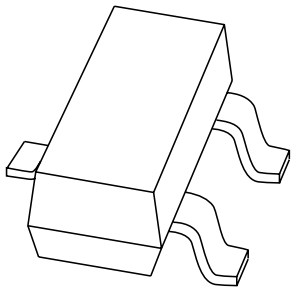
DATA SHEET



BFS20
NPN medium frequency transistor

Product specification
Supersedes data of 2004 Jan 5

2004 Feb 05

Philips
Semiconductors

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NPN medium frequency transistor BFS20

FEATURES

- $I_{C(max)}$ = 25 mA
- $V_{CEO(max)}$ = 20 V
- Very low feedback capacitance (typ. 350 fF).

APPLICATIONS

- IF and VHF thick and thin-film circuit applications.

DESCRIPTION

NPN medium frequency transistor in a SOT23 plastic package.

MARKING

TYPE NUMBER	MARKING CODE(1)
BFS20	G1*

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

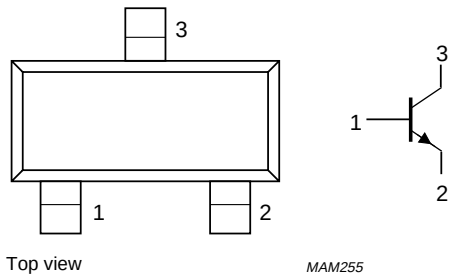


Fig.1 Simplified outline (SOT23) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BFS20	–	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	–	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
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.

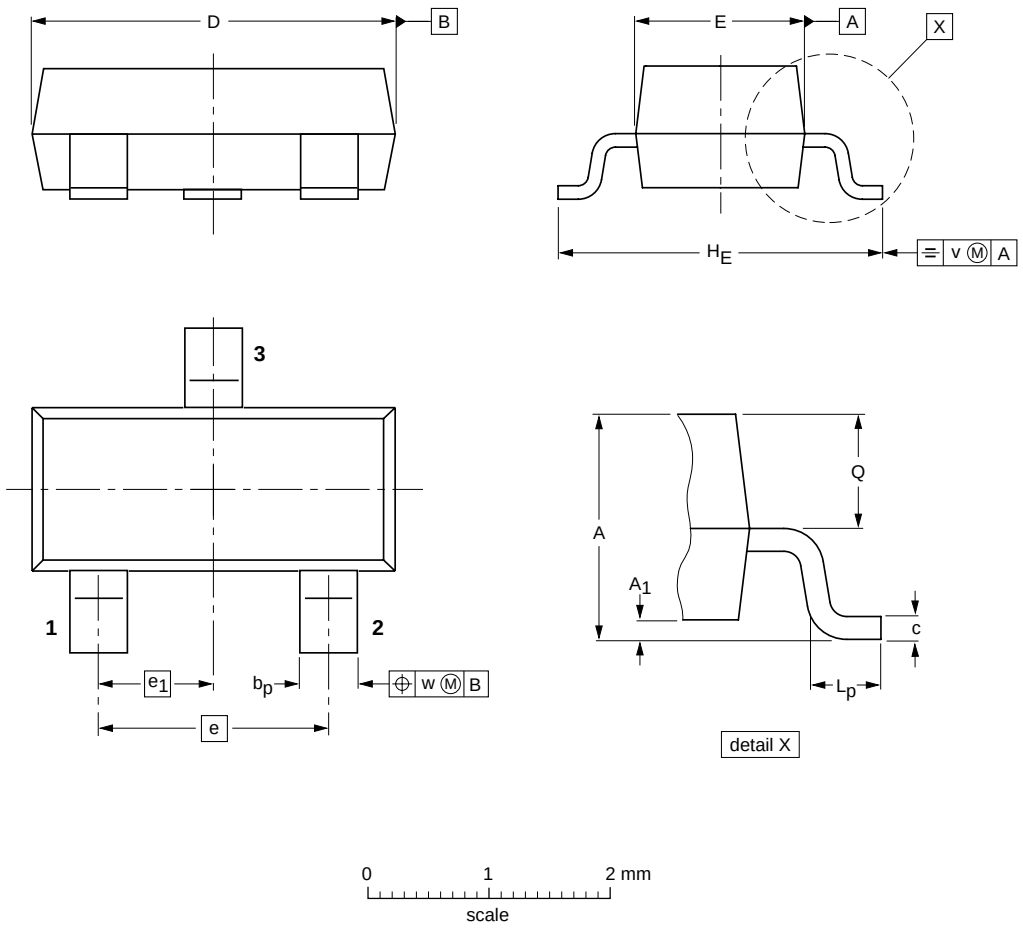
CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	I_E = 0; V_{CB} = 20 V	–	–	100	nA
		I_E = 0; V_{CB} = 20 V; T_j = 100 °C	–	–	10	μA
I_{EBO}	emitter-base cut-off current	I_C = 0; V_{EB} = 4 V	–	–	100	nA
h_{FE}	DC current gain	I_C = 7 mA; V_{CE} = 10 V	40	85	–	
V_{BE}	base-emitter voltage	I_C = 7 mA; V_{CE} = 10 V	–	740	900	mV
C_c	collector capacitance	I_E = I_e = 0; V_{CB} = 10 V; f = 1 MHz	–	1	–	pF
C_{re}	feedback capacitance	I_C = 0; V_{CB} = 10 V; f = 1 MHz	–	350	–	fF
f_T	transition frequency	I_C = 5 mA; V_{CE} = 10 V; f = 100 MHz	275	450	–	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	EIAJ			
SOT23		TO-236AB				~~97-02-28~~ 99-09-13

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.
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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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