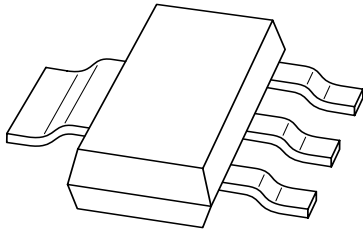


# DATA SHEET



## **BAT120 series** Schottky barrier double diodes

Product specification  
Supersedes data of 1998 Jan 21

1998 Oct 30

# Schottky barrier double diodes

# BAT120 series

### FEATURES

- Low switching losses
- Capability of absorbing very high surge current
- Fast recovery time
- Guard ring protected
- Plastic SMD package.

### APPLICATIONS

- Low power switched-mode power supplies
- Rectification
- Polarity protection.

### DESCRIPTION

Planar Schottky barrier double diodes encapsulated in a SOT223 plastic SMD package

### MARKING

TYPE NUMBER	MARKING CODE
BAT120A	AT120A
BAT120C	AT120C
BAT120S	AT120S

### PINNING

PIN	BAT120		
	A	C	S
1	k <sub>1</sub>	a <sub>1</sub>	a <sub>1</sub>
2	n.c.	n.c.	n.c.
3	k <sub>2</sub>	a <sub>2</sub>	k <sub>2</sub>
4	a <sub>1</sub> , a <sub>2</sub>	k <sub>1</sub> , k <sub>2</sub>	k <sub>1</sub> , a <sub>2</sub>

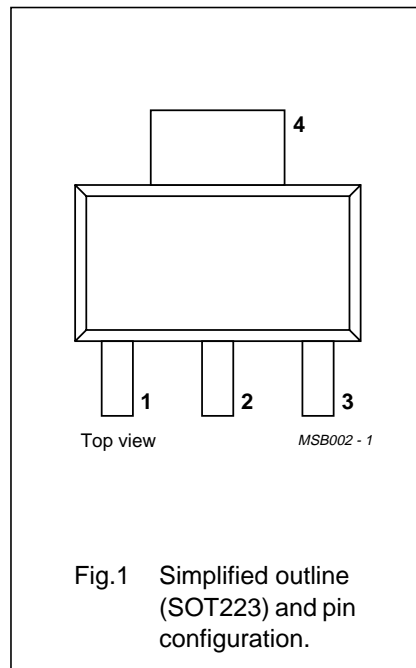


Fig.1 Simplified outline (SOT223) and pin configuration.

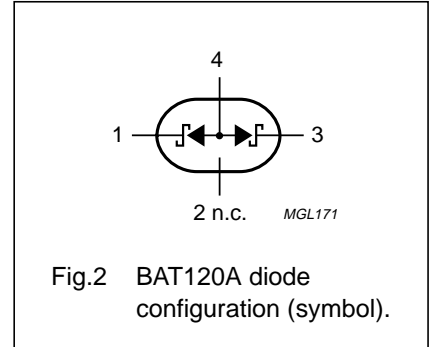


Fig.2 BAT120A diode configuration (symbol).

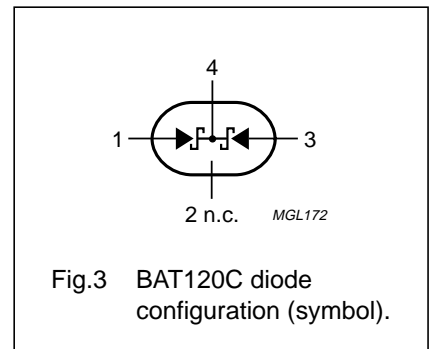


Fig.3 BAT120C diode configuration (symbol).

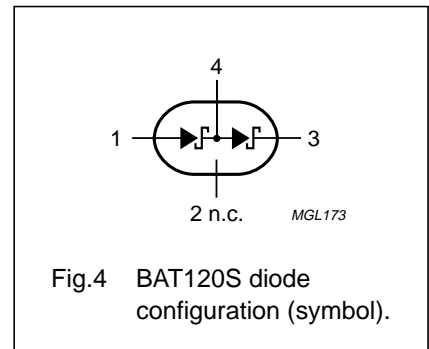


Fig.4 BAT120S diode configuration (symbol).

