

NPN general purpose transistors

BC817; BC818

FEATURES

- High current (max. 500 mA)
- Low voltage (max. 45 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

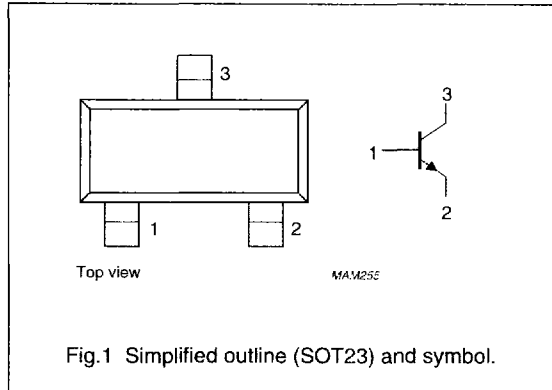
NPN transistor in a SOT23 plastic package.
PNP complements: BC807 and BC808.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BC817	6Dp	BC818	6Hp
BC817-16	6Ap	BC818-16	6Ep
BC817-25	6Bp	BC818-25	6Fp
BC817-40	6Cp	BC818-40	6Gp

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BC817		–	50	V
	BC818		–	30	V
V_{CEC}	collector-emitter voltage	open base			
	BC817		–	45	V
	BC818		–	25	V
I_{CM}	peak collector current		–	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ\text{C}$	–	250	mW
h_{FE}	DC current gain	$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	100	600	
		$I_C = 500\text{ mA}; V_{CE} = 1\text{ V}$	40	–	
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	–	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			
	BC817		–	50	V
	BC818		–	30	V
V _{CEO}	collector-emitter voltage	open base; I _C = 10 mA			
	BC817		–	45	V
	BC818		–	25	V
V _{EBO}	emitter-base voltage	open collector	–	5	V
I _C	collector current (DC)		–	500	mA
I _{CM}	peak collector current		–	1	A
I _{BM}	peak base current		–	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 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

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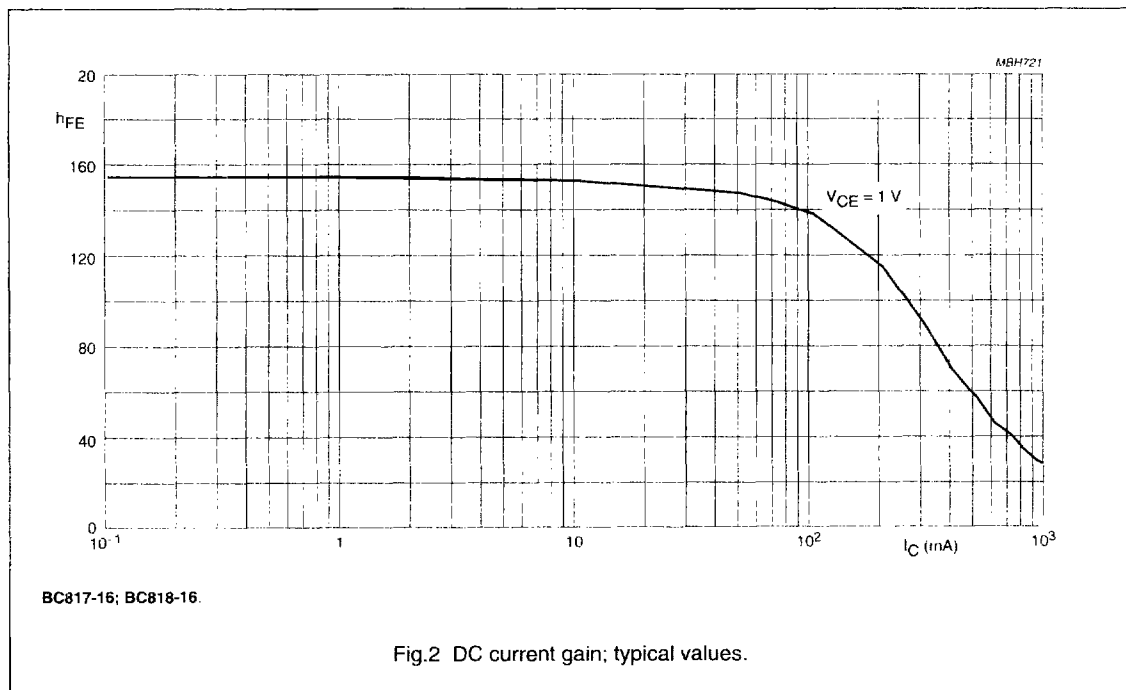
CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ 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
		$I_E = 0; V_{CB} = 20\text{ V}; T_j = 150\text{ }^\circ\text{C}$	--	--	5	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	--	--	100	nA
h_{FE}	DC current gain BC817; BC818 BC817-16; BC818-16 BC817-25; BC818-25 BC817-40; BC818-40	$I_C = 100\text{ mA}; V_{CE} = 1\text{ V};$ note 1; see Figs 2, 3 and 4	100	--	600	
			100	--	250	
			160	--	400	
			250	--	600	
h_{FE}	DC current gain	$I_C = 500\text{ mA}; V_{CE} = 1\text{ V};$ note 1	40	--	--	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA};$ note 1	--	--	700	mV
V_{BE}	base-emitter voltage	$I_C = 500\text{ mA}; V_{CE} = 1\text{ V};$ note 2	--	--	1.2	V
C_c	collector capacitance	$I_E = I_B = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz};$	--	5	--	pF
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz};$	100	--	--	MHz

Notes

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.
2. V_{BE} decreases by about 2 mV/K with increasing temperature.



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