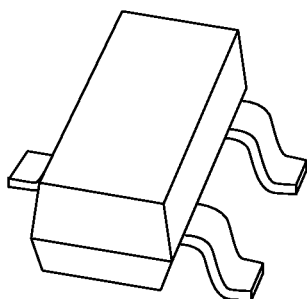


DATA SHEET



BC817; BC818 NPN general purpose transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Mar 12

NPN general purpose transistors

BC817; BC818

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

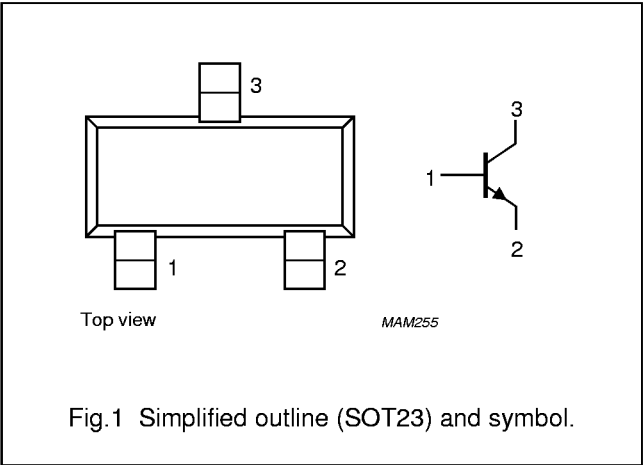
NPN transistor in a SOT23 plastic package.
PNP complements: BC807 and BC808.

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_{CEO}	collector-emitter voltage	open base			
	BC817		–	45	V
	BC818		–	25	V
I_{CM}	peak collector current		–	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	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

NPN general purpose transistors

BC817; BC818

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	$T_{amb} \leq 25$ °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.

NPN general purpose transistors

BC817; BC818

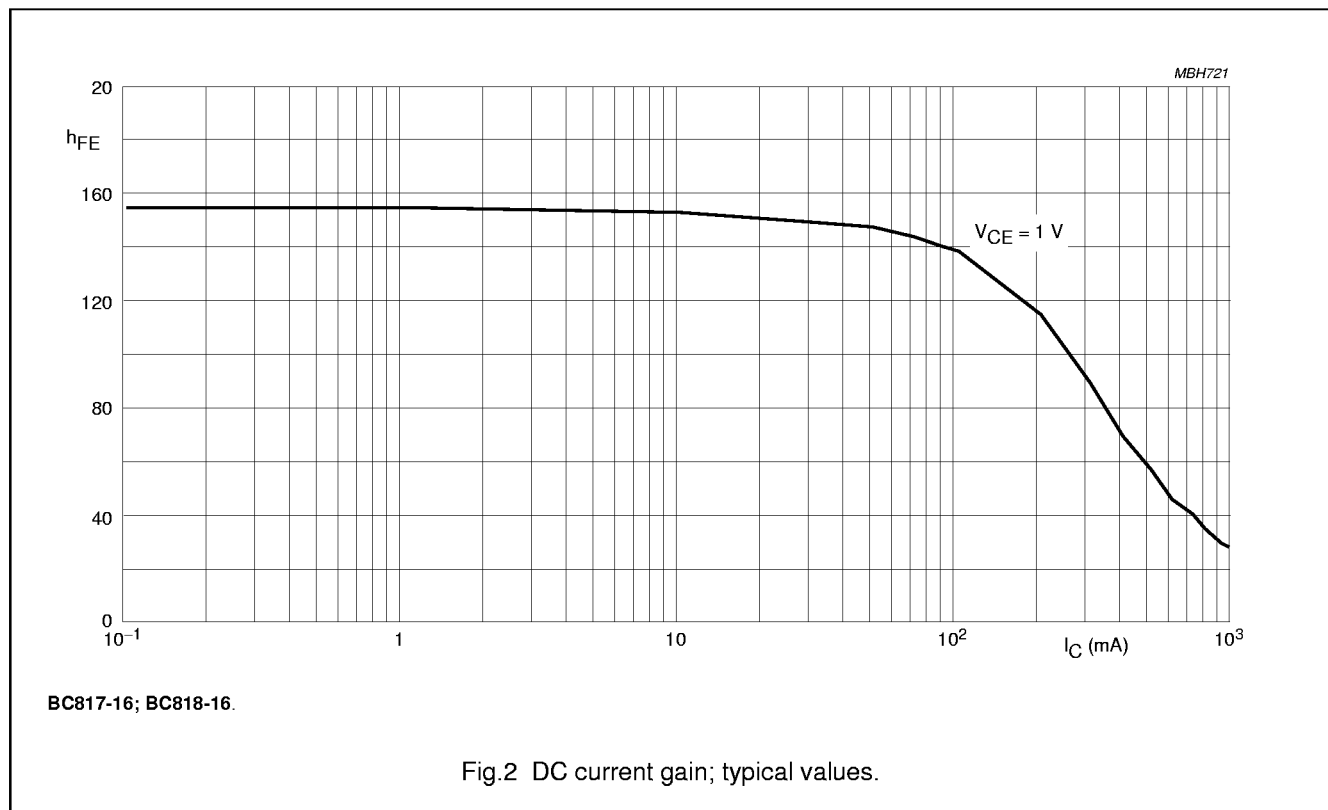
CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$ 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	$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}; \text{note 1};$ see Figs 2, 3 and 4	100	—	600	
	BC817; BC818					
	BC817-16; BC818-16					
	BC817-25; BC818-25					
h_{FE}	DC current gain	$I_C = 500\text{ mA}; V_{CE} = 1\text{ V}; \text{note 1}$	40	—	—	
	BC817-40; BC818-40					
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	—	—	700	mV
V_{BE}	base-emitter voltage	$I_C = 500\text{ mA}; V_{CE} = 1\text{ V}; \text{note 2}$	—	—	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.



