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Should be replaced with:

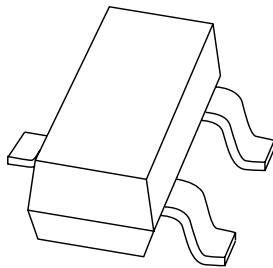
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via [salesaddresses@nexperia.com](mailto:salesaddresses@nexperia.com)). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# DATA SHEET



**BFS19**

**NPN medium frequency transistor**

Product data sheet  
Supersedes data of 1999 Apr 15

2004 Jan 05

# NPN medium frequency transistor

# BFS19

### FEATURES

- $I_{C(max)} = 25 \text{ mA}$
- $V_{CEO(max)} = 20 \text{ V}$ .

### APPLICATIONS

- Medium frequency applications in thick and thin-film circuits.

### DESCRIPTION

NPN medium frequency transistor in a SOT23 plastic package.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BFS19	F2*

### Note

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

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

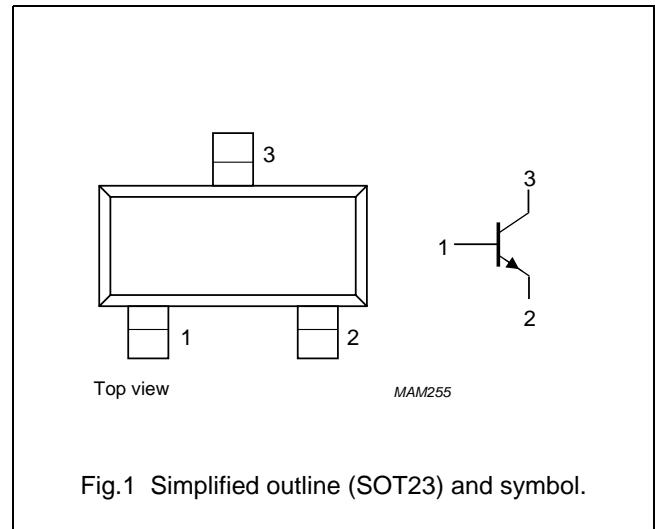


Fig.1 Simplified outline (SOT23) and symbol.

### ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BFS19	–	plastic surface mounted package; 3 leads	SOT23

## NPN medium frequency transistor

BFS19

**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	–	30	V
V <sub>CEO</sub>	collector-emitter voltage	open base	–	20	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	5	V
I <sub>C</sub>	collector current (DC)		–	30	mA
I <sub>CM</sub>	peak collector current		–	30	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.

## NPN medium frequency transistor

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## 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

$T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 20\text{ V}$	–	–	100	nA
		$I_E = 0; V_{CB} = 20\text{ V}; T_j = 100\text{ °C}$	–	–	10	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	–	100	nA
$h_{FE}$	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$	65	–	225	
$V_{BE}$	base-emitter voltage	$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$	650	–	740	mV
$C_c$	collector capacitance	$I_E = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	1	–	pF
$C_{re}$	feedback capacitance	$I_C = 0\text{ mA}; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	0.85	–	pF
$f_T$	transition frequency	$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	–	260	–	MHz

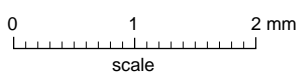
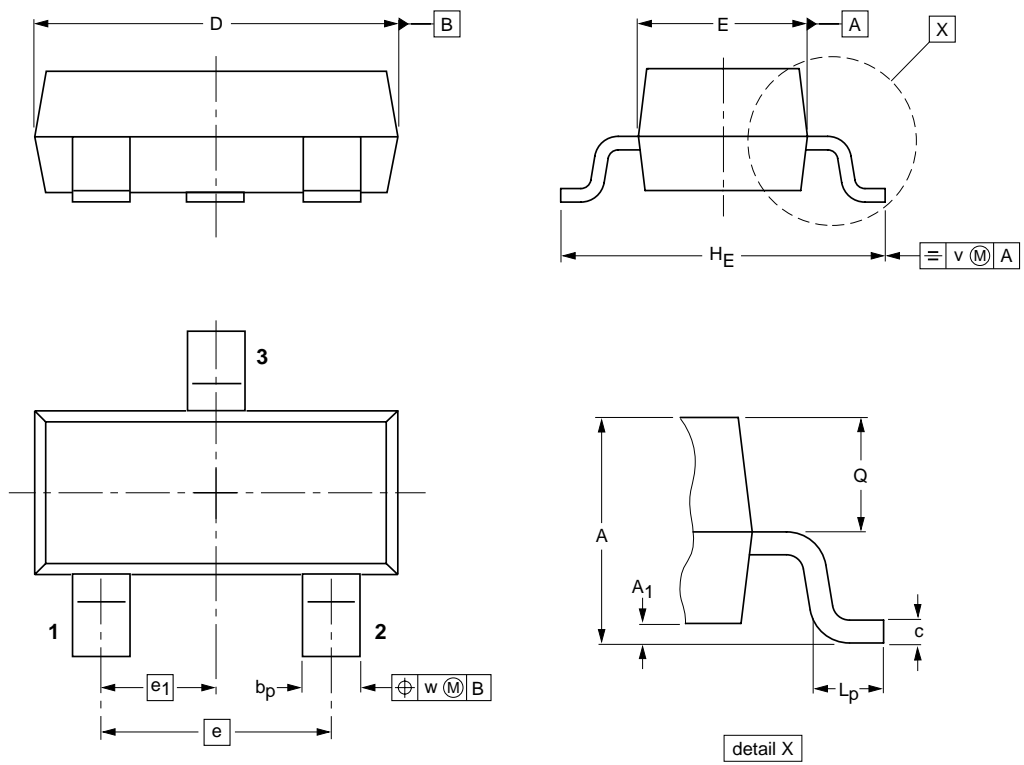
NPN medium frequency transistor

BFS19

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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

## NPN medium frequency transistor

BFS19

## 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>

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