



# BAT18

Silicon planar diode

Rev. 02 — 31 August 2004

Product data sheet

## 1. Product profile

### 1.1 General description

Planar high performance band-switching diode in a small rectangular SOT23 SMD plastic package.

### 1.2 Features

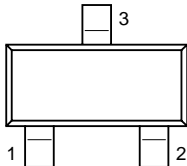
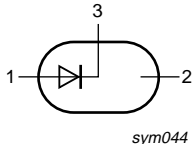
- Continuous reverse voltage: max. 35 V
- Continuous forward current: max. 100 mA
- Low diode capacitance: max. 1.0 pF
- Low diode forward resistance: max. 0.7  $\Omega$ .

### 1.3 Applications

- Band switching.

## 2. Pinning information

Table 1: Pinning

Pin	Description	Simplified outline	Symbol
1	anode		
2	not connected		
3	cathode		

## 3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BAT18	-	plastic surface mounted package; 3 leads	SOT23

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## 4. Marking

**Table 3: Marking**

Type number	Marking code <sup>[1]</sup>
BAT18	10*

[1] \* = p: made in Hong Kong  
 \* = t: made in Malaysia  
 \* = W: made in China.

## 5. Limiting values

**Table 4: Limiting values**

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

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	continuous reverse voltage		-	35	V
$I_F$	continuous forward current		-	100	mA
$T_{stg}$	storage temperature		-55	+125	°C
$T_j$	junction temperature		-	125	°C

## 6. Thermal characteristics

**Table 5: Thermal characteristics**

*$T_j = 25\text{ °C}$  unless otherwise specified.*

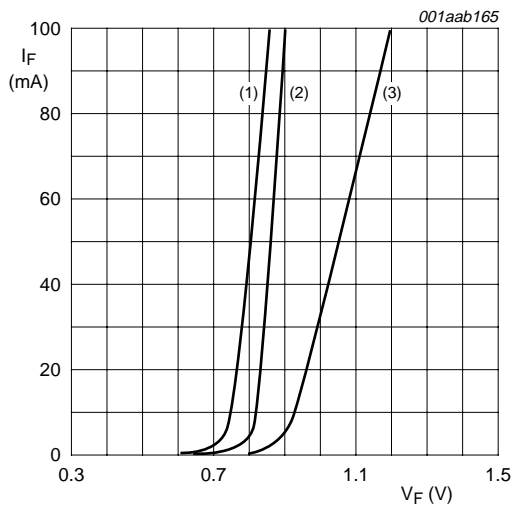
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-tp)}$	thermal resistance from junction to tie-point		330	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient		<sup>[1]</sup> 500	K/W

[1] Device mounted on a FR4 printed-circuit board.

## 7. Characteristics

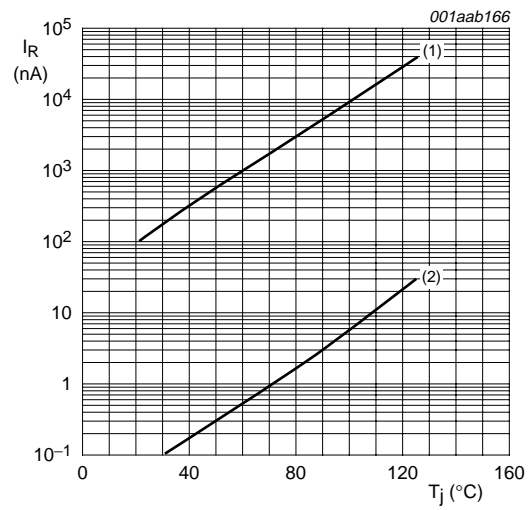
**Table 6: Electrical characteristics**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 100\text{ mA}$ ; see <a href="#">Figure 1</a>	-	-	1.2	V
$I_R$	reverse current	see <a href="#">Figure 2</a>				
		$V_R = 20\text{ V}$	-	-	100	nA
		$V_R = 20\text{ V}$ ; $T_j = 60\text{ °C}$	-	-	1	μA
$C_d$	diode capacitance	$V_R = 20\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 3</a>	-	0.8	1.0	pF
$r_D$	diode forward resistance	$I_F = 5\text{ mA}$ ; $f = 200\text{ MHz}$ ; see <a href="#">Figure 4</a>	-	0.5	0.7	Ω



- (1)  $T_j = 60\text{ }^\circ\text{C}$ ; typical values.
- (2)  $T_j = 25\text{ }^\circ\text{C}$ ; typical values.
- (3)  $T_j = 25\text{ }^\circ\text{C}$ ; maximum values.

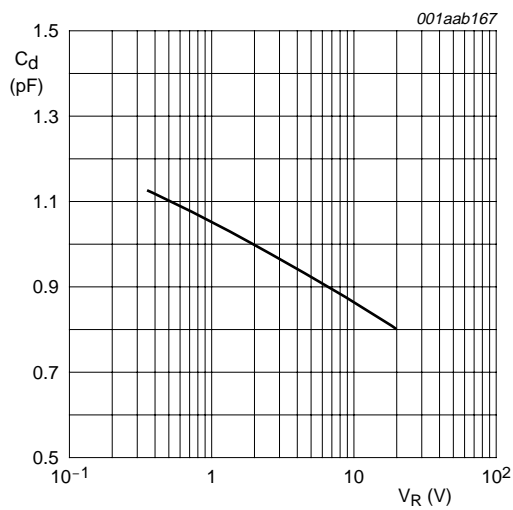
**Fig 1. Forward current as a function of forward voltage.**



$V_R = 20\text{ V}$ .

