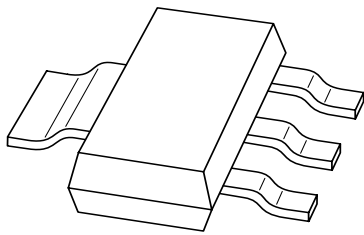


# DATA SHEET



## **BAT140 series** Schottky barrier double diodes

Product specification  
Supersedes data of 1997 Oct 03

2003 Aug 04

# Schottky barrier double diodes

# BAT140 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

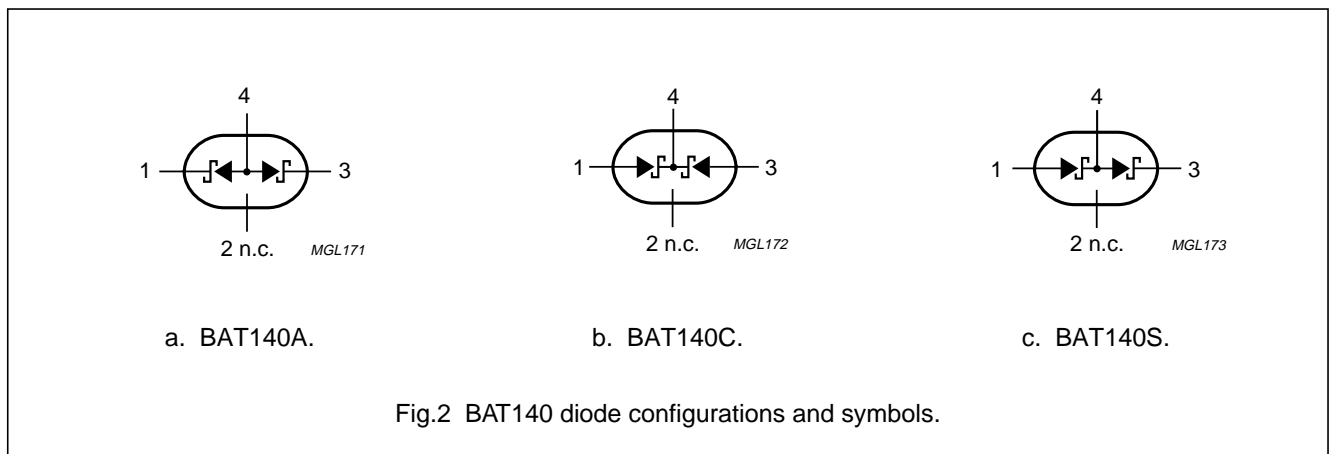
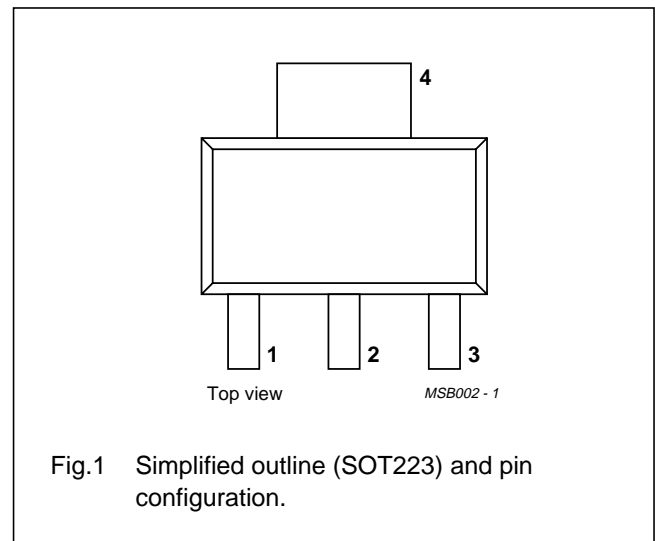
Planar Schottky barrier double diodes encapsulated in a SOT223 plastic SMD package.

### MARKING

TYPE NUMBER	MARKING CODE
BAT140A	AT140A
BAT140C	AT140C
BAT140S	AT140S

### PINNING

PIN	BAT140		
	A	C	S
1	k1	a1	a1
2	n.c.	n.c.	n.c.
3	k2	a2	k2
4	a1, a2	k1, k2	k1, a2



## Schottky barrier double diodes

## BAT140 series

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage		–	40	V
$I_F$	continuous forward current		–	1	A
$I_{F(AV)}$	average forward current	$T_{amb} = 65\text{ °C}$ ; $R_{th\ j-a} = 80\text{ K/W}$ ; note 1; $V_{R(equiv)} = 0.2\text{ V}$ ; note 2	–	1	A
$I_{FSM}$	non-repetitive peak forward current	$t = 8.3\ \mu\text{s}$ half sinewave; JEDEC method	–	10	A
$I_{RSM}$	non-repetitive peak reverse current	$t_p = 100\ \mu\text{s}$	–	0.5	A
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	125	°C

**Notes**

1. Refer to SOT223 standard mounting conditions.
2. For Schottky barrier diodes thermal runaway has to be considered, as in some applications, the reverse power losses PR are a significant part of the total power losses. Nomograms for determination of the reverse power losses PR and  $I_{F(AV)}$  rating will be available on request.