## Schottky barrier double diodes

## BAT120 series

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage		–	25	V
$I_F$	continuous forward current		–	1	A
$I_{FSM}$	non-repetitive peak forward current	$t_p < 10$ ms; half sinewave; JEDEC method	–	10	A
$I_{RSM}$	non-repetitive peak reverse current	$t_p = 100$ $\mu$ s	–	0.5	A
$T_{stg}$	storage temperature		–65	+150	$^{\circ}$ C
$T_j$	junction temperature		–	125	$^{\circ}$ C
$T_{amb}$	operating ambient temperature		–65	+125	$^{\circ}$ C

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	forward voltage	see Fig.5			
		$I_F = 100$ mA	260	300	mV
		$I_F = 1$ A	400	450	mV
$I_R$	reverse current	$V_R = 20$ V; note 1; see Fig.6	80	500	$\mu$ A
		$V_R = 25$ V; note 1; see Fig.6	–	1	mA
		$V_R = 20$ V; $T_j = 100$ $^{\circ}$ C; note 1	–	10	mA
$C_d$	diode capacitance	$f = 1$ MHz; $V_R = 4$ V; see Fig.7	100	–	pF

**Note**

1. Pulse test:  $t_p = 300$   $\mu$ s;  $\delta = 0.02$ .

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	100	K/W

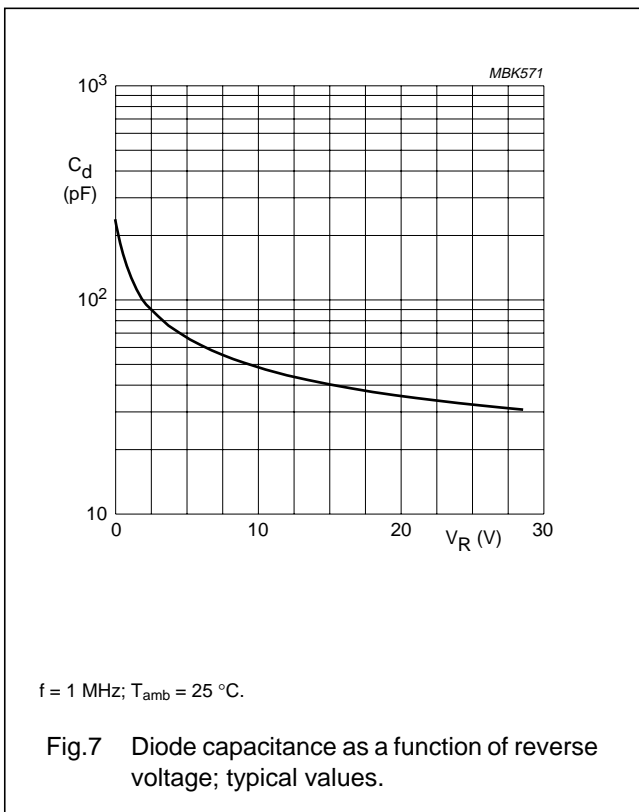
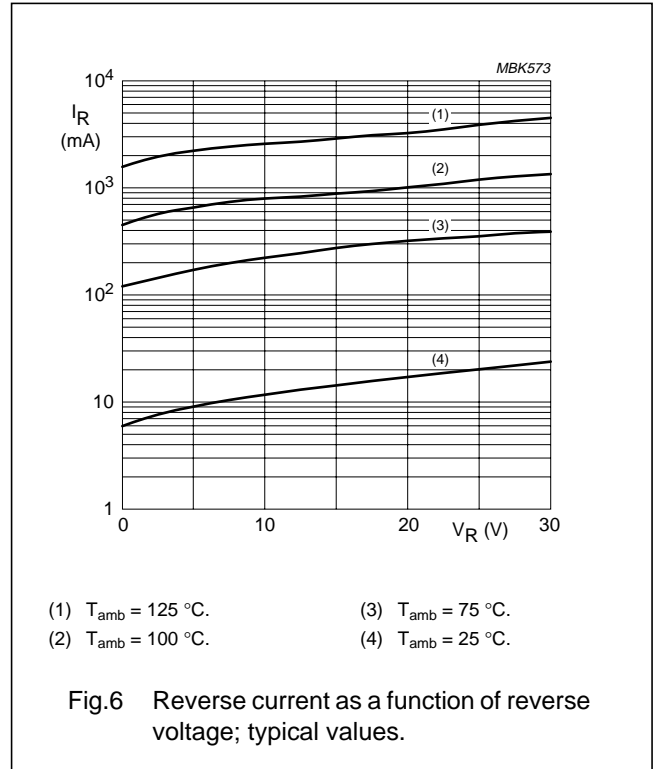
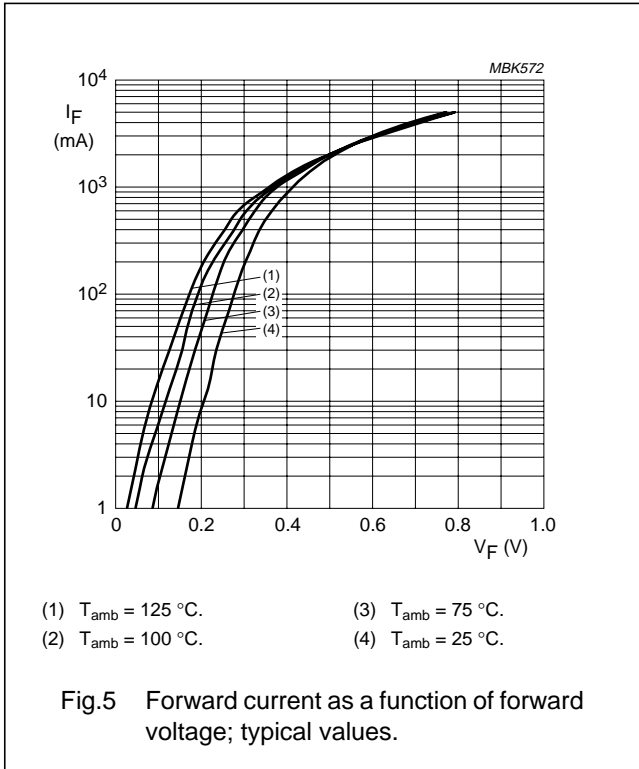
**Note**

