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Should be replaced with:

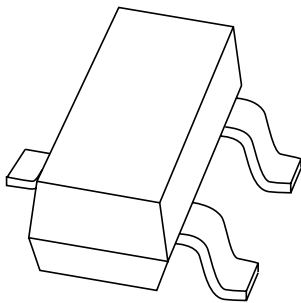
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via [salesaddresses@nexperia.com](mailto:salesaddresses@nexperia.com)). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# DATA SHEET



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

Product data sheet  
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

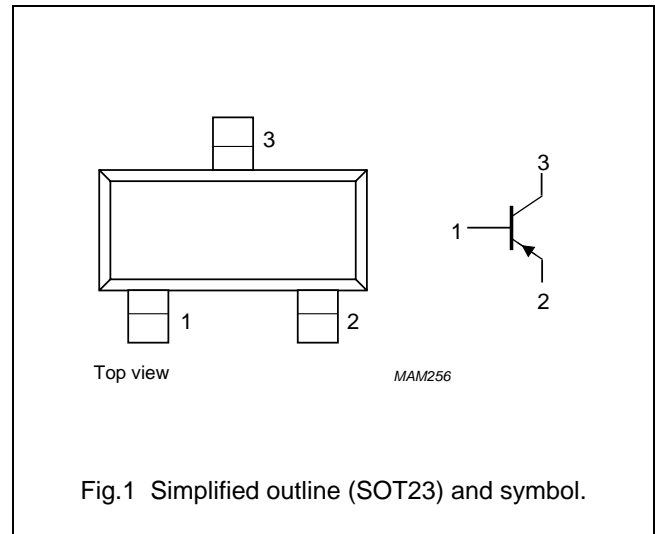


Fig.1 Simplified outline (SOT23) and symbol.

### 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			
	BF821		–	–300	V
	BF823		–	–250	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BF821		–	–300	V
	BF823		–	–250	V
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

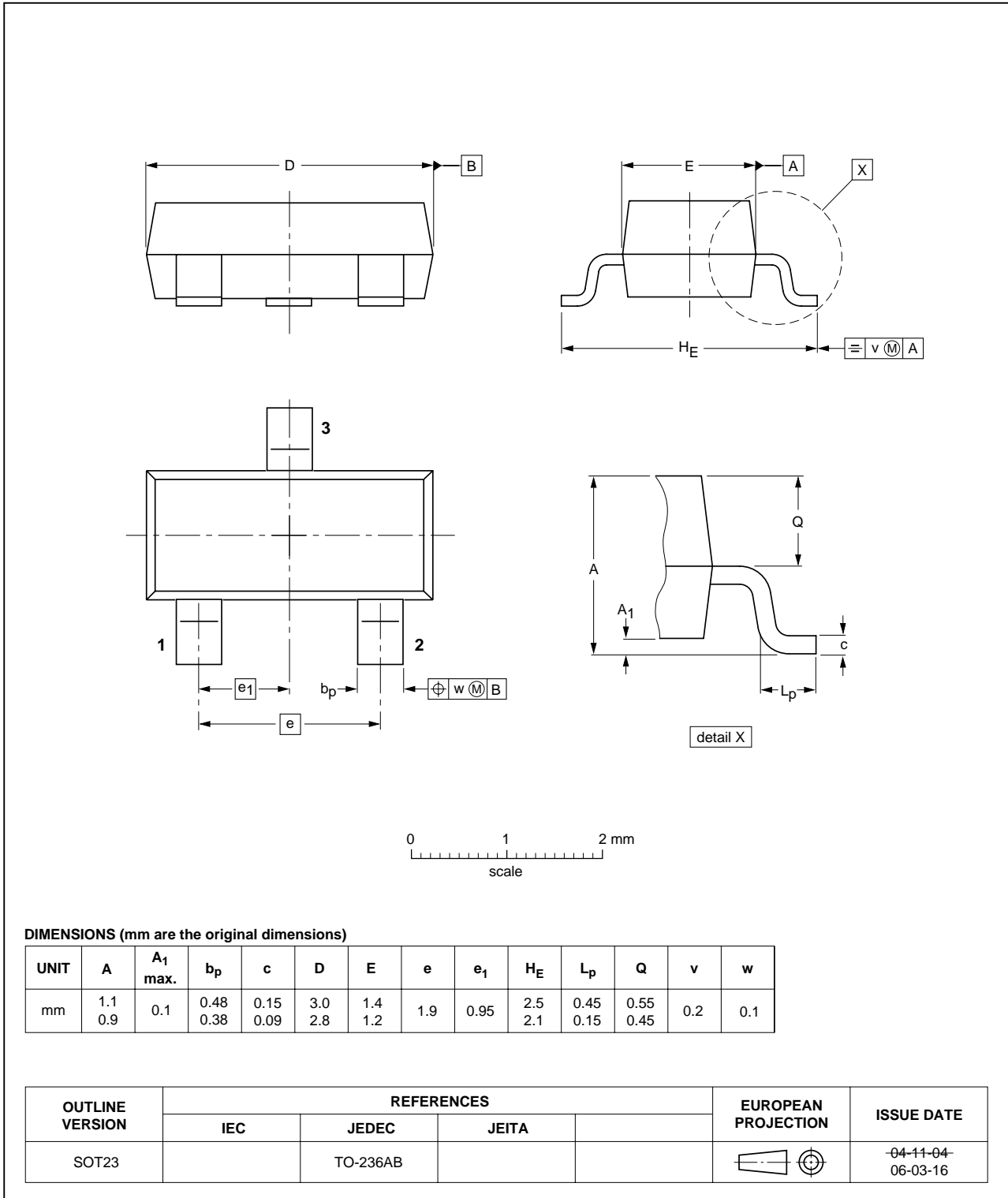
PNP high-voltage transistors

BF821; BF823

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



PNP high-voltage transistors

BF821; BF823

DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

Notes

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# ***NXP Semiconductors***

## **Customer notification**

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

For additional information please visit: <http://www.nxp.com>

For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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