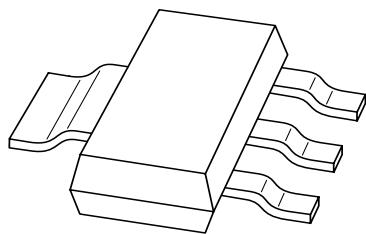


DATA SHEET



BCP51; BCP52; BCP53 PNP medium power transistors

Product specification
Supersedes data of 2001 Oct 10

2003 Feb 06

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

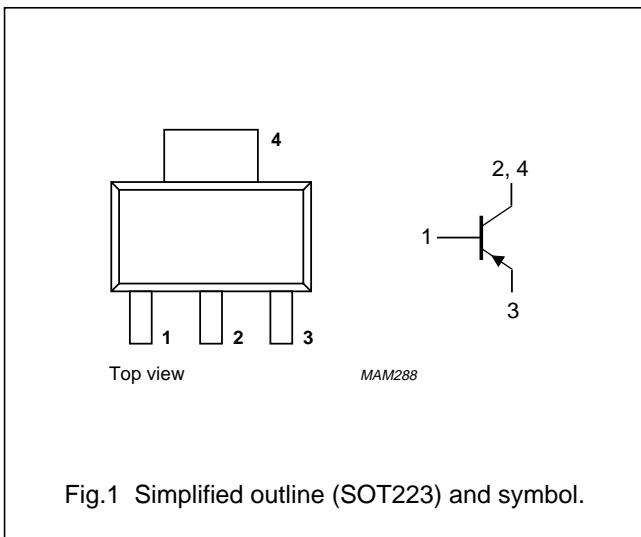


Fig.1 Simplified outline (SOT223) and symbol.

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

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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage BCP51 BCP52 BCP53	open emitter	– – –	–45 –60 –100	V V V
V_{CEO}	collector-emitter voltage BCP51 BCP52 BCP53	open base	– – –	–45 –60 –80	V V 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	$T_{amb} \leq 25^\circ\text{C}$; note 1	–	1.3	W
T_{stg}	storage temperature		–65	+150	$^\circ\text{C}$
T_j	junction temperature		–	150	$^\circ\text{C}$
T_{amb}	operating ambient temperature		–65	+150	$^\circ\text{C}$

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
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	95	K/W
$R_{th\ j-s}$	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".

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CHARACTERISTICS

 $T_{amb} = 25^\circ\text{C}$ unless otherwise specified.

