

NPN general purpose transistors

BC817; BC818

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

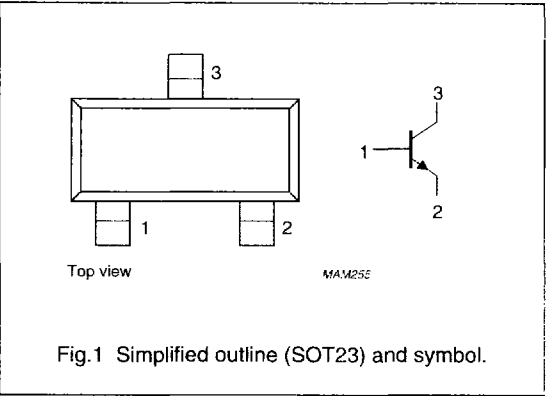
NPN transistor in a SOT23 plastic package.
PNP complements: BC807 and BC808.

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	—	50	V
				30	V
V_{CEO}	collector-emitter voltage	open base	—	45	V
				25	V
I_{CM}	peak collector current		—	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	—	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	–	50	V
	BC817			30	V
V_{CEO}	collector-emitter voltage	open base; $I_C = 10$ mA	–	45	V
	BC817			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	$T_{amb} \leq 25$ °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.

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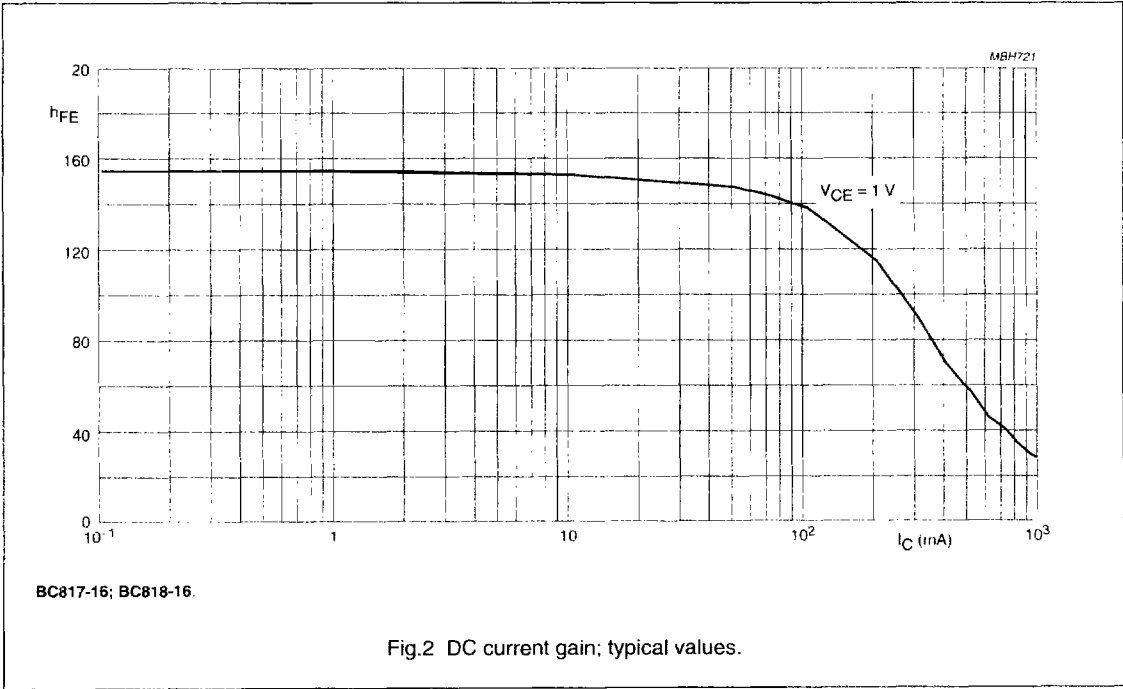
CHARACTERISTICS

