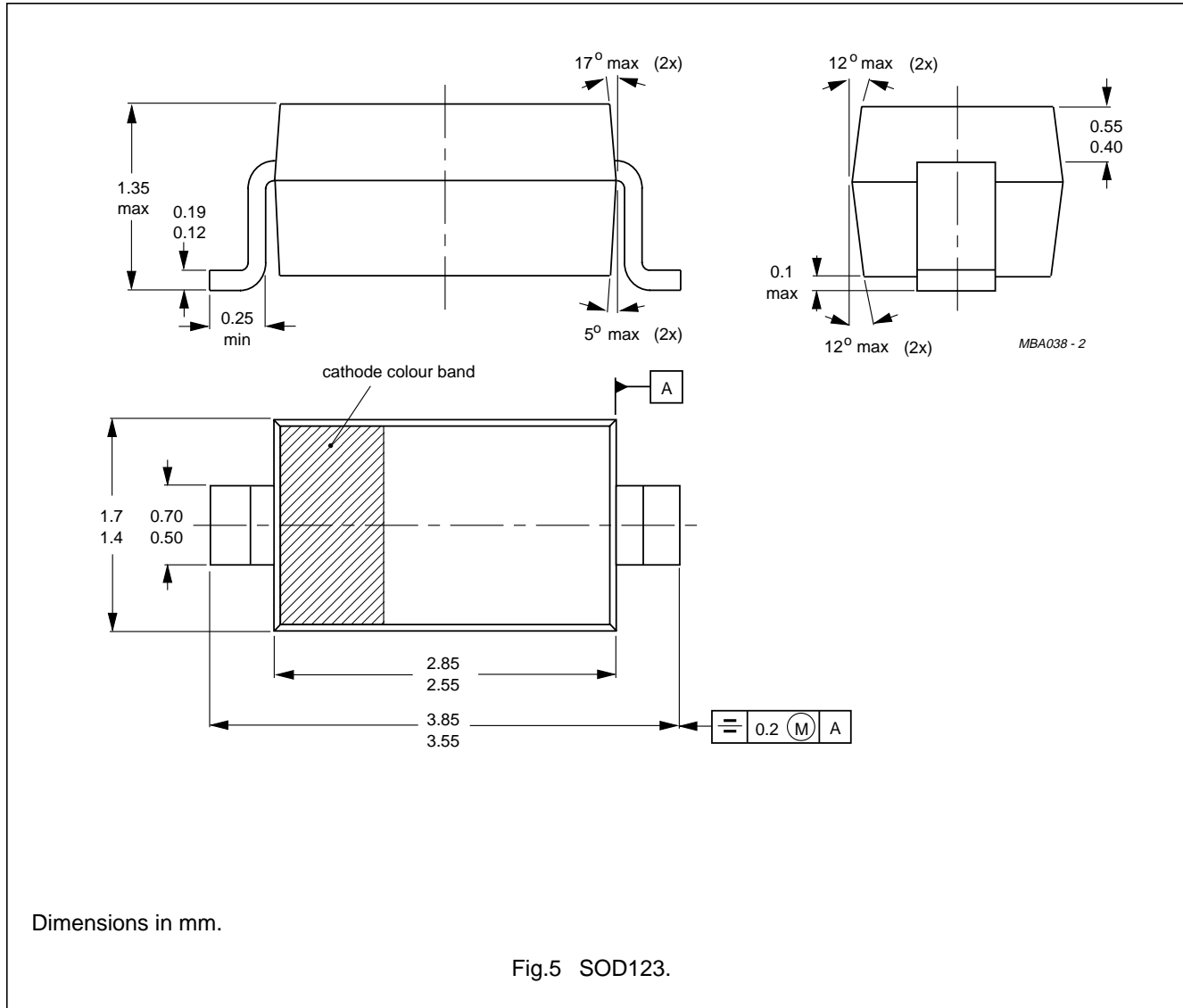
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PACKAGE OUTLINE



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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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