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

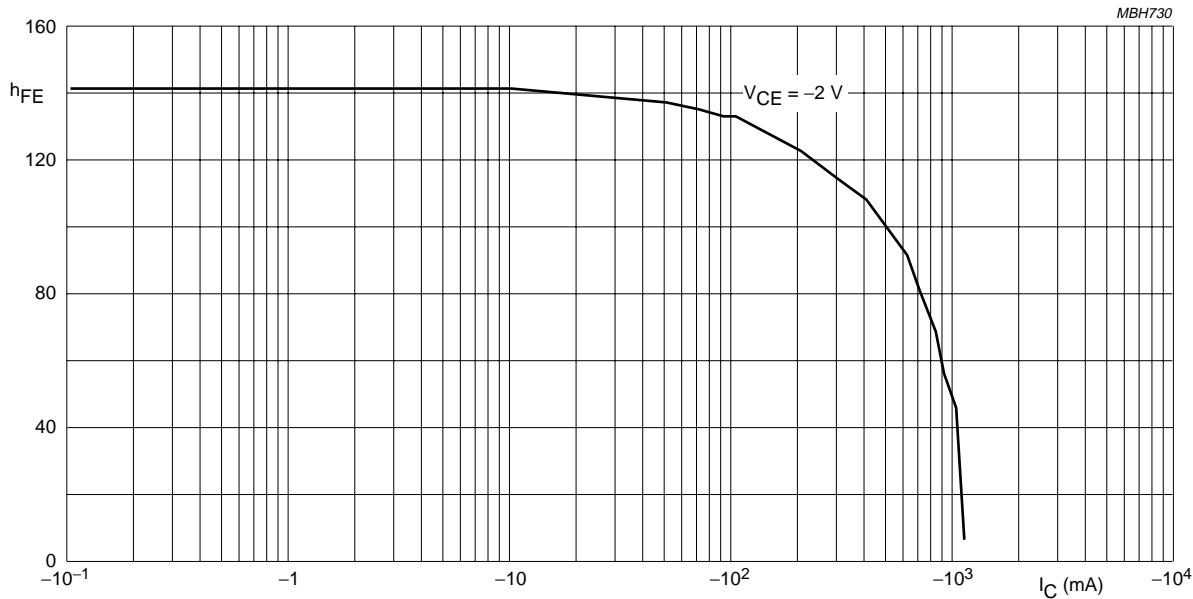


Fig.2 DC current gain; typical values.

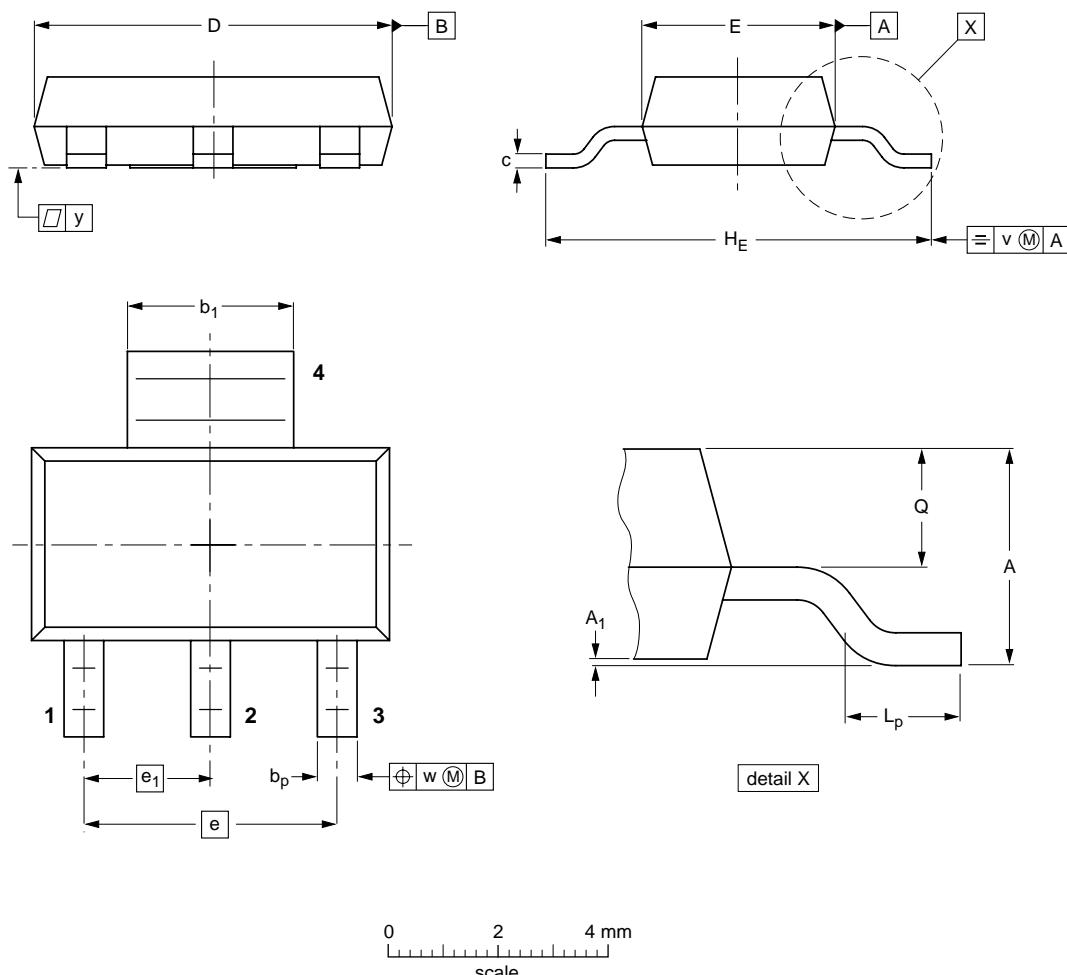
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PACKAGE OUTLINE

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	SC-73			
SOT223							-97-02-28 99-09-13

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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