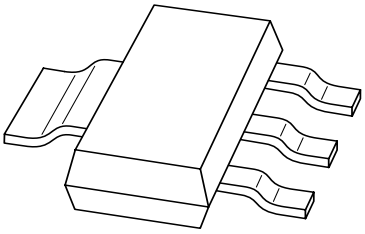
DATA SHEET



BCP69
PNP medium power transistor

Product specification
Supersedes data of 1999 Apr 08

2002 Nov 15

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PNP medium power transistor BCP69

FEATURES

- High current (max. 1 A)
- Low voltage (max. 20 V).

APPLICATIONS

- General purpose switching and amplification
- Power applications such as audio output stages.

DESCRIPTION

PNP medium power transistor in a SOT223 plastic package. NPN complement: BCP68.

PINNING

PIN	DESCRIPTION
1	base
2, 4	collector
3	emitter

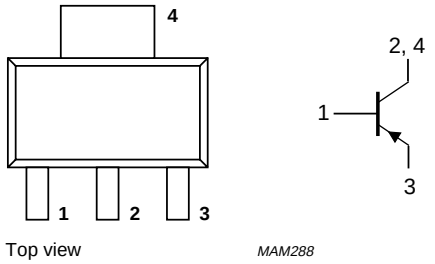


Fig.1 Simplified outline (SOT223) and symbol.

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	–	–32	V
V_{CEO}	collector-emitter voltage	open base	–	–20	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–2	A
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	1.35	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm^2. For other mounting conditions, see *"Thermal considerations for SOT223 in the General Part of associated Handbook".*

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	91	K/W
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point		10	K/W

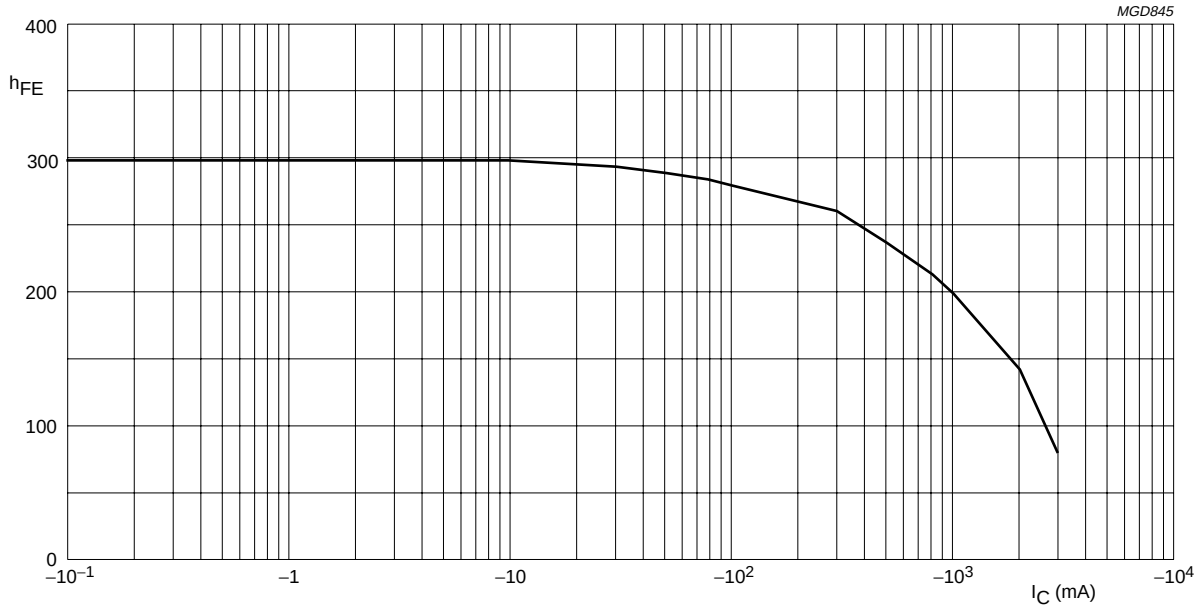
Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm^2. For other mounting conditions, see *"Thermal considerations for SOT223 in the General Part of associated Handbook".*