NPN general purpose transistors

BC817; BC818

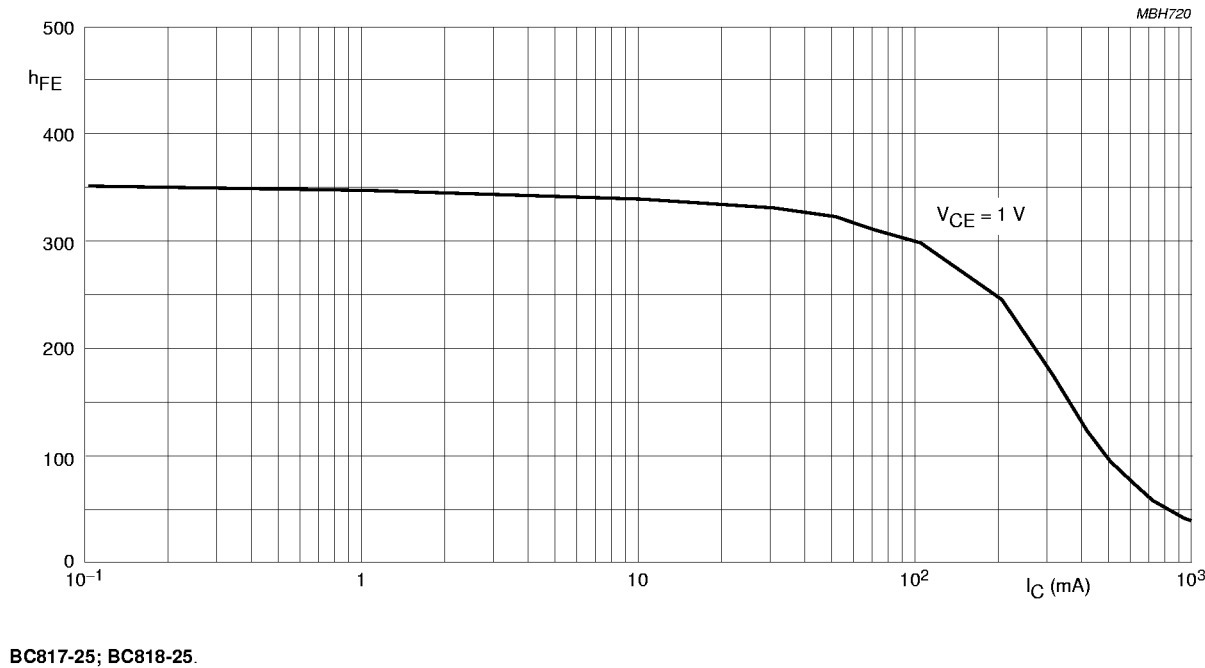


Fig.3 DC current gain; typical values.

