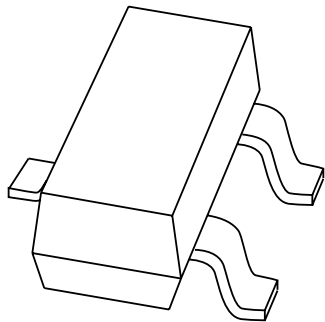


# DATA SHEET



## **BF821; BF823** PNP high-voltage transistors

Product specification  
Supersedes data of 1999 Apr 15

2004 Jan 16

# PNP high-voltage transistors

# BF821; BF823

### FEATURES

- Low current (max. 50 mA)
- High voltage (max. 300 V).

### APPLICATIONS

- Telephony and professional communication equipment.

### DESCRIPTION

PNP transistor in a SOT23 plastic package.  
 NPN complements: BF820, BF822.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BF821	1W*
BF823	1Y*

### Note

- \* = p : Made in Hong Kong.  
 \* = t : Made in Malaysia.  
 \* = W : Made in China.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

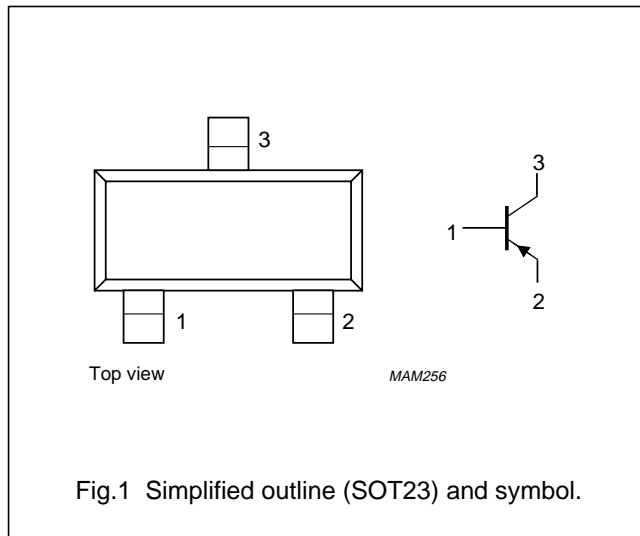


Fig.1 Simplified outline (SOT23) and symbol.

### ORDERING INFORMATION

TYPENUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BF821	–	plastic surface mounted package; 3 leads	SOT23
BF823	–	plastic surface mounted package; 3 leads	SOT23

## PNP high-voltage transistors

## BF821; BF823

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	–	–300	V
	BF821				
V <sub>CEO</sub>	collector-emitter voltage	open base	–	–300	V
	BF823				
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–5	V
I <sub>C</sub>	collector current (DC)		–	–50	mA
I <sub>CM</sub>	peak collector current		–	–100	mA
I <sub>BM</sub>	peak base current		–	–50	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	250	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	note 1	500	K/W

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

**CHARACTERISTICS**

T<sub>j</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	I <sub>E</sub> = 0; V <sub>CB</sub> = –200 V	–	–10	nA
		I <sub>E</sub> = 0; V <sub>CB</sub> = –200 V; T <sub>j</sub> = 150 °C	–	–10	μA
I <sub>EBO</sub>	emitter-base cut-off current	I <sub>C</sub> = 0; V <sub>EB</sub> = –5 V	–	–50	nA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> = –25 mA; V <sub>CE</sub> = –20 V	50	–	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = –30 mA; I <sub>B</sub> = –5 mA	–	–800	mV
C <sub>re</sub>	feedback capacitance	I <sub>C</sub> = I <sub>c</sub> = 0; V <sub>CB</sub> = –30 V; f = 1 MHz	–	1.6	pF
f <sub>T</sub>	transition frequency	I <sub>C</sub> = –10 mA; V <sub>CE</sub> = –10 V; f = 100 MHz	60	–	MHz

