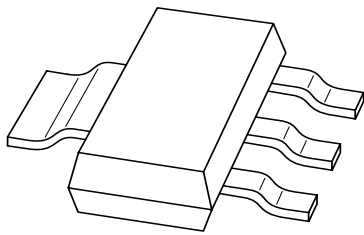


DATA SHEET



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

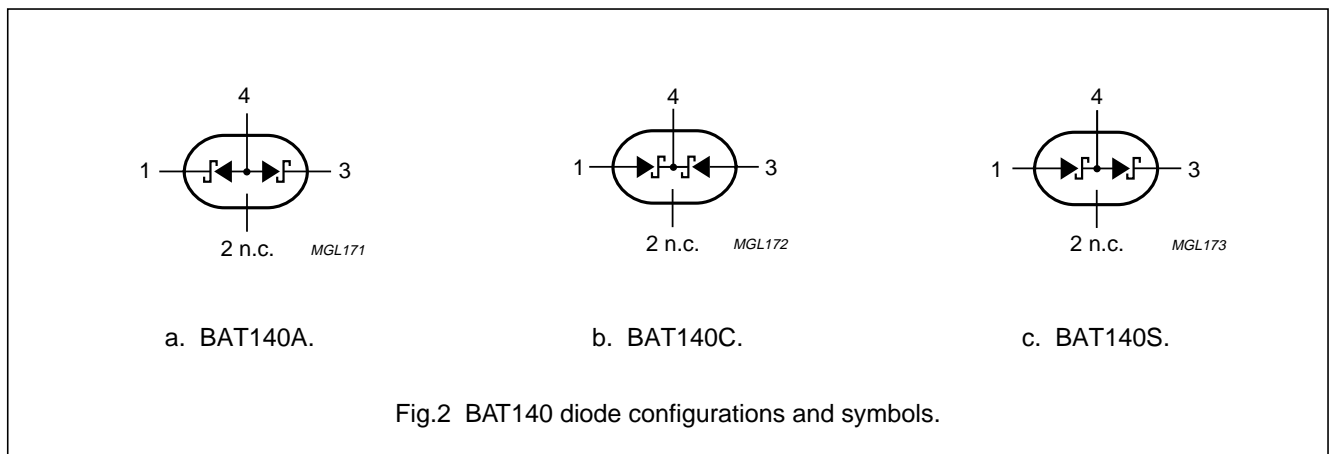
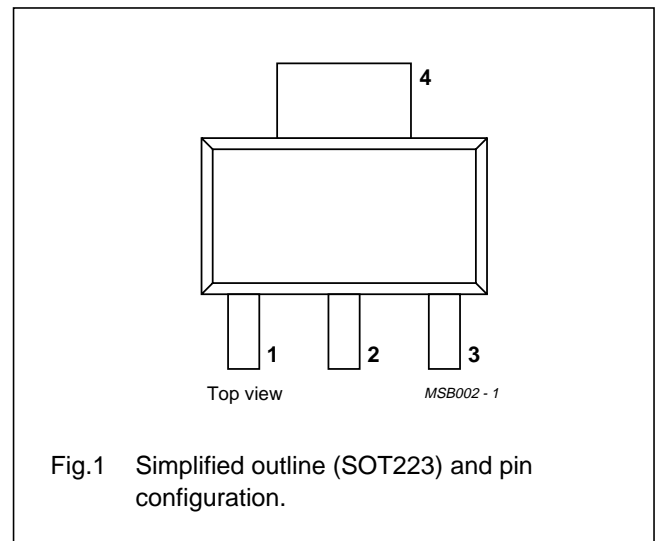
Planar Schottky barrier double diodes encapsulated in a SOT223 plastic SMD package.

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
Per diode					
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
Per diode					
V_F	forward voltage	see Fig.3 $I_F = 100\text{ mA}$; note 1 $I_F = 1\text{ A}$; note 1	280 460	330 500	mV mV
I_R	reverse current	$V_R = 10\text{ V}$; note 1; see Fig.4	15	40	μA
		$V_R = 40\text{ V}$; note 1; see Fig.4	60	300	μA
C_d	diode capacitance	$V_R = 4\text{ V}$; $f = 1\text{ MHz}$; 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