$T_J = 25\text{ }^{\circ}\text{C}$ 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	$I_C = 100\text{ mA}$; $V_{CE} = 1\text{ V}$; note 1; see Figs 2, 3 and 4	100	—	600	
	BC817; BC818					
	BC817-16; BC818-16					
	BC817-25; BC818-25					
	BC817-40; BC818-40		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	$I_E = I_B = 0$; $V_{CB} = 10\text{ V}$; $f = 1\text{ MHz}$; note 3	—	5	—	pF
f_T	transition frequency	$I_C = 10\text{ mA}$; $V_{CE} = 5\text{ V}$; $f = 100\text{ MHz}$; note 4	100	—	—	MHz

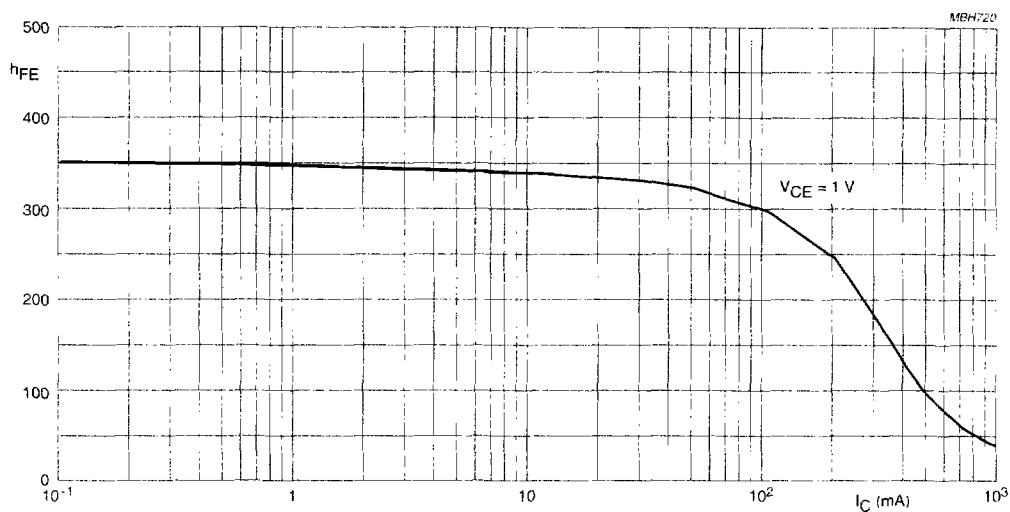
Notes

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.



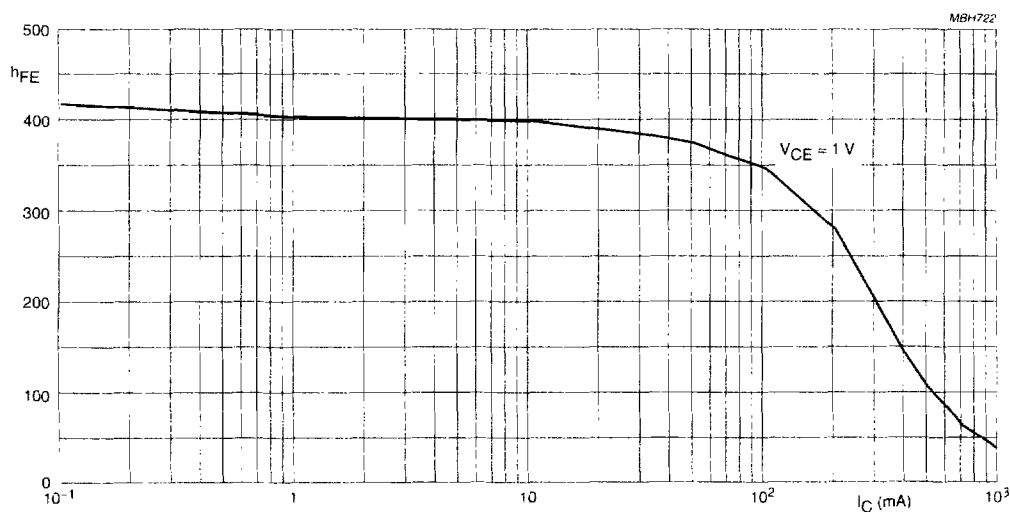
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BC817-25; BC818-25

Fig.3 DC current gain; typical values.



BC817-40; BC818-40

Fig.4 DC current gain; typical values.