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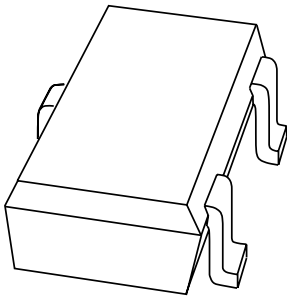
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

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

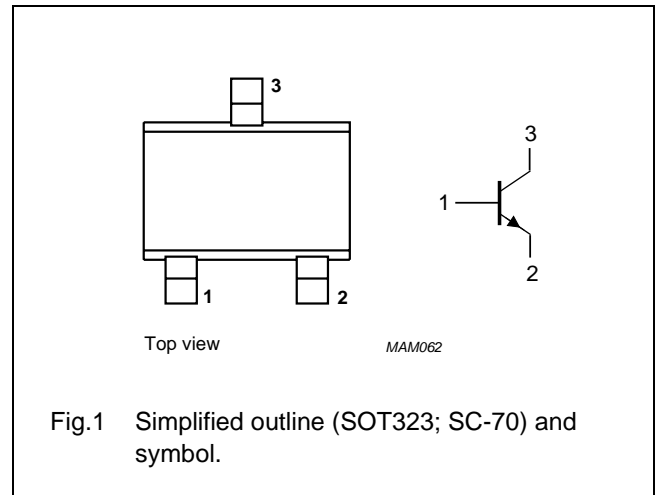
TYPE NUMBER	MARKING CODE ⁽¹⁾
BFS20W	N1*

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_{CBO}	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.

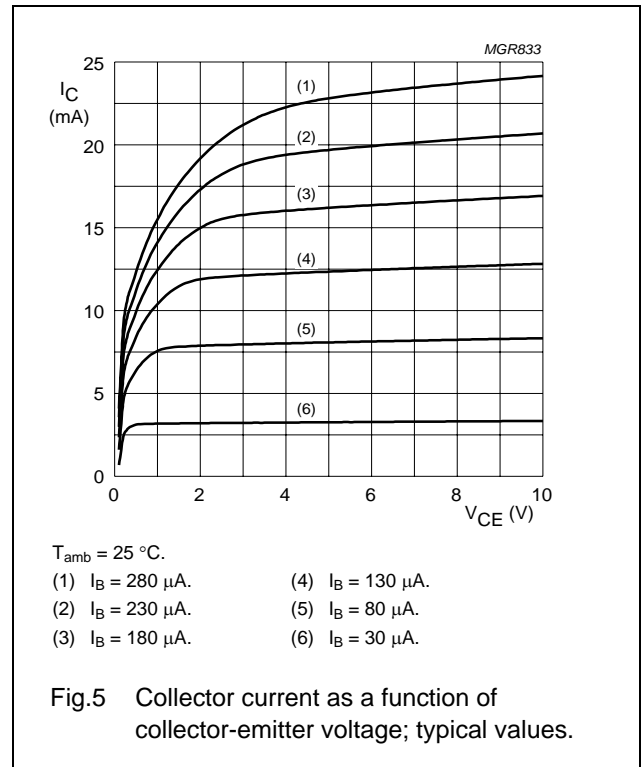
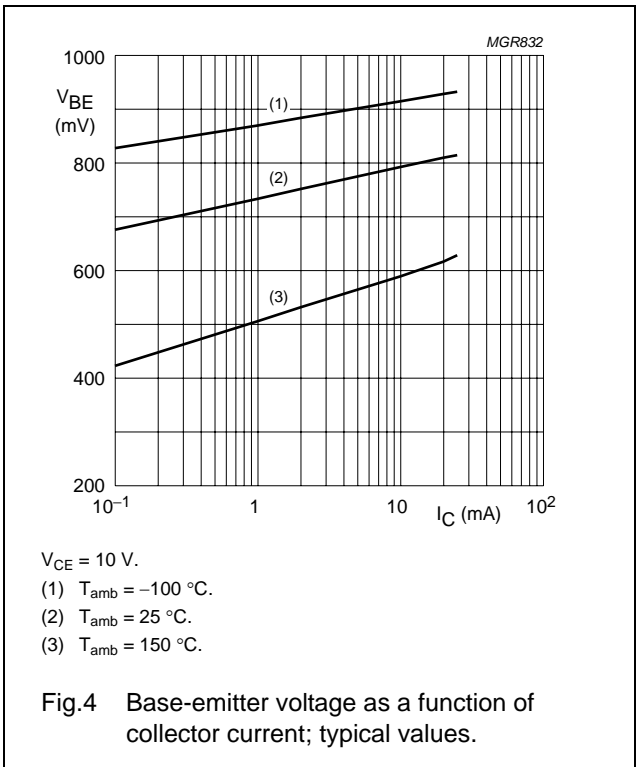
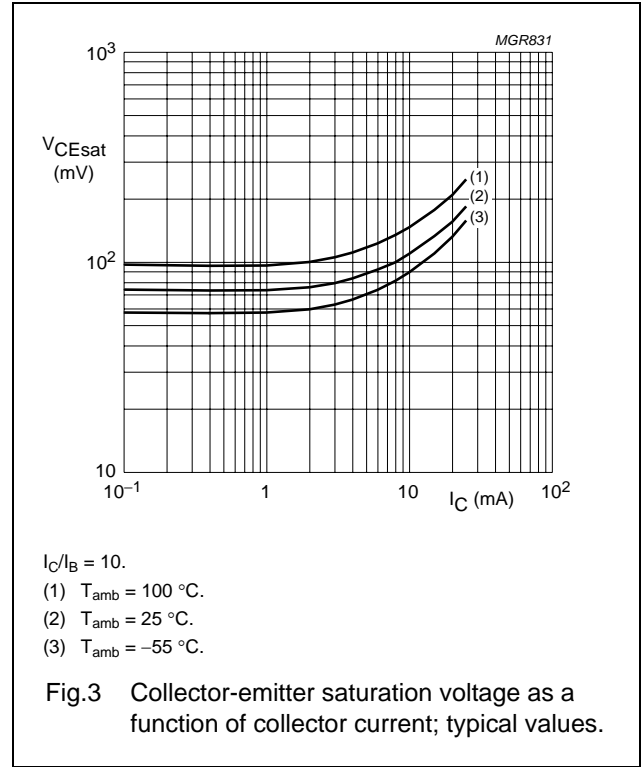
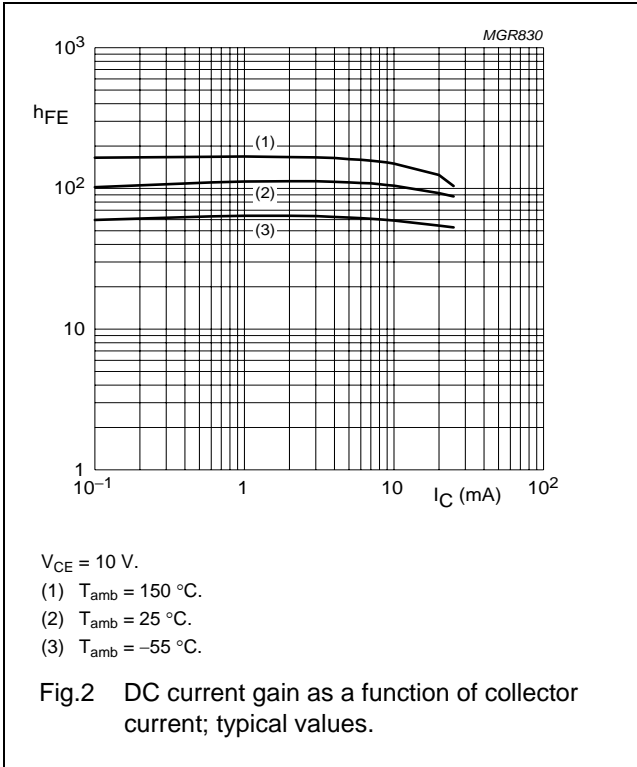
CHARACTERISTICS

