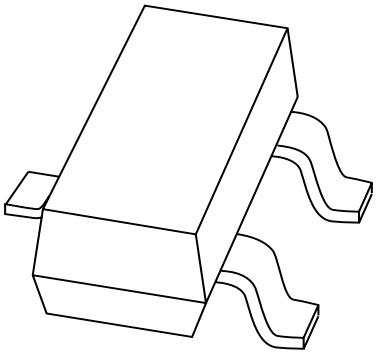
DATA SHEET



BF820; BF822
NPN high-voltage transistors

Product data sheet
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

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

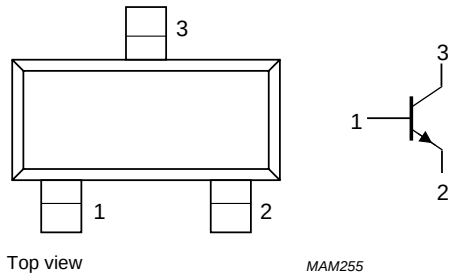


Fig.1 Simplified outline (SOT23) and symbol.

ORDERING INFORMATION

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

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	$T_{amb} \leq 25$ °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.

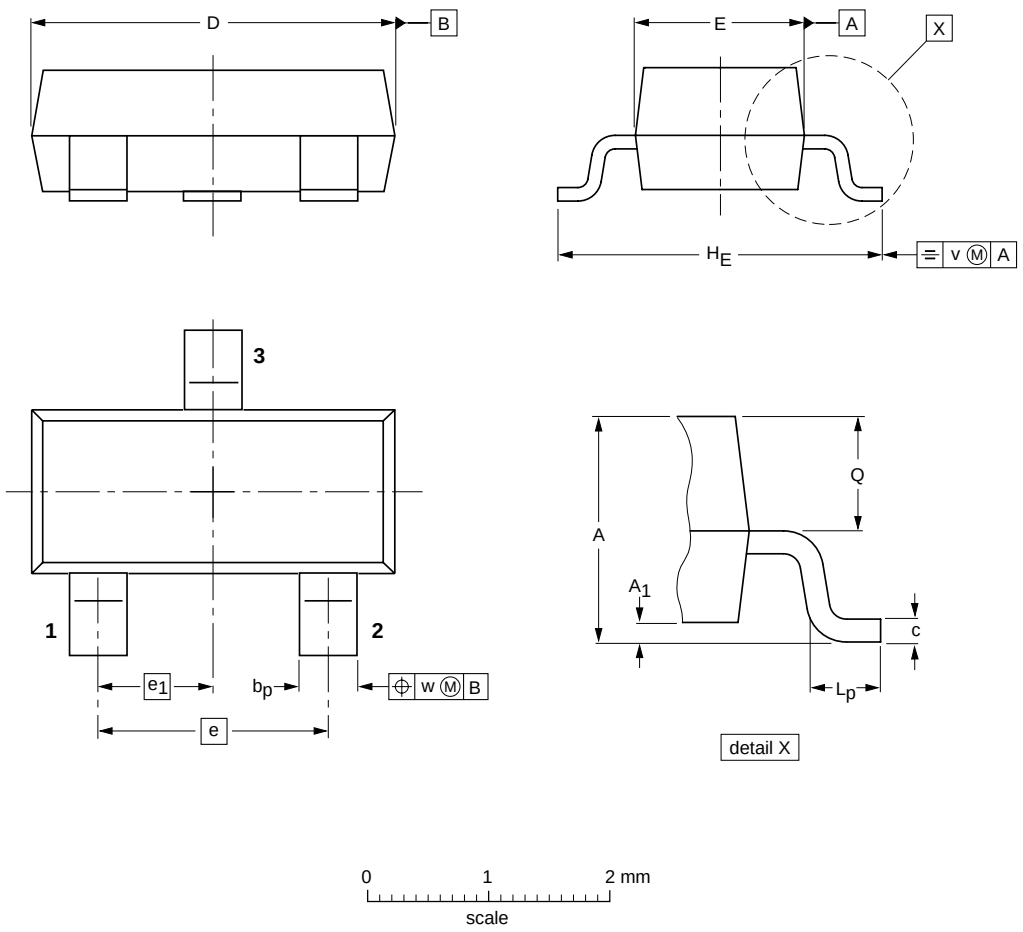
CHARACTERISTICS

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

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads **SOT23**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT23		TO-236AB				~~04-11-04~~ 06-03-16

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	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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2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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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.

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