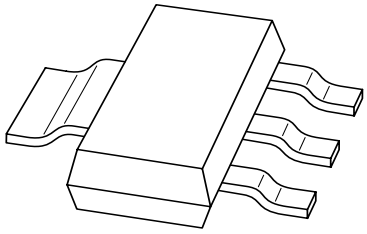
DATA SHEET



BCP51; BCP52; BCP53
PNP medium power transistors

Product specification
Supersedes data of 2001 Oct 10

2003 Feb 06

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PNP medium power transistors BCP51; BCP52; BCP53

FEATURES

- High collector current
- 1.3 W power dissipation.

APPLICATIONS

- General purpose medium power DC applications
- Low and medium frequency AC applications
- Peripheral drivers
- Linear voltage regulators and battery chargers.

DESCRIPTION

PNP medium power transistor in a SOT223 plastic package. NPN complements: BCP54, BCP55 and BCP56.

PINNING

PIN	DESCRIPTION
1	base
2, 4	collector
3	emitter

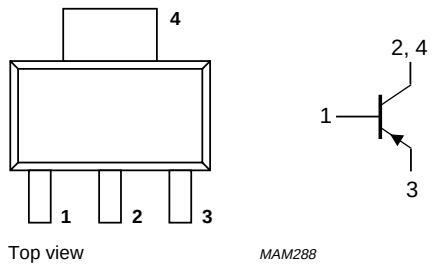


Fig.1 Simplified outline (SOT223) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	–80	V
I_C	collector current (DC)	–1	A
I_{CM}	peak collector current	–1.5	A

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			
	BCP51		–	–45	V
	BCP52		–	–60	V
	BCP53		–	–100	V
V_{CEO}	collector-emitter voltage	open base			
	BCP51		–	–45	V
	BCP52		–	–60	V
	BCP53		–	–80	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–1.5	A
I_{BM}	peak base current		–	–0.2	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	1.3	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	95	K/W
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point		14	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_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = –30 V	–	–	–100	nA
		I_E = 0; V_{CB} = –30 V; T_j = 125 °C	–	–	–10	µA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = –5 V	–	–	–100	nA
h_{FE}	DC current gain	V_{CE} = –2 V; see Fig.2				
		I_C = –5 mA	63	–	–	
		I_C = –150 mA	63	–	250	
		I_C = –500 mA	40	–	–	
h_{FE}	DC current gain	I_C = –150 mA; V_{CE} = –2 V; see Fig.2				
	BCP51-10; BCP52-10; BCP53-10		63	–	160	
	BCP51-16; BCP52-16; BCP53-16		100	–	250	
V_{CEsat}	collector-emitter saturation voltage	I_C = –500 mA; I_B = –50 mA	–	–	–0.5	V
V_{BE}	base-emitter voltage	I_C = –500 mA; V_{CE} = –2 V	–	–	–1	V
f_T	transition frequency	I_C = –10 mA; V_{CE} = –5 V; f = 100 MHz	–	115	–	MHz