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	forward voltage	see Fig.3			
		$I_F = 100\text{ mA}$ ; note 1	280	330	mV
$I_R$	reverse current	$I_F = 1\text{ A}$ ; note 1	460	500	mV
		$V_R = 10\text{ V}$ ; note 1; see Fig.4	15	40	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 40\text{ V}$ ; note 1; see Fig.4	60	300	$\mu\text{A}$
		$V_R = 4\text{ V}$ ; $f = 1\text{ MHz}$ ; see Fig.5	65	80	pF

**Note**

1. Pulsed test:  $t_p = 300\text{ ms}$ ;  $d = 0.02$ .

**THERMAL CHARACTERISTICS**

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

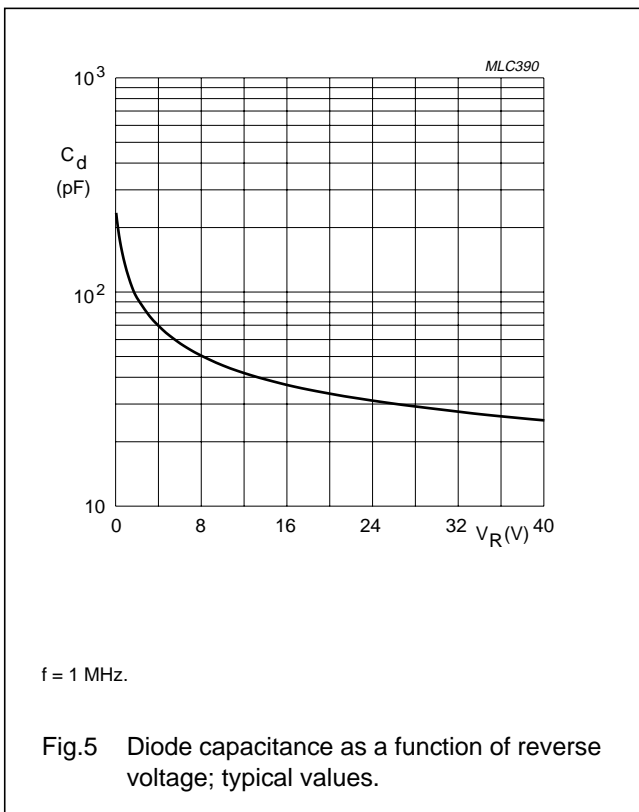
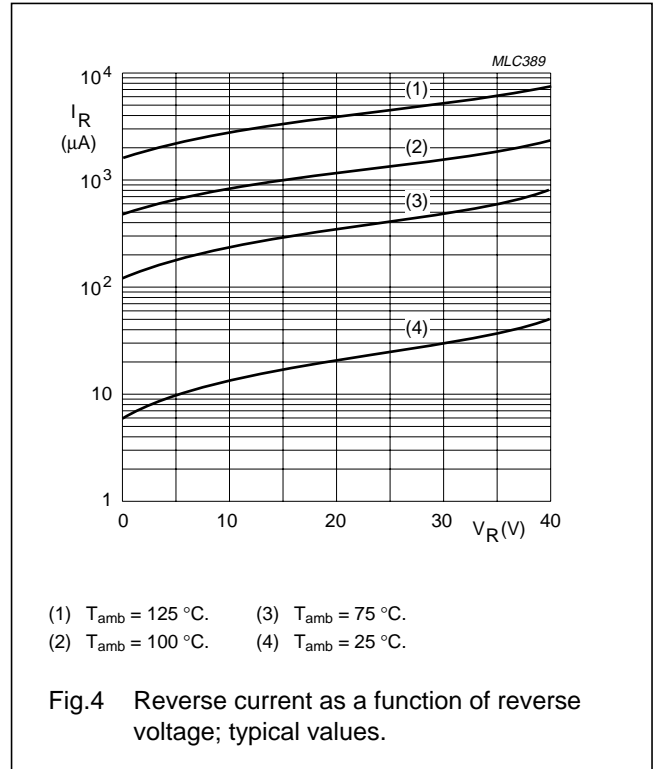
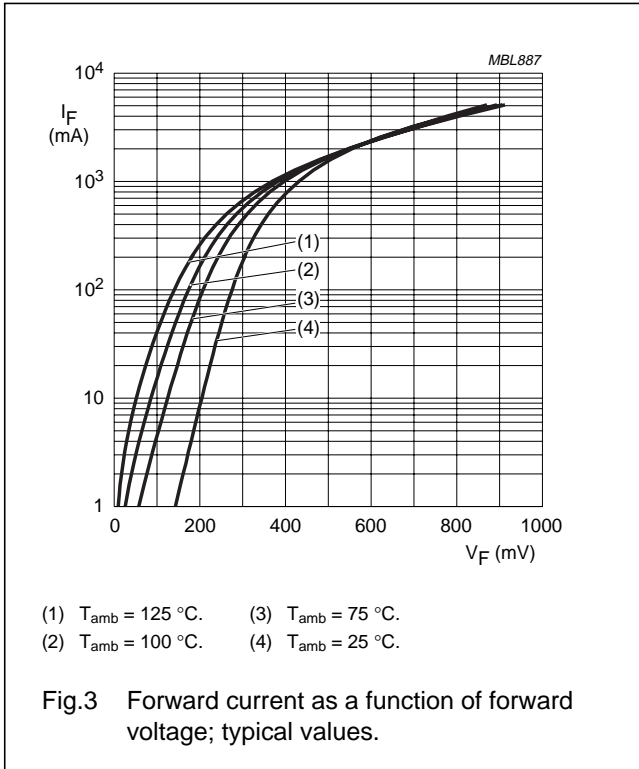
**Note**