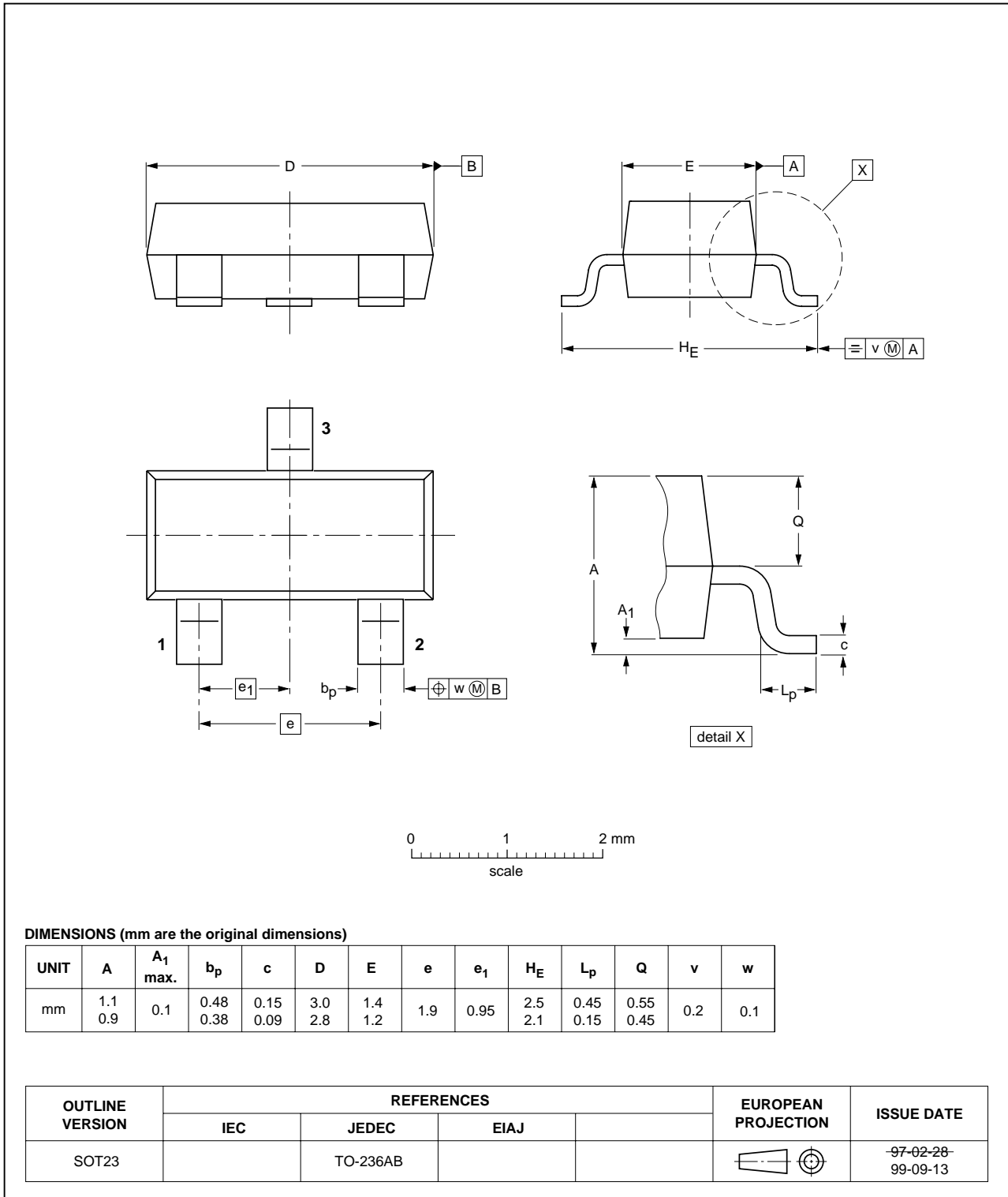
PNP high-voltage transistors

BF821; BF823

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



## PNP high-voltage transistors

BF821; BF823

## 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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