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Kind regards,

Team Nexperia

# DATA SHEET



**BFS20W**

NPN medium frequency transistor

Product data sheet

1999 Apr 21



# NPN medium frequency transistor

# BFS20W

### FEATURES

- Low current (max. 25 mA)
- Low voltage (max. 20 V).
- Very low feedback capacitance (typ. 350 fF).

### APPLICATIONS

- IF and VHF applications in thick and thin-film circuits.

### DESCRIPTION

NPN medium frequency transistor in a SOT323 (SC-70) plastic package.

### MARKING

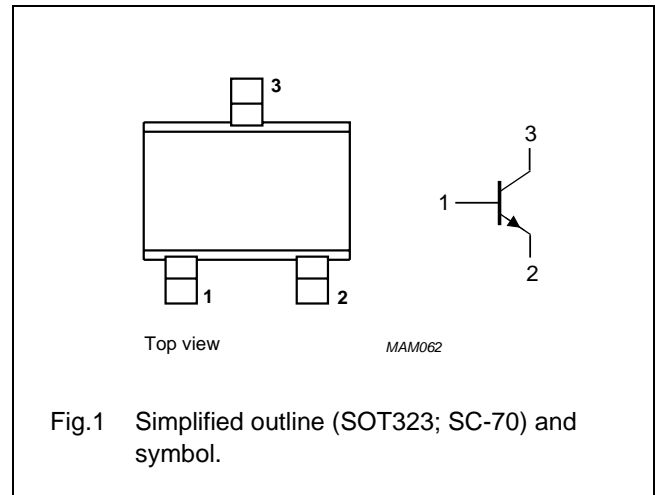
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BFS20W	N1*

### Note

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

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CB0}$	collector-base voltage	open emitter	-	30	V
$V_{CEO}$	collector-emitter voltage	open base	-	20	V
$V_{EBO}$	emitter-base voltage	open collector	-	4	V
$I_C$	collector current (DC)		-	25	mA
$I_{CM}$	peak collector current		-	25	mA
$I_{BM}$	peak base current		-	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$ ; note 1	-	200	mW
$T_{stg}$	storage temperature		-65	+150	$^\circ\text{C}$
$T_j$	junction temperature		-	150	$^\circ\text{C}$
$T_{amb}$	operating ambient temperature		-65	+150	$^\circ\text{C}$

