



# 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

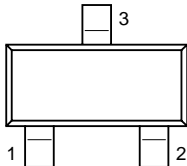
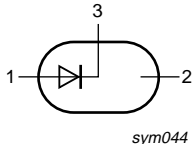
- Continuous reverse voltage: max. 35 V
- Continuous forward current: max. 100 mA
- Low diode capacitance: max. 1.0 pF
- Low diode forward resistance: max. 0.7  $\Omega$ .

### 1.3 Applications

- Band switching.

## 2. Pinning information

Table 1: Pinning

Pin	Description	Simplified outline	Symbol
1	anode		 <i>sym044</i>
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.*

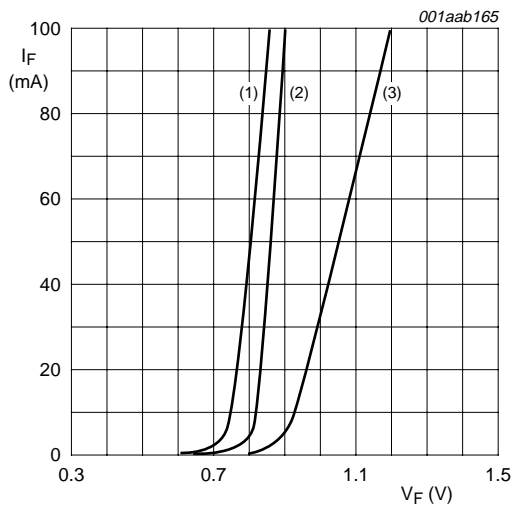
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-tp)}$	thermal resistance from junction to tie-point		330	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient		<sup>[1]</sup> 500	K/W

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

## 7. Characteristics

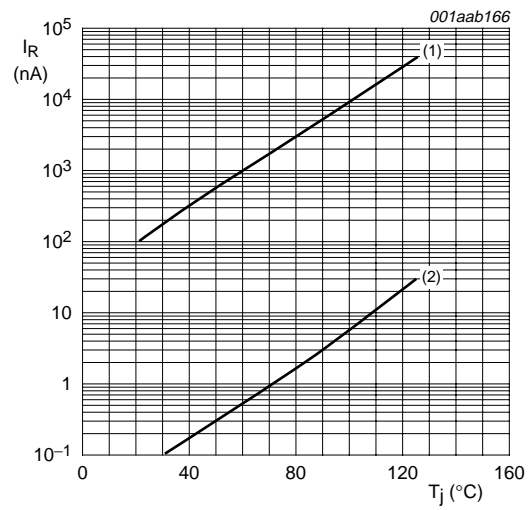
**Table 6: Electrical characteristics**

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.

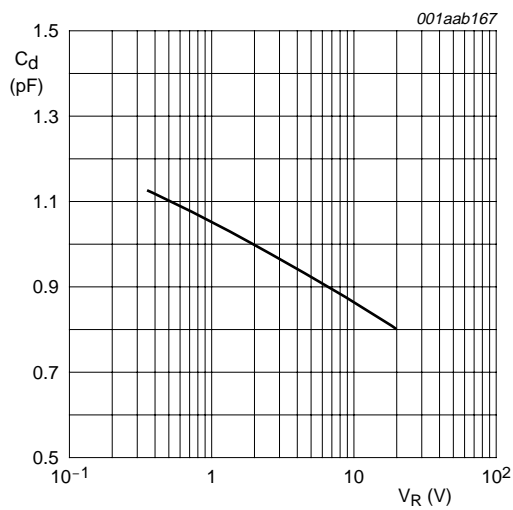
**Fig 1. Forward current as a function of forward voltage.**



$V_R = 20\text{ V}$ .

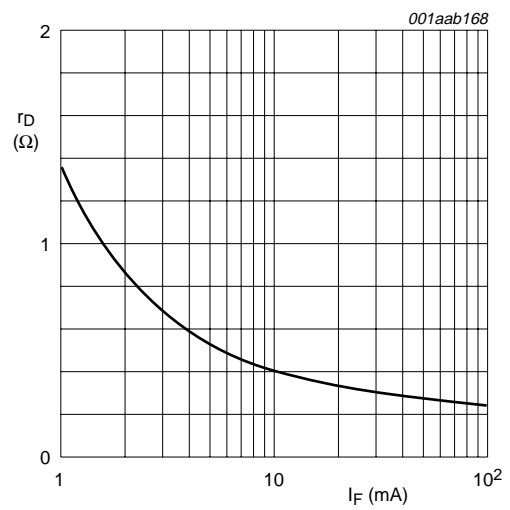
- (1) maximum values.
- (2) typical values.