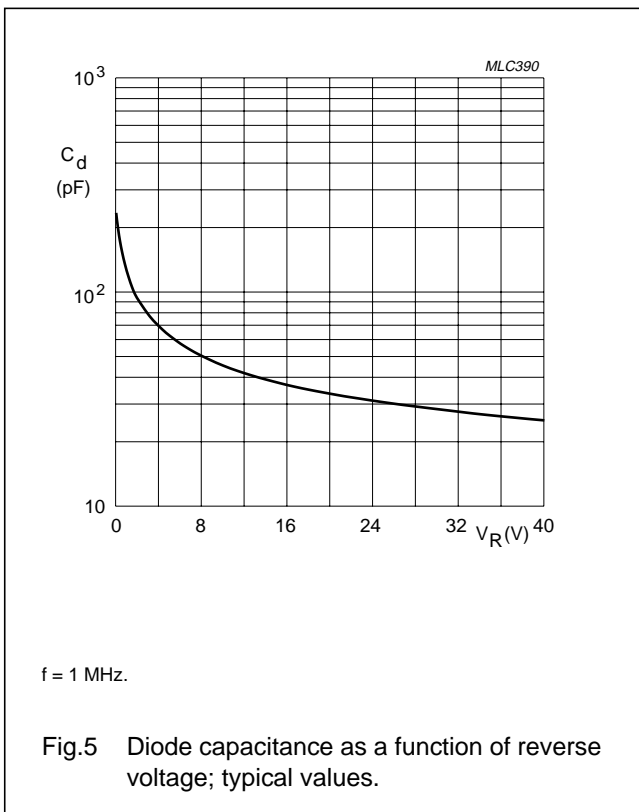
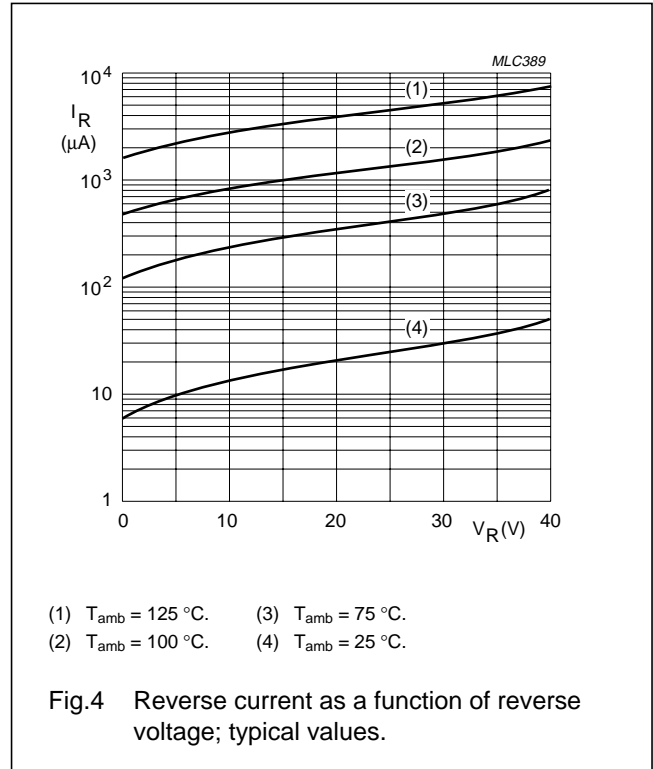
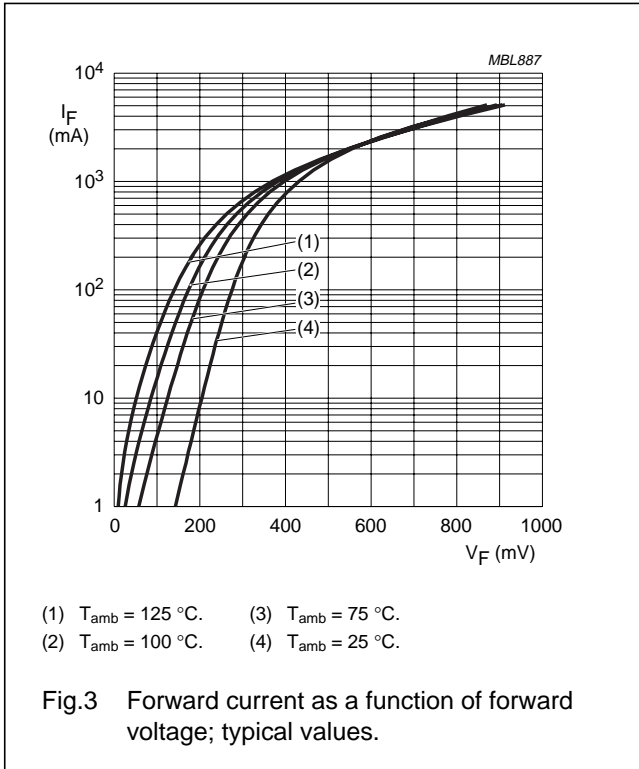
Note

