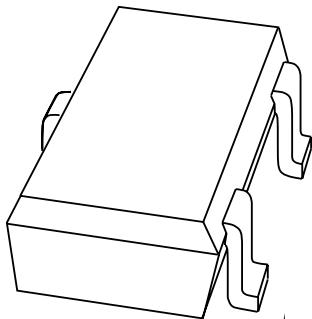


DATA SHEET



BF820W NPN high-voltage transistor

Product data sheet
Supersedes data of 1997 Sep 03

2003 Sep 09

NPN high-voltage transistor**BF820W****FEATURES**

- Low current (max. 50 mA)
- High voltage (max. 300 V).

APPLICATIONS

- Telephony and professional communication equipment.

DESCRIPTION

NPN high-voltage transistor in a SOT323 plastic package.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
BF820W	1V*

Notes

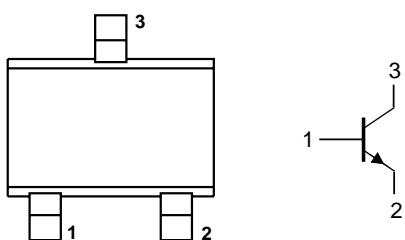
1. * = p : made in Hong Kong.
- * = t : made in Malaysia.
- * = W : made in China.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	300	V
V_{CEO}	collector-emitter voltage	open base	–	300	V
I_{CM}	peak collector current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25 \text{ }^{\circ}\text{C}$	–	200	mW
h_{FE}	DC current gain	$I_C = 25 \text{ mA}; V_{CE} = 20 \text{ V}$	50	–	
C_{re}	feedback capacitance	$I_C = i_c = 0; V_{CB} = 30 \text{ V}; f = 1 \text{ MHz}$	–	1.6	pF
f_T	transition frequency	$I_C = 10 \text{ mA}; V_{CE} = 10 \text{ V}; f = 100 \text{ MHz}$	60	–	MHz

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



Top view

MAM062

Fig.1 Simplified outline (SOT323) and symbol.

NPN high-voltage transistor

BF820W

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	–	300	V
V_{CEO}	collector-emitter voltage	open base	–	300	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	$T_{amb} \leq 25^\circ\text{C}$; note 1	–	200	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	625	K/W

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS $T_j = 25^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 200$ V	–	10	nA
		$I_E = 0$; $V_{CB} = 200$ V; $T_j = 150^\circ\text{C}$	–	10	μA
I_{EBO}	emitter 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; note 1	–	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

Note

1. Pulse test: $t_p \leq 300$ μs; $\delta \leq 0.02$.

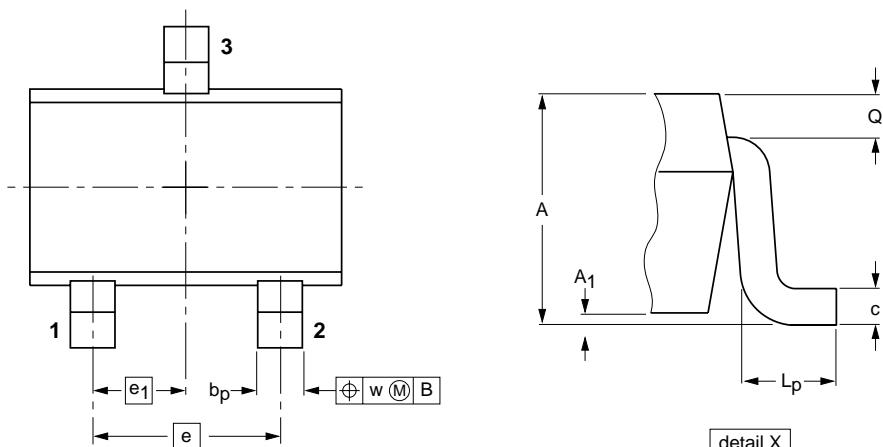
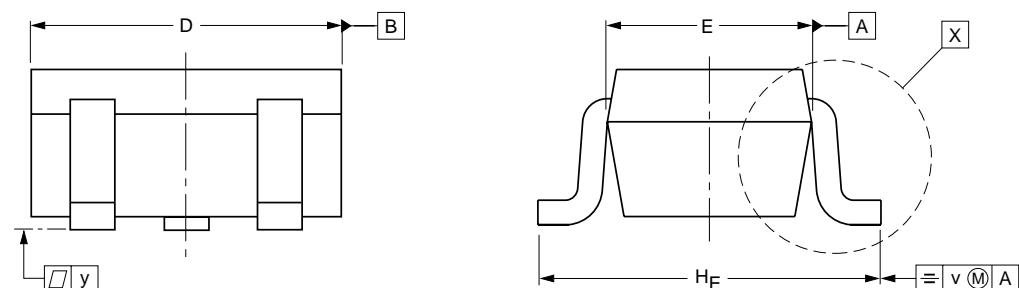
NPN high-voltage transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



0 1 2 mm
scale

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	SC-70		
SOT323						97-02-28

NPN high-voltage transistor

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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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Customer notification

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