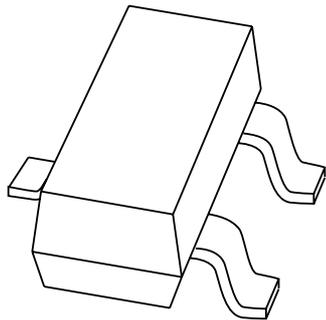


DATA SHEET



BF820; BF822 NPN high-voltage transistors

Product specification
Supersedes data of 1999 Apr 15

2004 Jan 16

NPN high-voltage transistors

BF820; BF822

FEATURES

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

APPLICATIONS

- Telephony and professional communication equipment.

DESCRIPTION

NPN high-voltage transistor in a SOT23 plastic package.
PNP complements: BF821; BF823.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
BF820	1V*
BF822	1X*

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

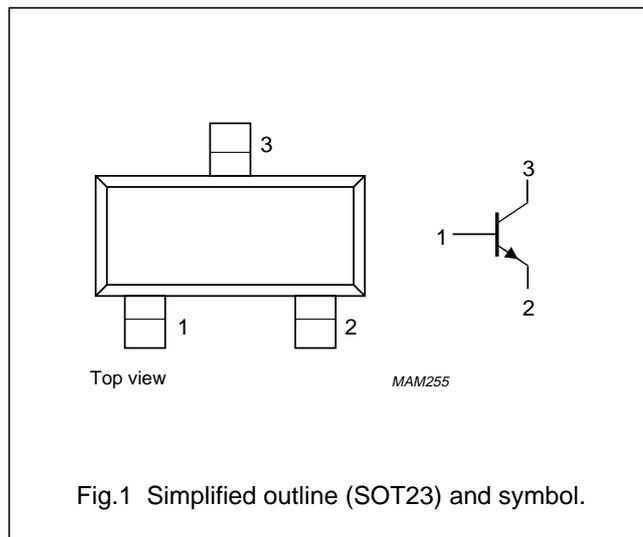


Fig.1 Simplified outline (SOT23) and symbol.

ORDERING INFORMATION

TYPENUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BF820	–	plastic surface mounted package; 3 leads	SOT23
BF822	–	plastic surface mounted package; 3 leads	SOT23

NPN high-voltage transistors

BF820; BF822

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BF820		–	300	V
	BF822		–	250	V
V _{CEO}	collector-emitter voltage	open base			
	BF820		–	300	V
	BF822		–	250	V
V _{EBO}	emitter-base voltage	open collector	–	5	V
I _C	collector current (DC)		–	50	mA
I _{CM}	peak collector current		–	100	mA
I _{BM}	peak base current		–	50	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	250	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

Note

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

THERMAL CHARACTERISTICS

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

Note

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

CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	I _E = 0; V _{CB} = 200 V	–	10	nA
		I _E = 0; V _{CB} = 200 V; T _j = 150 °C	–	10	μA
I _{EBO}	emitter-base cut-off current	I _C = 0; V _{EB} = 5 V	–	50	nA
h _{FE}	DC current gain	I _C = 25 mA; V _{CE} = 20 V	50	–	
V _{CEsat}	collector-emitter saturation voltage	I _C = 30 mA; I _B = 5 mA	–	600	mV
C _{re}	feedback capacitance	I _C = I _c = 0; V _{CB} = 30 V; f = 1 MHz	–	1.6	pF
f _T	transition frequency	I _C = 10 mA; V _{CE} = 10 V; f = 100 MHz	60	–	MHz

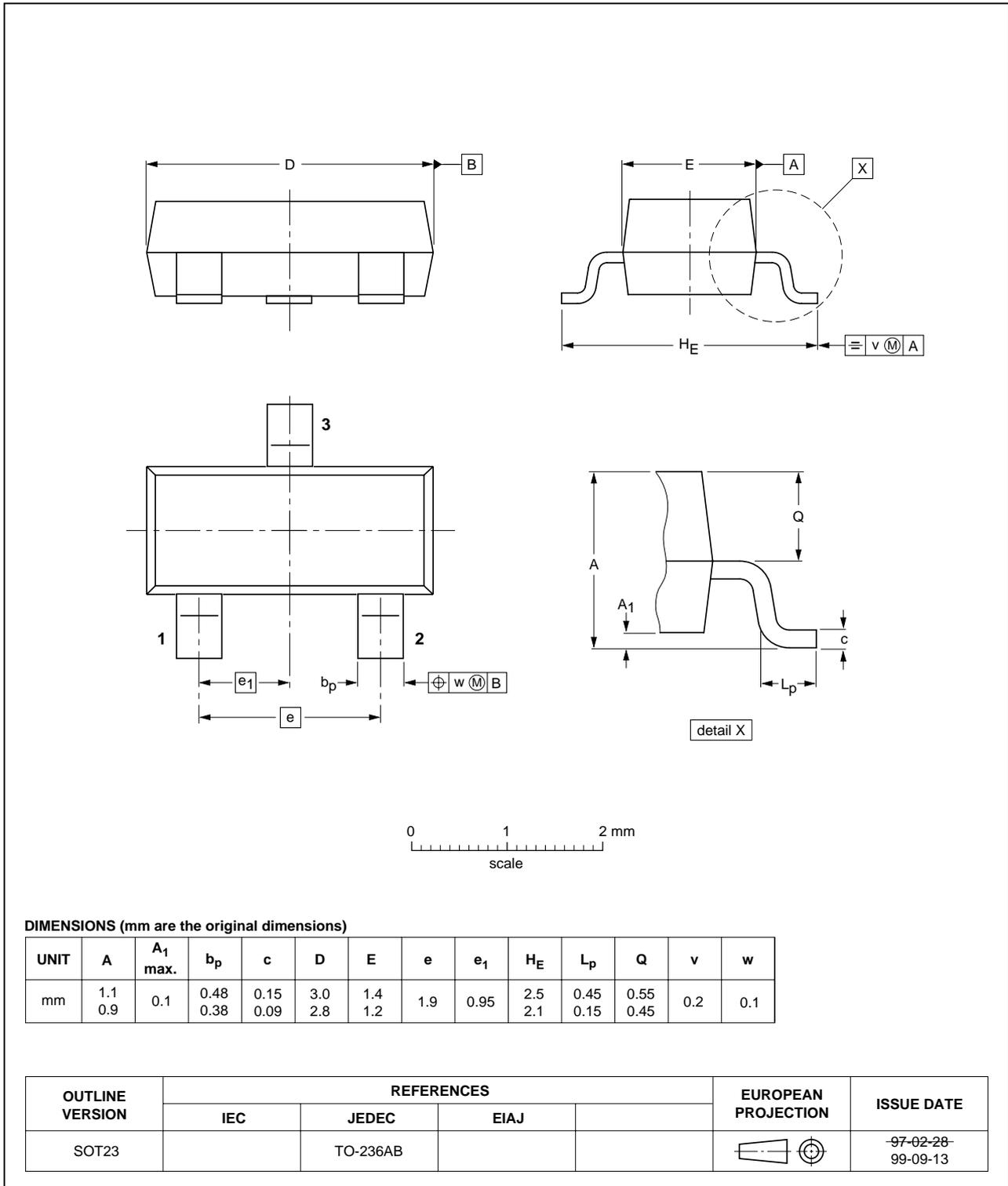
NPN high-voltage transistors

BF820; BF822

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



NPN high-voltage transistors

BF820; BF822

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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

1. Please consult the most recently issued data sheet before initiating or completing a design.
2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.
3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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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Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: +31 40 27 24825

For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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