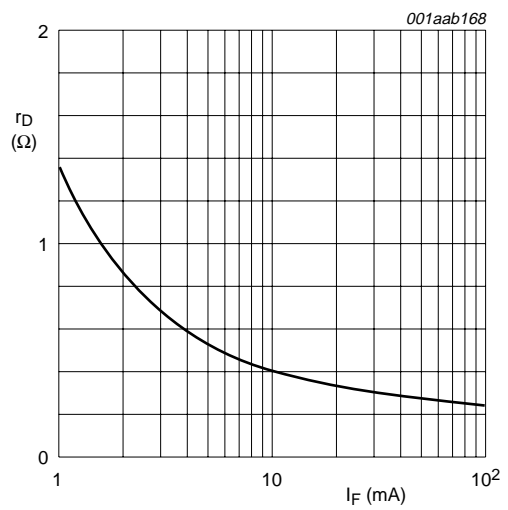
- (1) maximum values.
- (2) typical values.

**Fig 2. Reverse current as a function of junction temperature.**



$f = 1\text{ MHz}$ ;  $T_j = 25\text{ }^\circ\text{C}$ .

**Fig 3. Diode capacitance as a function of reverse voltage; typical values.**



$f = 200\text{ MHz}$ ;  $T_j = 25\text{ }^\circ\text{C}$ .

**Fig 4. Diode forward resistance as a function of forward current; typical values.**

8. Package outline

Plastic surface mounted package; 3 leads

SOT23

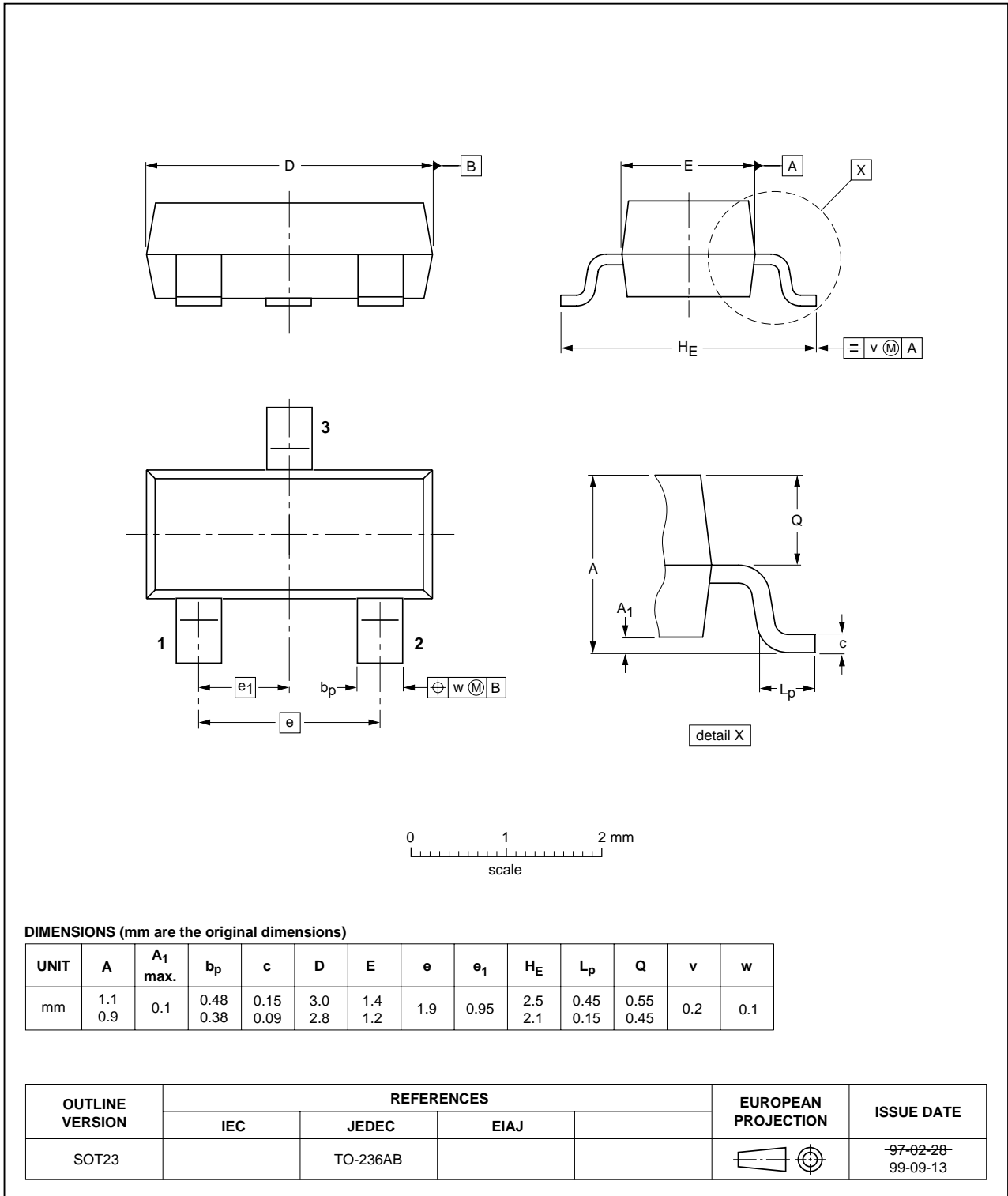


Fig 5. Package outline.

## 9. Revision history

Table 7: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
BAT18_2	20040831	Product data sheet	-	9397 750 13385	BAT18_1
Modifications:	<ul style="list-style-type: none"><li>• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.</li><li>• <a href="#">Table 3</a>: marking code changed.</li></ul>				
BAT18_1	19960313	Product specification	-	not applicable	-

## 10. Data sheet status

Level	Data sheet status <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[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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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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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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