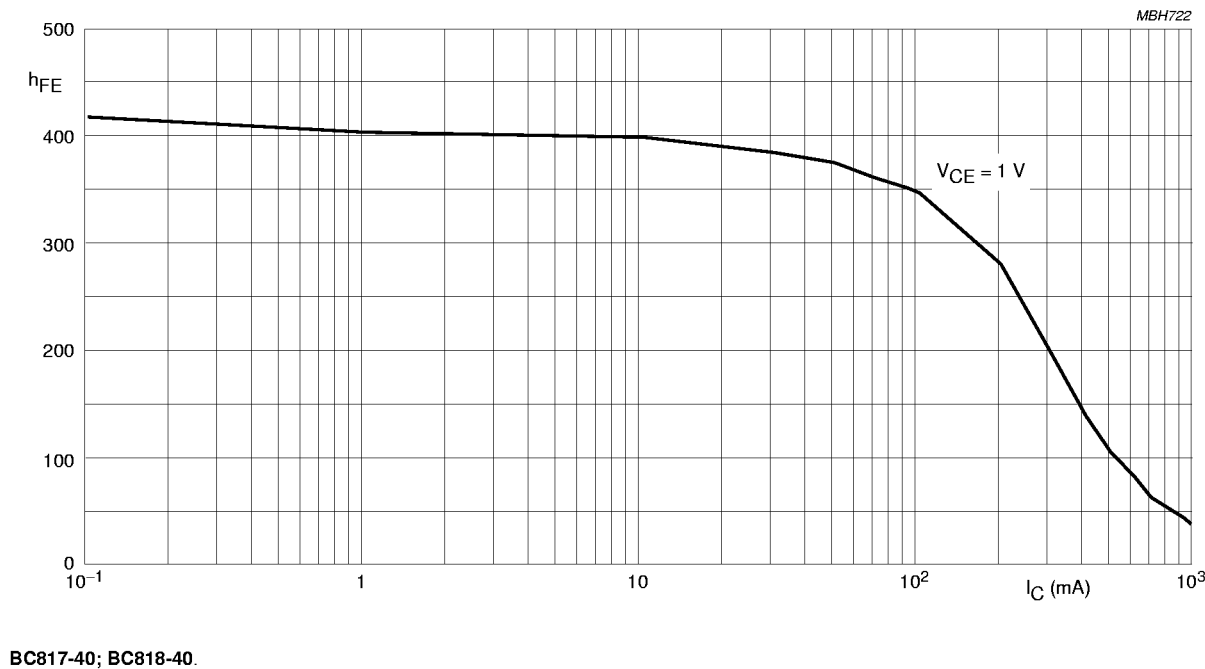


Fig.4 DC current gain; typical values.

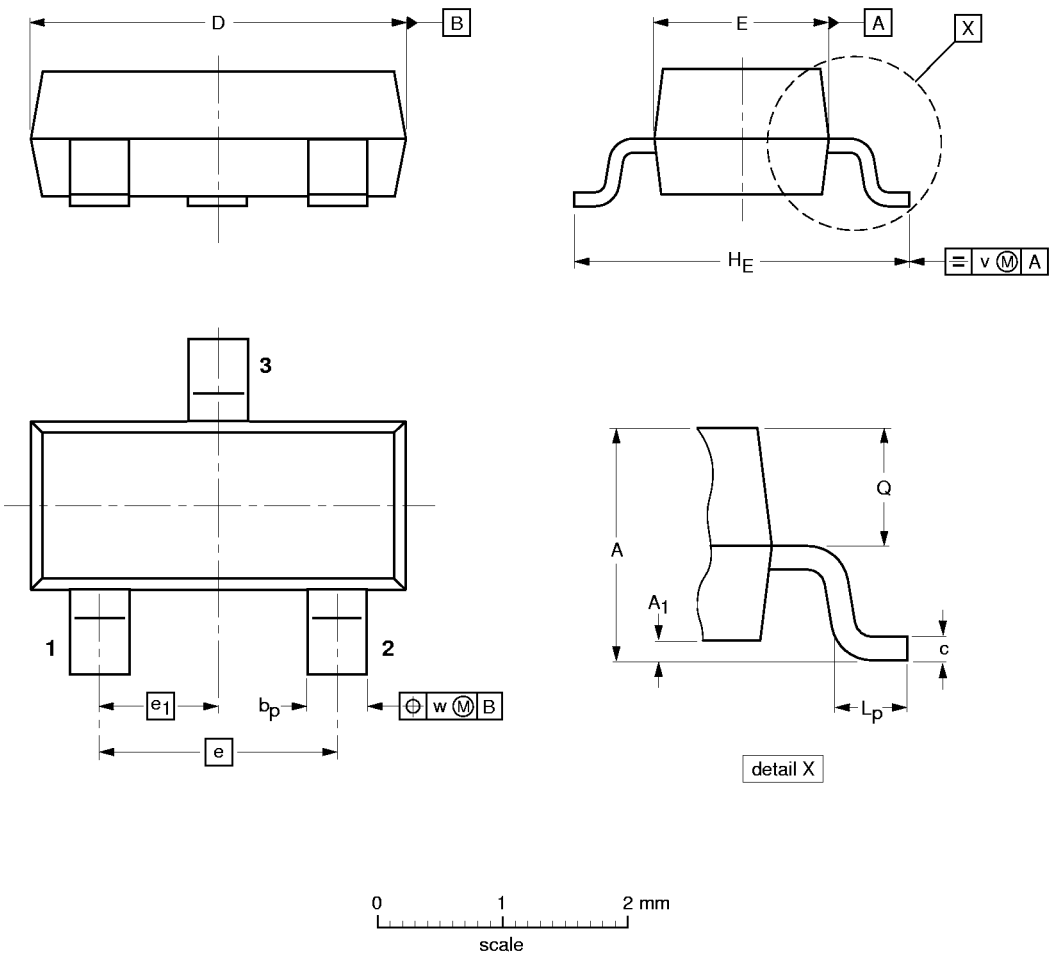
NPN general purpose transistors

BC817; BC818

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						97-02-28