**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

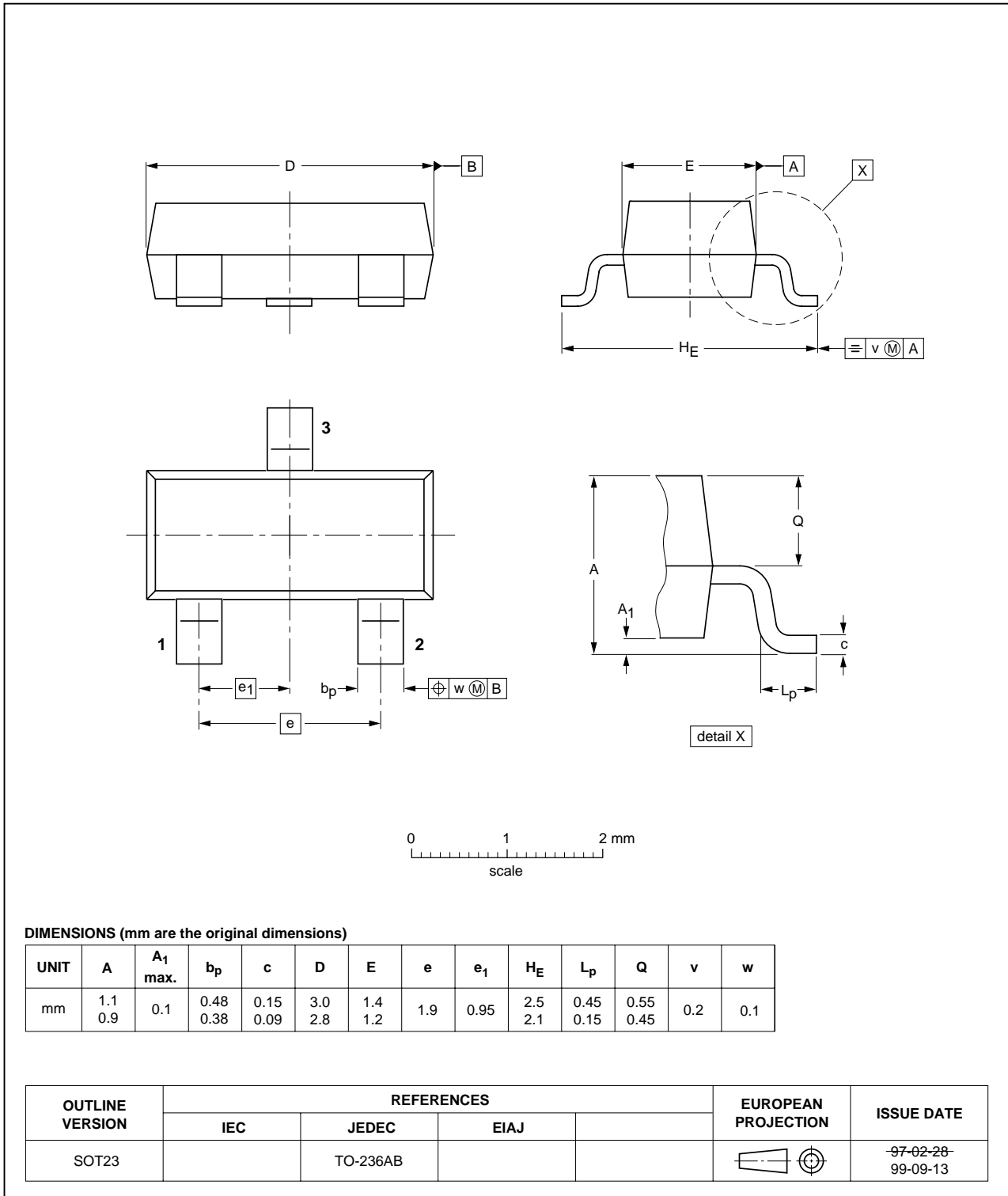


Fig 5. Package outline.

## 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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