CHARACTERISTICS

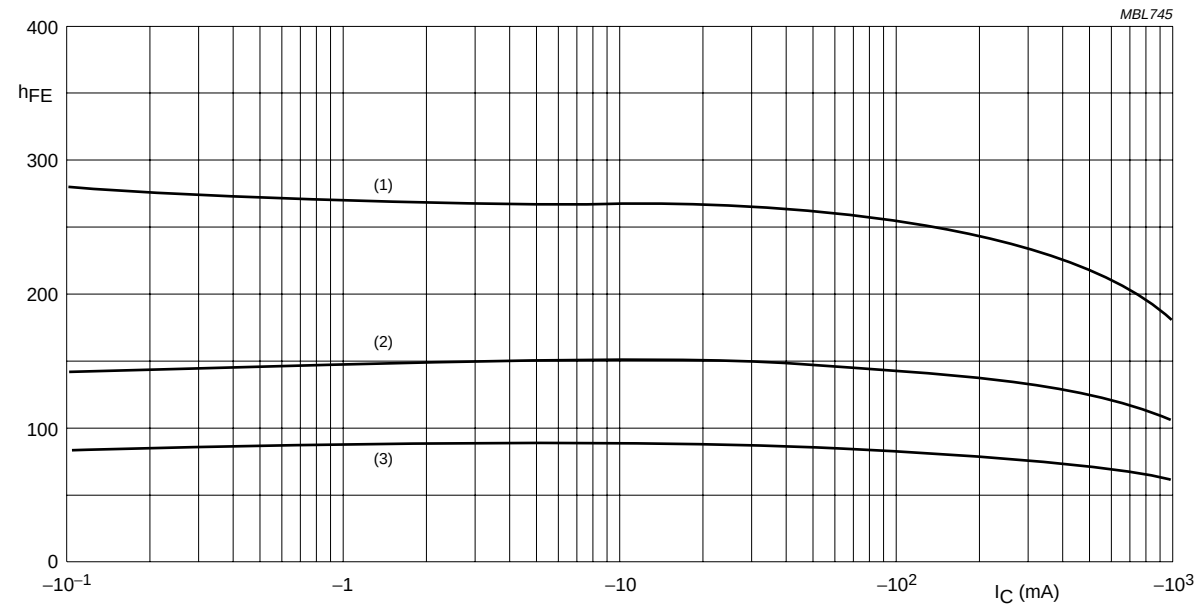
T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = –25 V	–	–	–100	nA
		I_E = 0; V_{CB} = –25 V; T_j = 150 °C	–	–	–10	µA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = –5 V	–	–	–100	nA
h_{FE}	DC current gain	I_C = –5 mA; V_{CE} = –10 V	50	–	–	
		I_C = –500 mA; V_{CE} = –1 V; see Fig.2	85	–	375	
		I_C = –1 A; V_{CE} = –1 V; see Fig.2	60	–	–	
	DC current gain BCP69-16 BCP69-25	I_C = –500 mA; V_{CE} = –1 V; see Fig.2	 100 160	 – –	 250 375	
	DC current gain BCP69-16/IN	I_C = –10 mA; V_{CE} = –1.8 V; see Fig.3	 140	 –	 230	
V_{CEsat}	collector-emitter saturation voltage	I_C = –1 A; I_B = –100 mA	–	–	–500	mV
V_{BE}	base-emitter voltage	I_C = –5 mA; V_{CE} = –10 V	–	–620	–	mV
		I_C = –1 A; V_{CE} = –1 V	–	–	–1	V
C_c	collector capacitance	$I_E = i_e$ = 0; V_{CB} = –5 V; f = 1 MHz	–	48	–	pF
f_T	transition frequency	I_C = –10 mA; V_{CE} = –5 V; f = 100 MHz	40	–	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$\lvert I_C \rvert$ = 0.5 A; $\lvert V_{CE} \rvert$ = 1 V	–	–	1.6	



BCP69
V_{CE} = −1 V.

Fig.2 DC current gain; typical values.

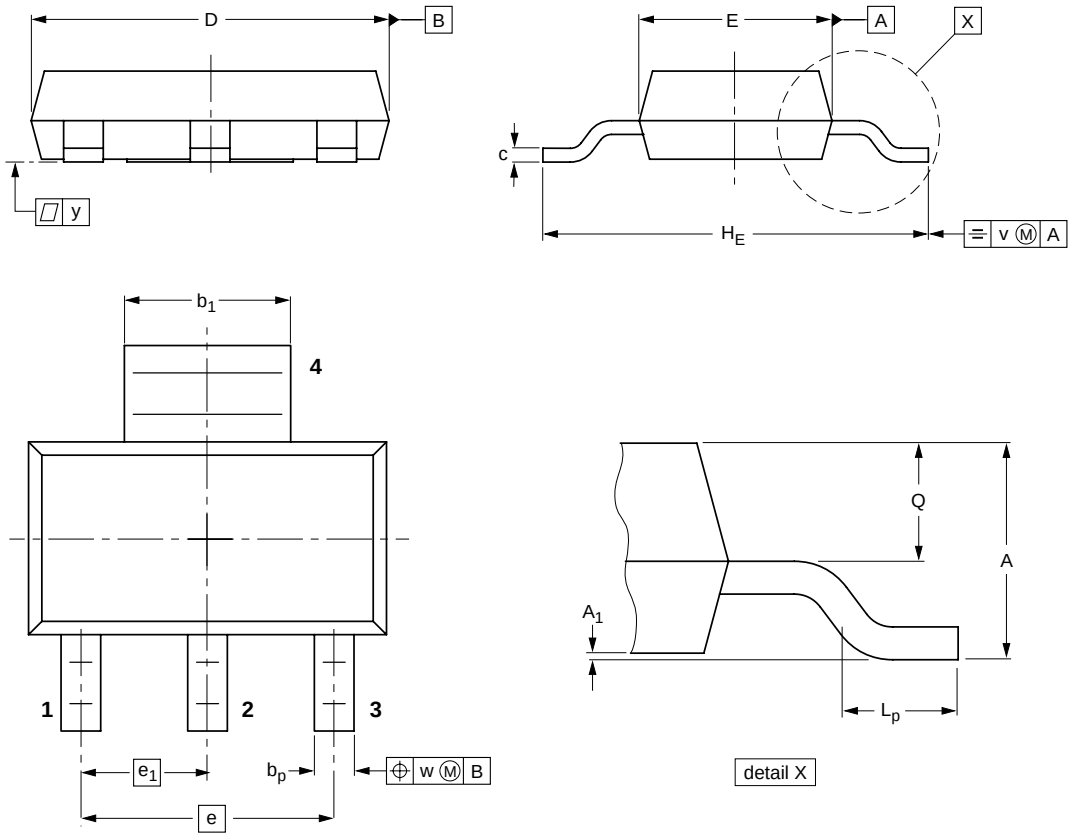


BCP69-16/IN
V_{CE} = −1.8 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −40 °C.

Fig.3 DC current gain; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads **SOT223**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1	b_p	b_1	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.8 1.5	0.10 0.01	0.80 0.60	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	4.6	2.3	7.3 6.7	1.1 0.7	0.95 0.85	0.2	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT223			SC-73			~~97-02-28~~ 99-09-13

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS(1)	PRODUCT STATUS(2)(3)	DEFINITION
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