1. Refer to SOT223 standard mounting conditions.

Schottky barrier double diodes

BAT140 series

GRAPHICAL DATA



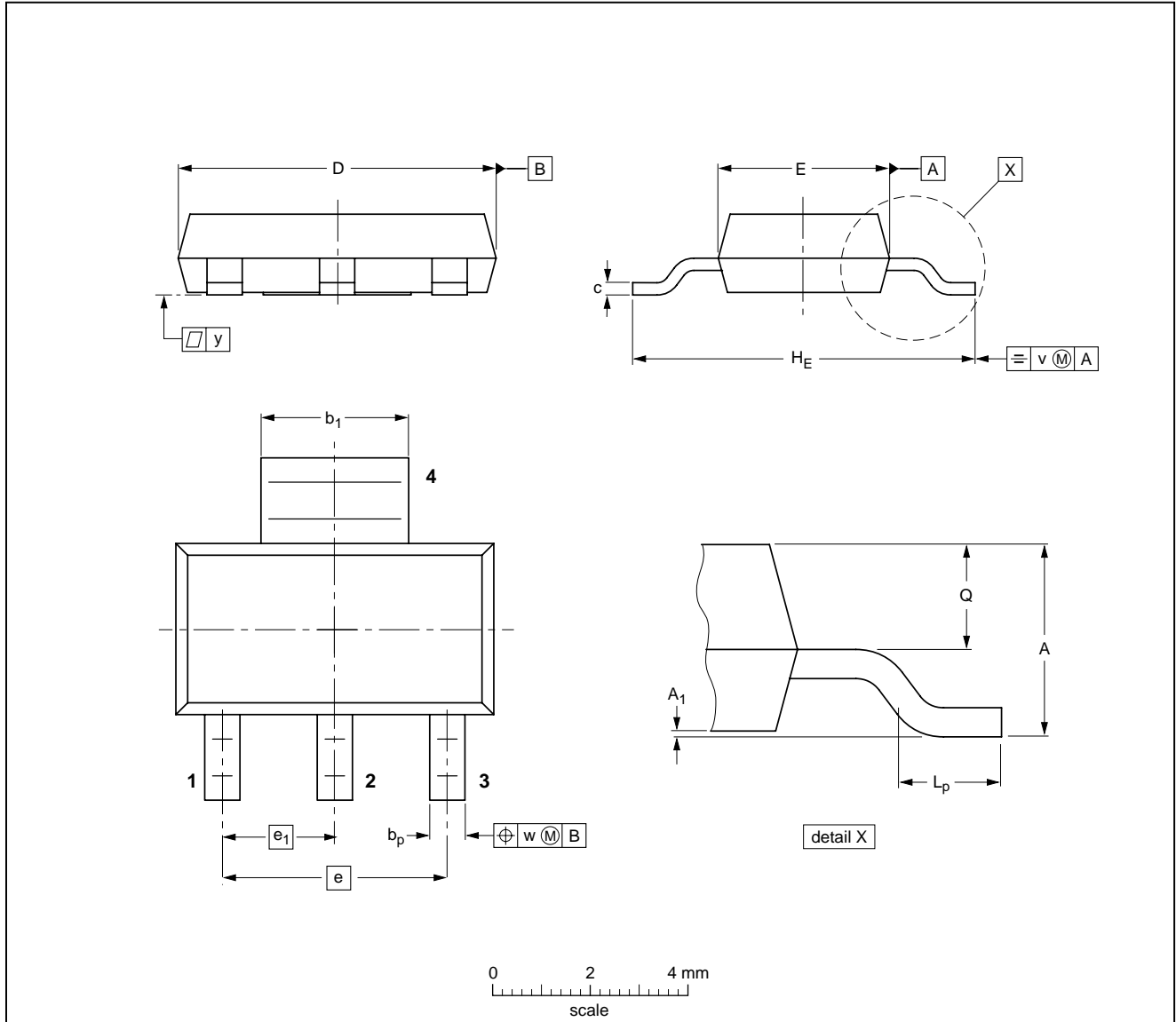
Schottky barrier double diodes

BAT140 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			SC-73			97-02-28 99-09-13

## Schottky barrier double diodes

## BAT140 series

## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	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.
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**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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