1. Refer to SOT223 standard mounting conditions.

Schottky barrier double diodes

BAT120 series

GRAPHICAL DATA



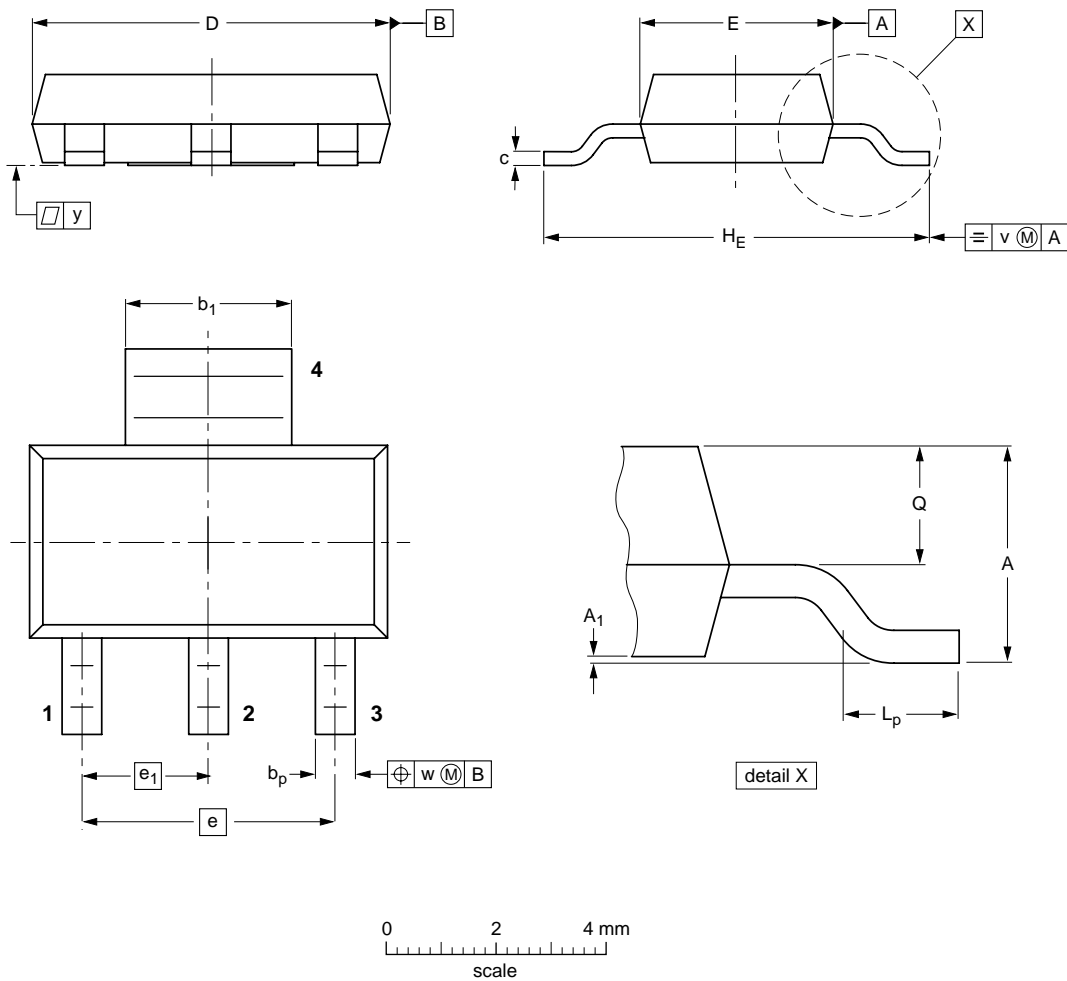
Schottky barrier double diodes

BAT120 series

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b <sub>p</sub>	b <sub>1</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w	y
mm	1.8 1.5	0.10 0.01	0.80 0.60	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	4.6	2.3	7.3 6.7	1.1 0.7	0.95 0.85	0.2	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT223						96-11-11 97-02-28

## Schottky barrier double diodes

## BAT120 series

**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.	

**LIFE SUPPORT APPLICATIONS**

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

Schottky barrier double diodes

BAT120 series

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