

# DATA SHEET

## **BAT56** Schottky barrier diode

Preliminary specification  
File under Discrete Semiconductors, SC01

December 1993

**Philips Semiconductors**



**PHILIPS**

# Schottky barrier diode

# BAT56

### FEATURES

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

### DESCRIPTION

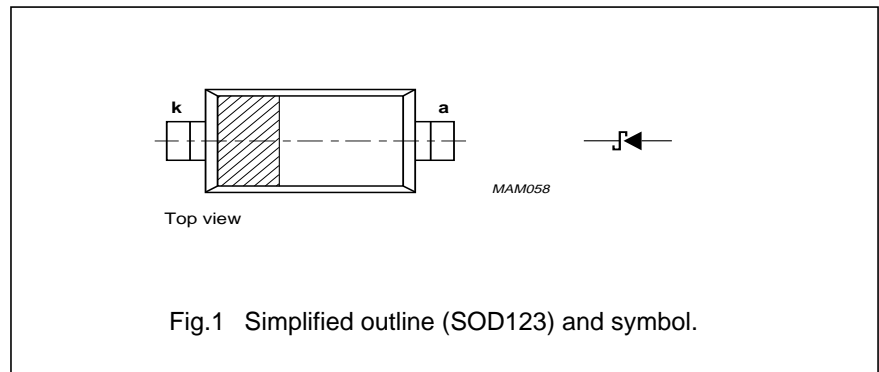
Silicon epitaxial Schottky barrier diode with an integrated guard ring for stress protection. Intended for high speed switching, circuit protection and voltage clamping applications.

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	$t_p \leq 1$ s; $\delta \leq 0.5$	–	100	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p < 10$ 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).

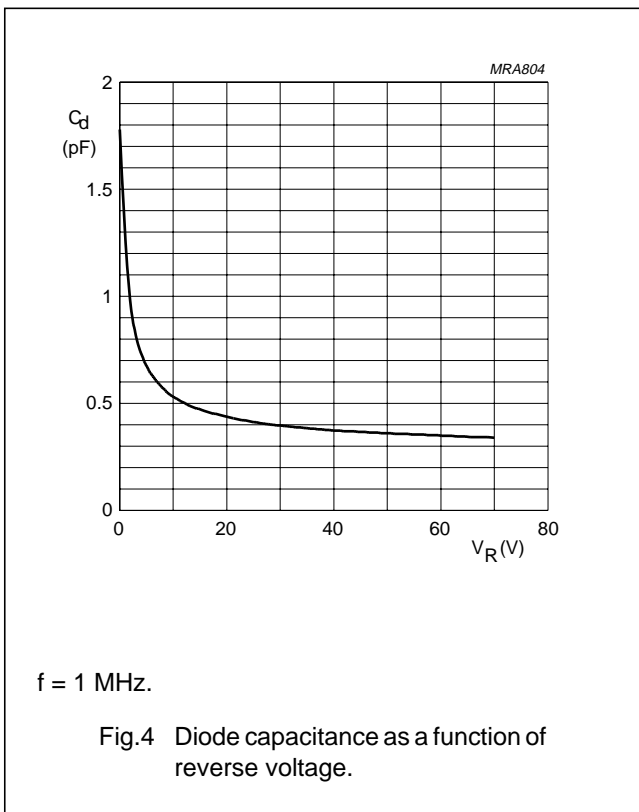
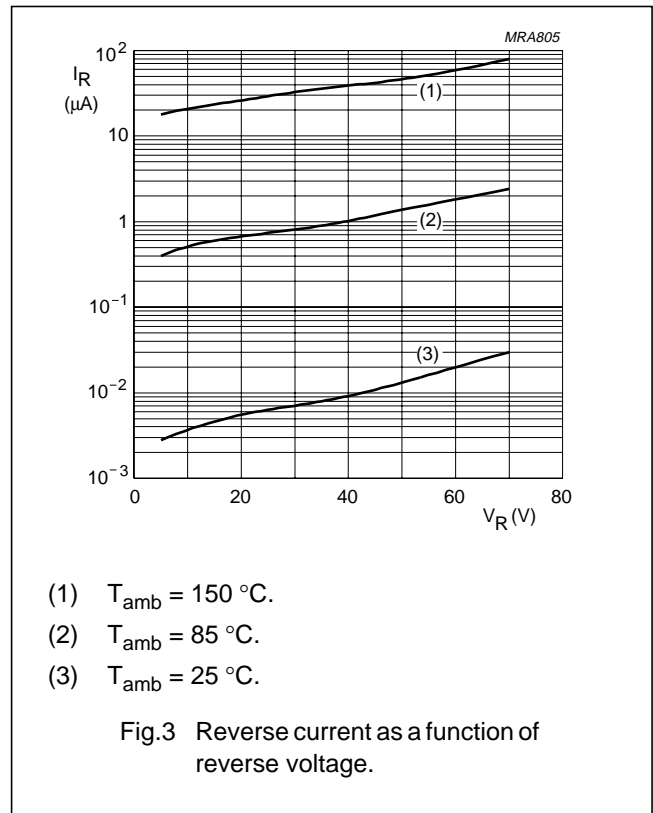
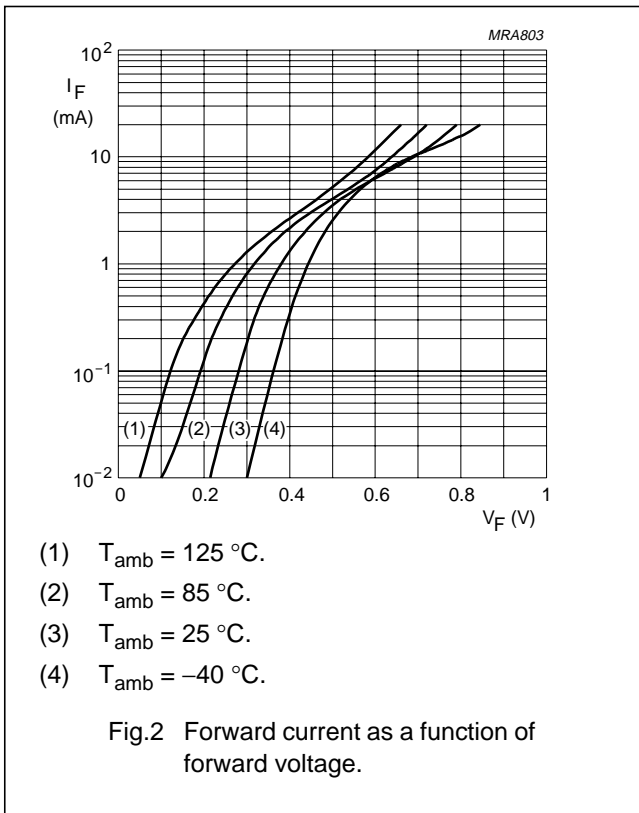
**CHARACTERISTICS** $T_j = 25$  °C unless otherwise specified.