### Note

1. Refer to SOT323 (SC-70) standard mounting conditions.

## 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	625	K/W

## Note

1. Refer to SOT323 (SC-70) standard mounting conditions.

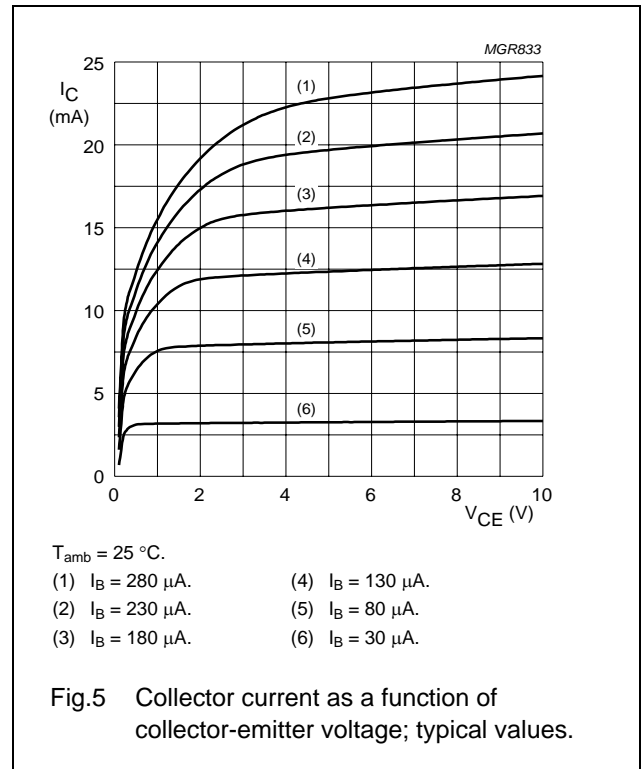
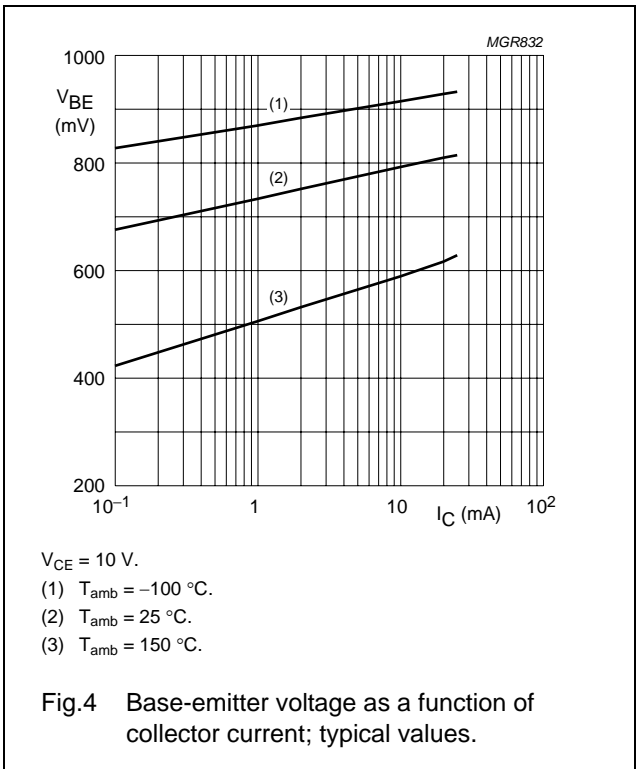
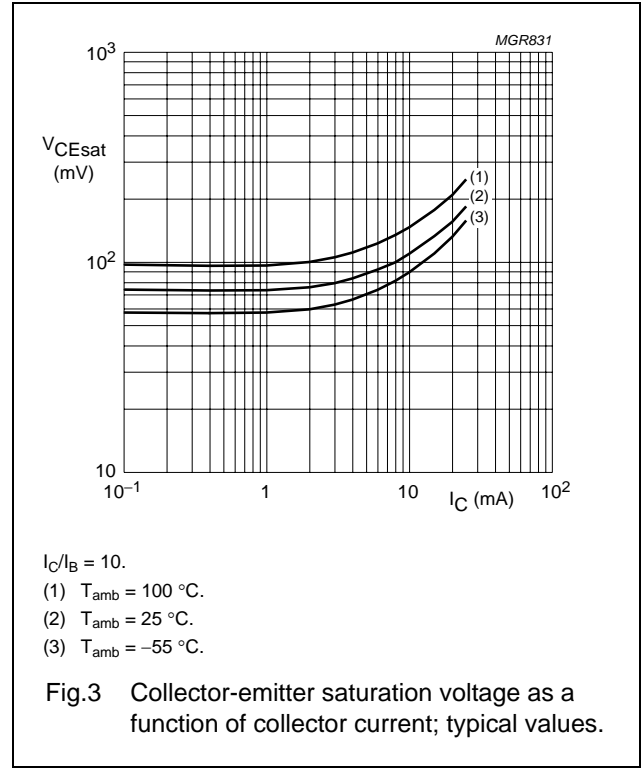
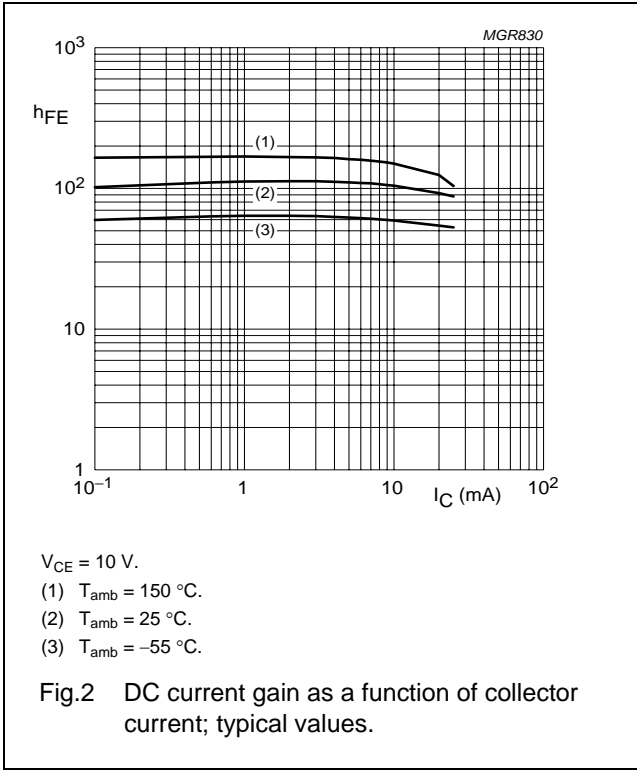
## CHARACTERISTICS

