

NPN high voltage transistor

BF820W; BF822W

FEATURES

- S-mini package
- High voltage.

APPLICATIONS

Especially intended for telephony and professional communication equipment.

DESCRIPTION

NPN transistors in a plastic SOT323 (S-mini) package.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

MARKING

TYPE NUMBER	MARKING CODE
BF820W	-1V
BF822W	-1X

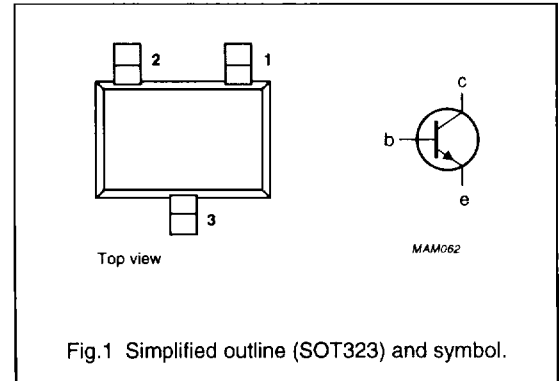


Fig.1 Simplified outline (SOT323) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BF820W		–	300	V
	BF822W		–	250	V
V_{CEO}	collector-emitter voltage	open base			
	BF822W		–	250	V
V_{CER}	collector-emitter voltage	$R_{BE} = 2.7 \text{ k}\Omega$			
	BF820W		–	300	V
I_{CM}	peak collector current		–	100	mA
P_{tot}	total power dissipation	up to $T_{amb} = 25 \text{ }^\circ\text{C}$	–	200	mW
h_{FE}	DC current gain	$I_C = 25 \text{ mA}; V_{CE} = 20 \text{ V}$	50	–	
C_{re}	feedback capacitance	$I_C = i_C = 0; V_{CE} = 10 \text{ V}; f = 1 \text{ MHz}$	–	1.6	pF
f_T	transition frequency	$I_C = 10 \text{ mA}; V_{CE} = 10 \text{ V}; f = 100 \text{ MHz}$	60	–	MHz

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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			
	BF820W		–	300	V
	BF822W		–	250	V
V _{CEO}	collector-emitter voltage	open base	–	250	V
V _{CER}	collector-emitter voltage	R _{BE} = 2.7 kΩ			
	BF820W		–	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
P _{tot}	total power dissipation	up to T _{amb} = 25 °C; note 1	–	200	mW
T _{amb}	operating ambient temperature		–65	+150	°C
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	in free air; note 1	625	K/W

Note to the "Limiting values" and "Thermal characteristics"

1. Refer to SOT323 standard mounting conditions.

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CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage BF820W BF822W	open emitter; $I_C = 10\text{ }\mu\text{A}$; $I_E = 0$	300 250	– –	V V
$V_{(BR)CEO}$	collector-emitter breakdown voltage BF822W	open base; $I_C = 2.5\text{ mA}$; $I_B = 0$; note 1	250	–	V
$V_{(BR)CER}$	collector-emitter breakdown voltage BF820W	$R_{BE} = 2.7\text{ k}\Omega$; $I_C = 2.5\text{ mA}$	300	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_E = 10\text{ }\mu\text{A}$; $I_C = 0$	5	–	V
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 200\text{ V}$	–	10	nA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = 4\text{ V}$	–	50	nA
I_{CER}	collector cut-off current	$R_{BE} = 2.7\text{ k}\Omega$; $V_{CE} = 250\text{ V}$	–	50	nA
		$R_{BE} = 2.7\text{ k}\Omega$; $I_E = 0$; $V_{CE} = 200\text{ V}$; $T_J = 150\text{ }^{\circ}\text{C}$	–	10	μA
V_{CEsat}	saturation voltage	$I_B = 5\text{ mA}$; $I_C = 30\text{ mA}$; note 1	–	600	mV
C_{re}	feedback capacitance	$I_C = I_C = 0$; $V_{CE} = 30\text{ V}$; $f = 1\text{ MHz}$	–	1.6	pF
f_T	transition frequency	$I_C = -10\text{ mA}$; $V_{CE} = 10\text{ V}$; $f = 100\text{ MHz}$	60	–	MHz
h_{FE}	DC current gain	$I_C = 25\text{ mA}$; $V_{CE} = 20\text{ V}$	50	–	

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.