1. Refer to SOT223 standard mounting conditions.

Schottky barrier double diodes

BAT140 series

GRAPHICAL DATA



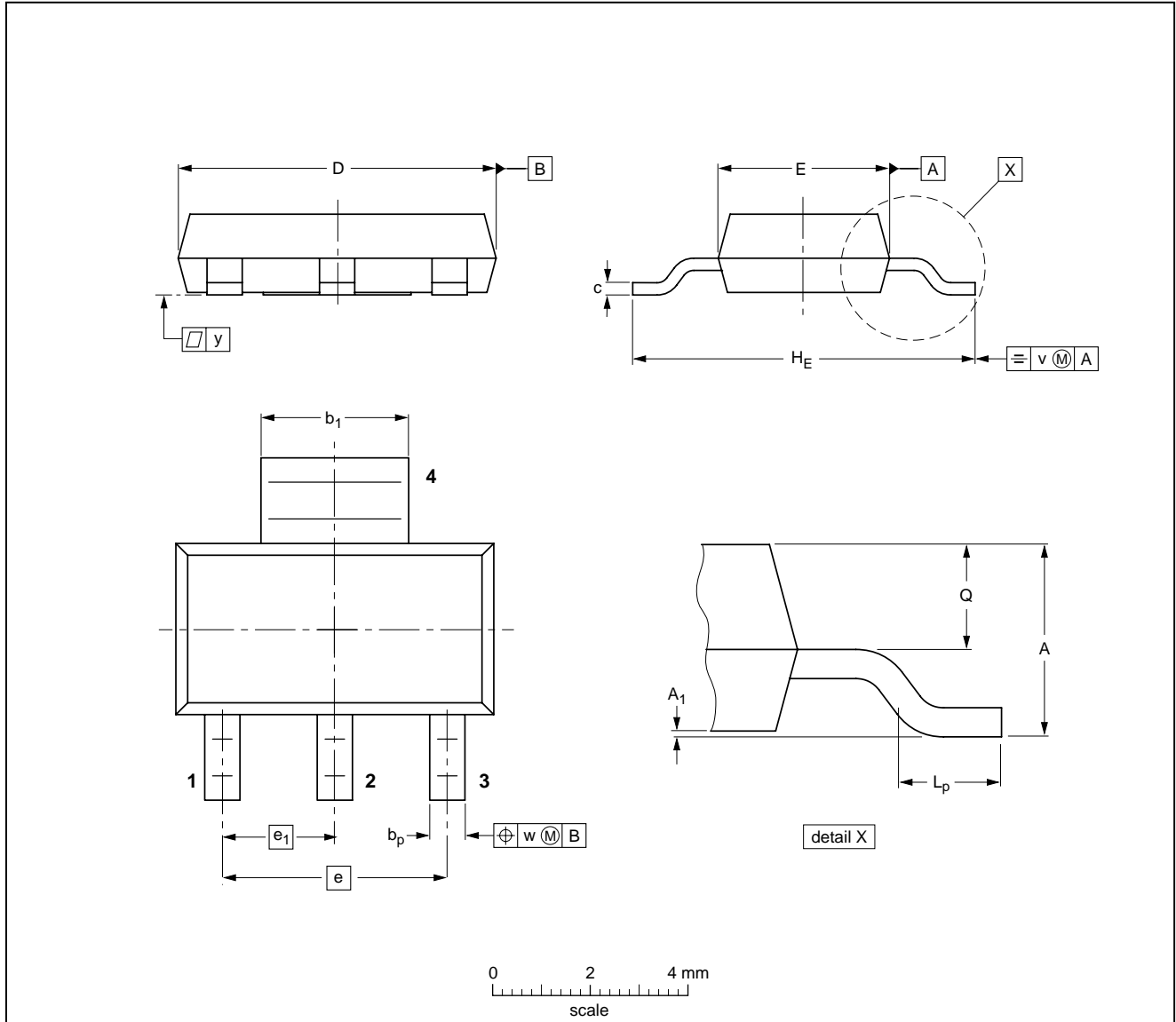
Schottky barrier double diodes

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 ₁	b _p	b ₁	c	D	E	e	e ₁	H _E	L _p	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 ⁽¹⁾	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.
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