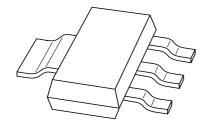
# **DISCRETE SEMICONDUCTORS**

# DATA SHEET



# **BAT120 series**Schottky barrier double diodes

Product specification Supersedes data of 2001 Aug 27 2003 Aug 04





# 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**

DIN	BAT120						
PIN	Α	С	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>	$a_2$	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>				

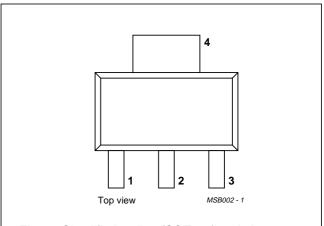
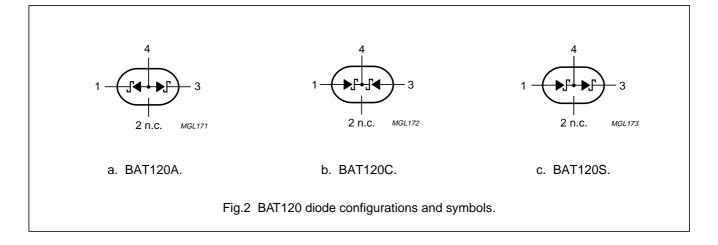


Fig.1 Simplified outline (SOT223) and pin configuration.



Philips Semiconductors Product specification

# Schottky barrier double diodes

BAT120 series

# **LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V <sub>R</sub>	continuous reverse voltage		_	25	V
I <sub>F</sub>	continuous forward current		_	1	Α
I <sub>FSM</sub>	non-repetitive peak forward current	t <sub>p</sub> < 10 ms; half sinewave; JEDEC method	_	10	А
I <sub>RSM</sub>	non-repetitive peak reverse current	t <sub>p</sub> = 100 μs	_	0.5	Α
T <sub>stg</sub>	storage temperature		-65	+150	°C
Tj	junction temperature		_	125	°C
T <sub>amb</sub>	operating ambient temperature		-65	+125	°C

# **ELECTRICAL CHARACTERISTICS**

 $T_{amb}$  = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
Per diode					
V <sub>F</sub>	forward voltage	see Fig.3			
		I <sub>F</sub> = 100 mA	260	300	mV
		I <sub>F</sub> = 1 A	400	450	mV
I <sub>R</sub>	reverse current	V <sub>R</sub> = 20 V; note 1; see Fig.4	80	500	μΑ
		V <sub>R</sub> = 25 V; note 1; see Fig.4	_	1	mA
		$V_R = 20 \text{ V}; T_j = 100 ^{\circ}\text{C}; \text{ note } 1$	_	10	mA
C <sub>d</sub>	diode capacitance	$f = 1 \text{ MHz}$ ; $V_R = 4 \text{ V}$ ; see Fig.5	100	_	pF

# Note

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

# THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	100	K/W

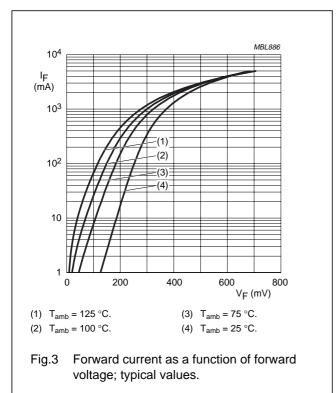
# Note

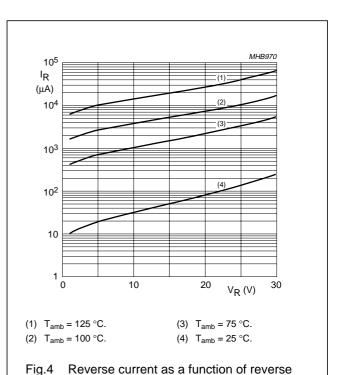
1. Refer to SOT223 standard mounting conditions.

# Schottky barrier double diodes

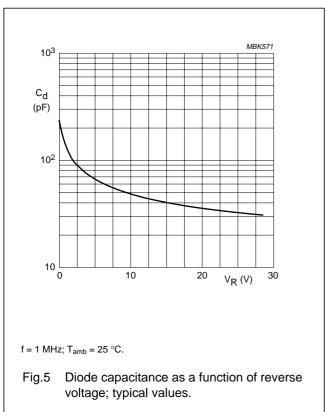
# BAT120 series

# **GRAPHICAL DATA**





voltage; typical values.



4

Philips Semiconductors Product specification

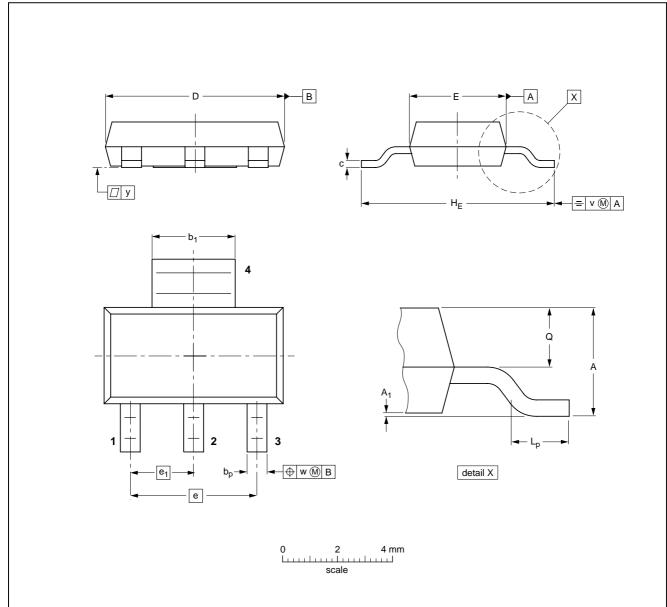
# Schottky barrier double diodes

# 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>	bp	b <sub>1</sub>	С	D	E	е	e <sub>1</sub>	HE	Lp	Q	v	w	у
mm	1.8 1.5	0.10 0.01	0.80 0.60	3.1 2.9	0.32 0.22		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		REFER	EUROPEAN	ISSUE DATE		
VERSION	IEC	JEDEC	EIAJ		PROJECTION	1330E DATE
SOT223			SC-73			<del>-97-02-28</del> 99-09-13

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# Schottky barrier double diodes

BAT120 series

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LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS(2)(3)	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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### **Contact information**

For additional information please visit http://www.semiconductors.philips.com. Fax: +31 40 27 24825 For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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