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

**Note**1. Pulsed test:  $t_p = 300$   $\mu$ s ;  $\delta = 0.02$ .

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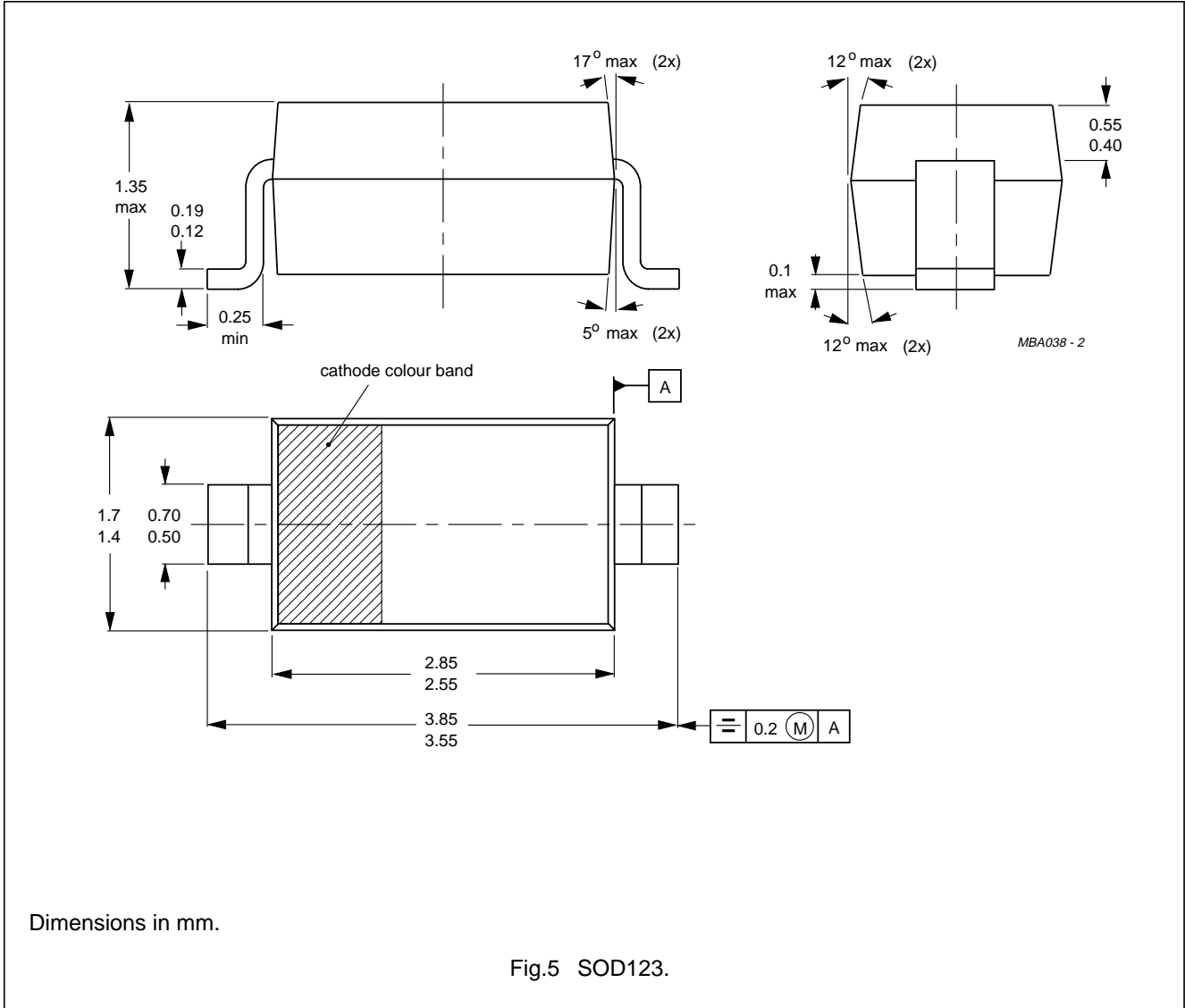
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## PACKAGE OUTLINE



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**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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