$T_{amb} = 25\text{ °C}$  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	$I_C = 0; V_{EB} = 4\text{ V}$	–	–	100	nA
$h_{FE}$	DC current gain	$I_C = 7\text{ mA}; V_{CE} = 10\text{ V}$	40	85	–	
$V_{BE}$	base-emitter voltage	$I_C = 7\text{ mA}; V_{CE} = 10\text{ V}$	–	740	900	mV
$C_c$	collector capacitance	$I_E = I_B = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	1	–	pF
$C_{re}$	feedback capacitance	$I_C = 0; V_{CE} = 10\text{ V}; f = 1\text{ MHz}$	–	350	–	fF
$f_T$	transition frequency	$I_C = 5\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	360	470	–	MHz

NPN medium frequency transistor

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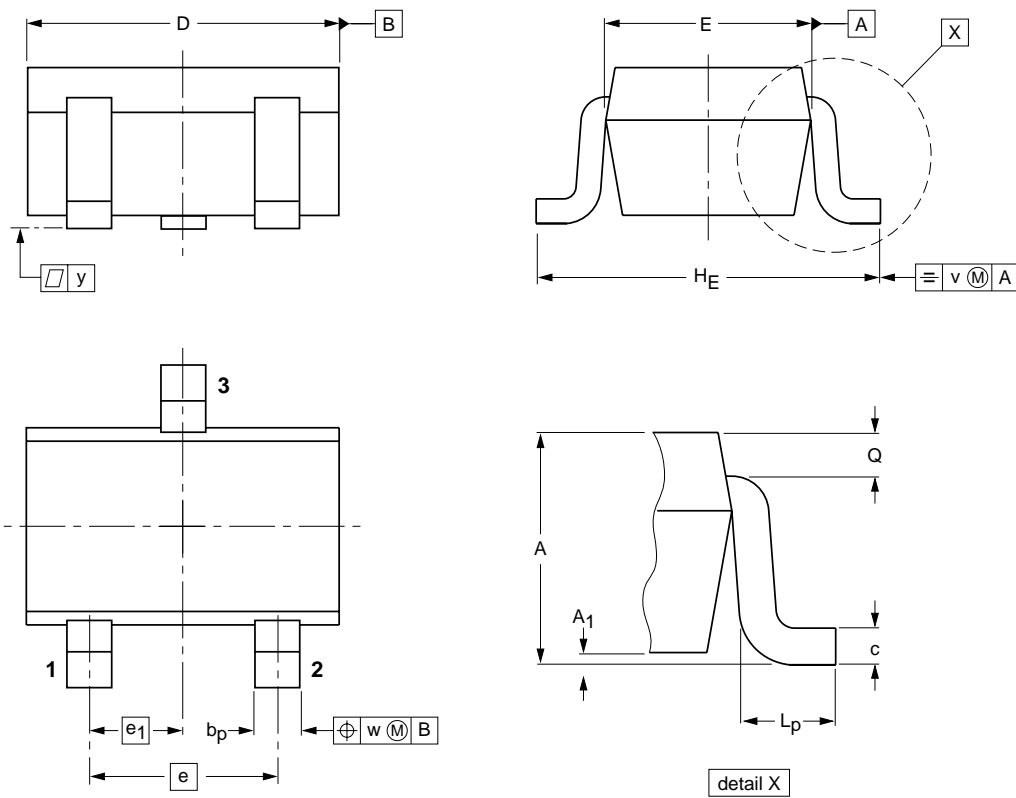
NPN medium frequency transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



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 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## NPN medium frequency transistor

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## 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.

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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**

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## **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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