$T_{amb} = 25\text{ °C}$ 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	μA
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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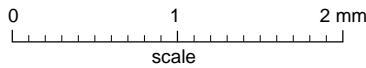
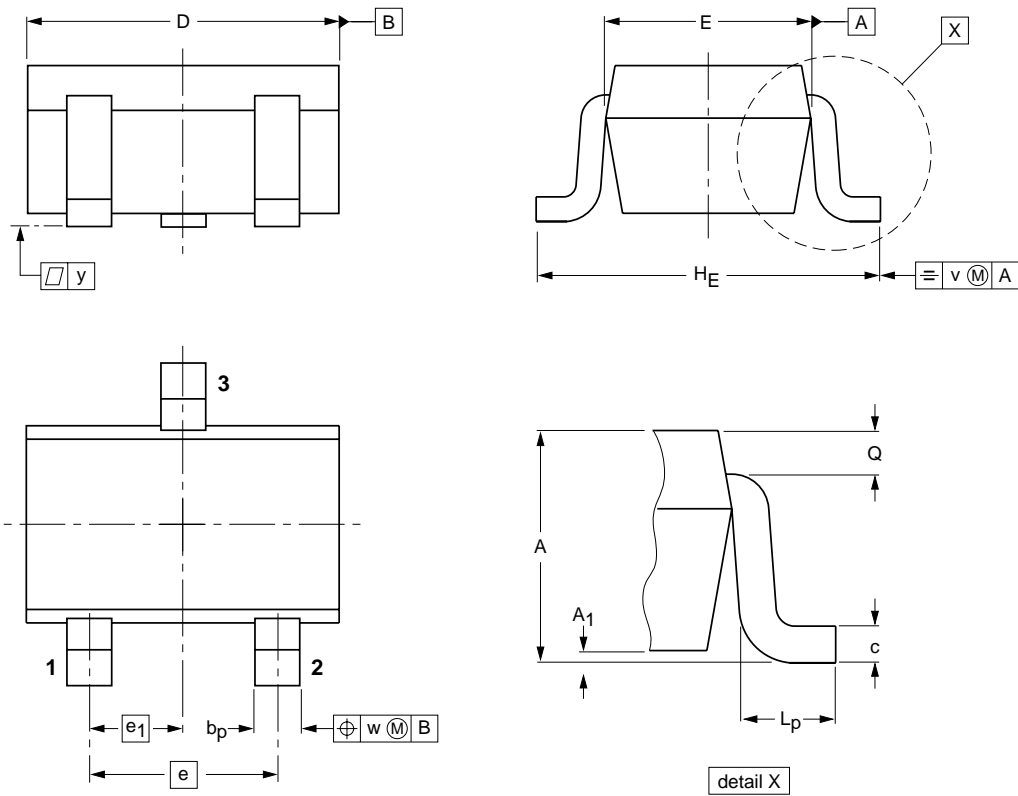
NPN medium frequency transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	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

BFS20W

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.

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NXP Semiconductors

Customer notification

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Contact information

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Printed in The Netherlands

115002/00/01/pp7

Date of release: 1999 Apr 21

Document order number: 9397 750 05696





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