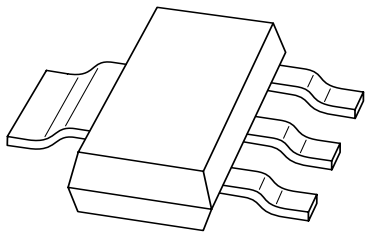


# DATA SHEET



## **BCP54; BCP55; BCP56** NPN medium power transistors

Product specification  
Supersedes data of 1999 Apr 08

2001 Oct 10

# NPN medium power transistors

# BCP54; BCP55; BCP56

### FEATURES

- High current (max. 1 A)
- Low voltage (max. 80 V).

### APPLICATIONS

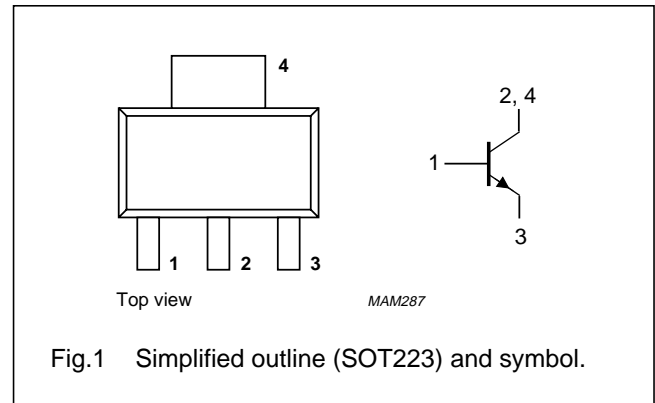
- Switching.

### DESCRIPTION

NPN medium power transistor in a SOT223 plastic package. PNP complements: BCP51, BCP52 and BCP53.

### PINNING

PIN	DESCRIPTION
1	base
2, 4	collector
3	emitter



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BCP54		–	45	V
	BCP55		–	60	V
	BCP56		–	100	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BCP54		–	45	V
	BCP55		–	60	V
	BCP56		–	80	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	5	V
I <sub>C</sub>	collector current (DC)		–	1	A
I <sub>CM</sub>	peak collector current		–	1.5	A
I <sub>BM</sub>	peak base current		–	0.2	A
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	1.33	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

### Note

1. Device mounted on printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm<sup>2</sup>. For other mounting conditions, see “Thermal considerations for SOT223 in the General Part of associated Handbook”.

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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	94	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering point		13	K/W

## Note

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

## CHARACTERISTICS

$T_{amb} = 25\text{ °C}$  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
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 125\text{ °C}$	–	–	10	μA
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	–	100	nA
$h_{FE}$	DC current gain	$I_C = 5\text{ mA}; V_{CE} = 2\text{ V}$	63	–	–	
		$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$	63	–	250	
		$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	40	–	–	
$h_{FE}$	DC current gain BCP55-10; 56-10 BCP54-16; 55-16; 56-16	$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$	63	–	160	
			100	–	250	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 0.5\text{ A}; I_B = 50\text{ mA}$	–	–	500	mV
$V_{BE}$	base-emitter voltage	$I_C = 0.5\text{ A}; V_{CE} = 2\text{ V}$	–	–	1	V
$f_T$	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	–	130	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$ I_C  = 150\text{ mA};  V_{CE}  = 2\text{ V}$	–	–	1.6	

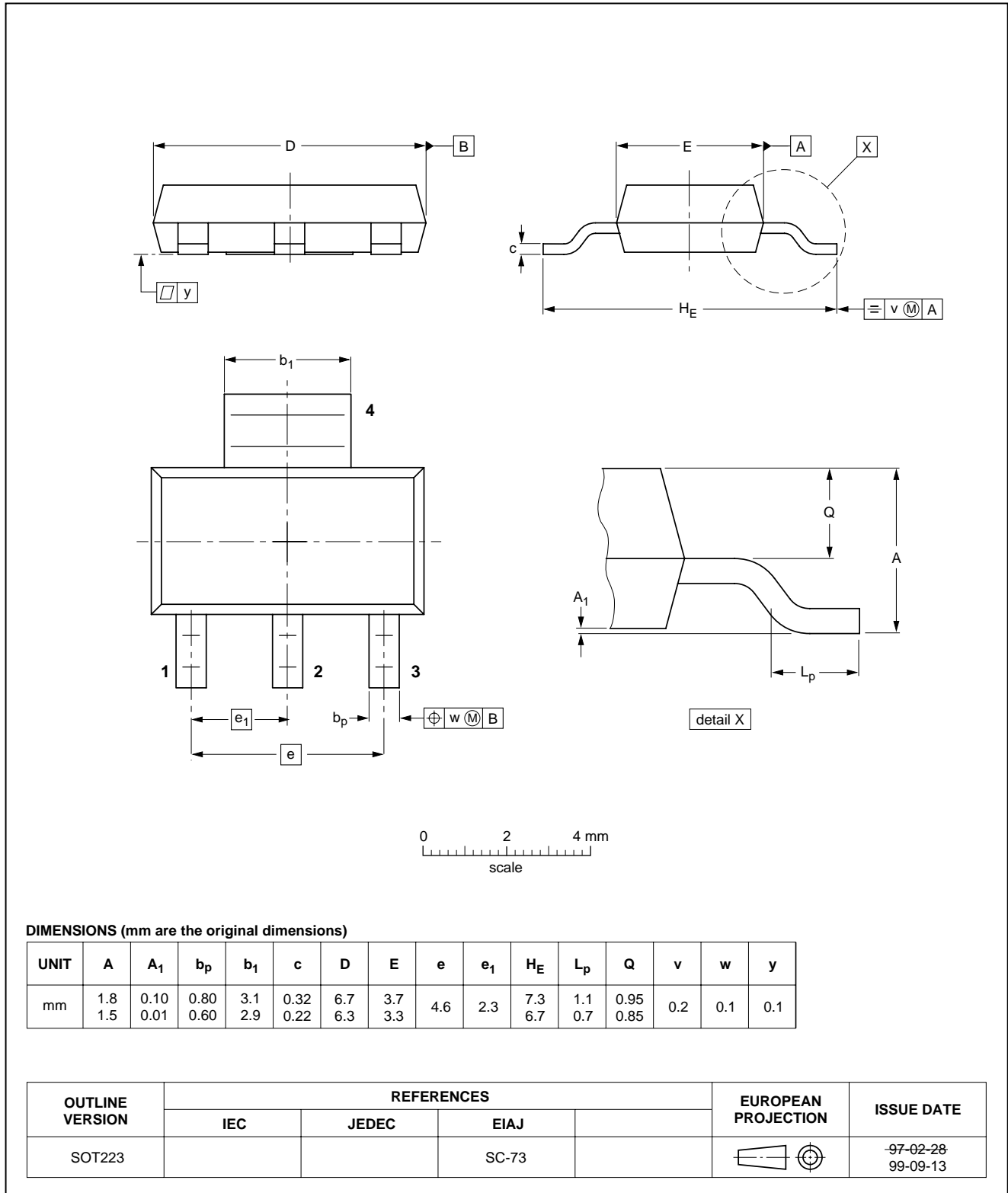
NPN medium power transistors

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PACKAGE OUTLINE

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

SOT223



## NPN medium power transistors

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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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**NOTES**

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**NOTES**

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