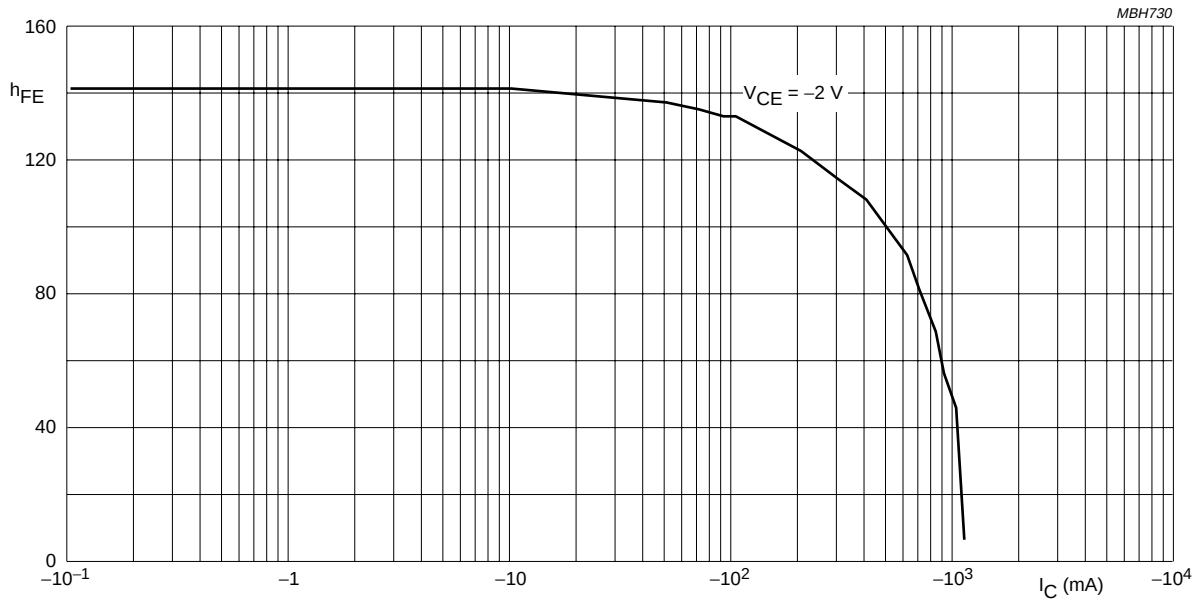
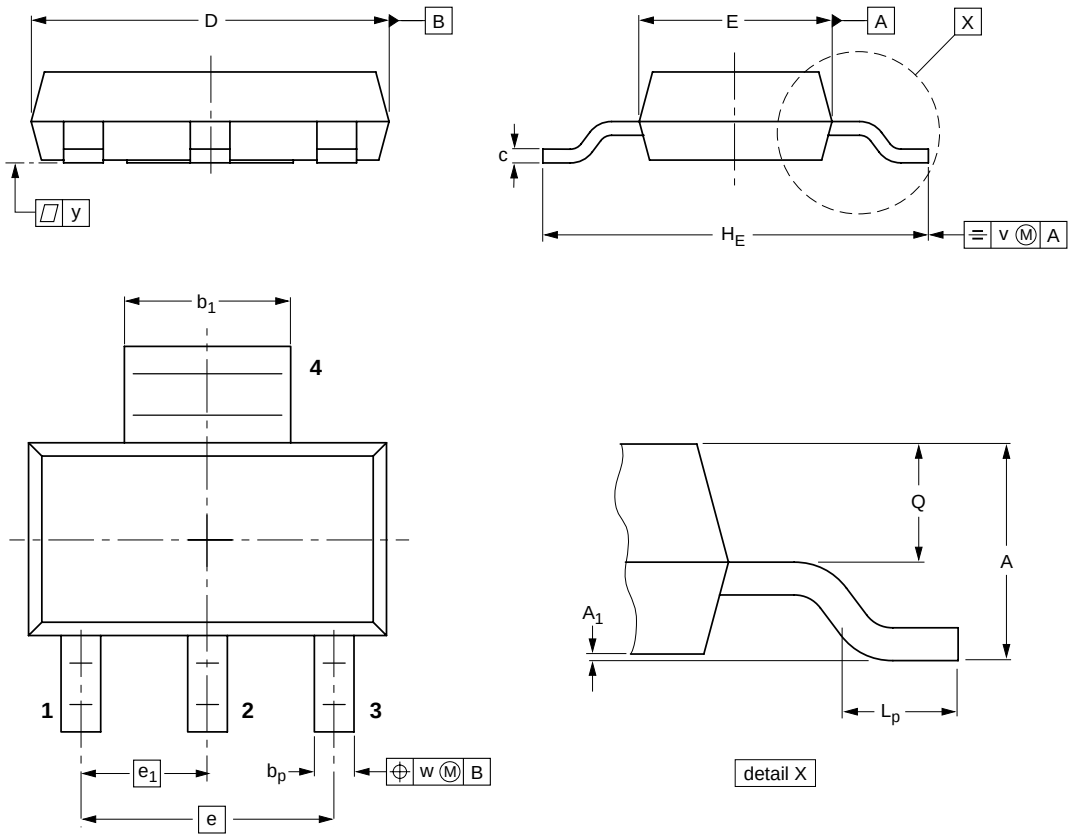


Fig.2 DC current gain; typical values.

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

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