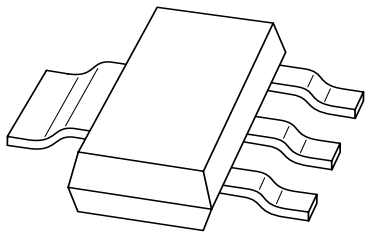


# DATA SHEET



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

Product specification  
Supersedes data of 1997 Apr 08

1999 Apr 08

**NPN medium power transistors**

**BCP54; BCP55; BCP56**

**FEATURES**

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

**APPLICATIONS**

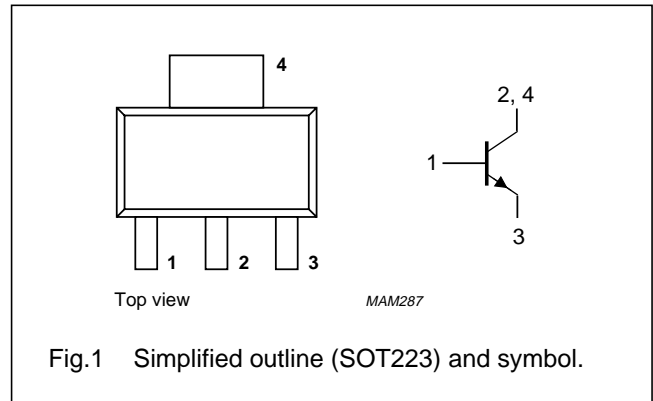
- Switching.

**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 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BCP54		–	45	V
	BCP55		–	60	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, tinned, 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".

## NPN medium power transistors

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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	$I_C = 5\text{ mA}; V_{CE} = 2\text{ V}$	25	–	–	
		$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$	63	–	250	
		$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	25	–	–	
$h_{FE}$	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	

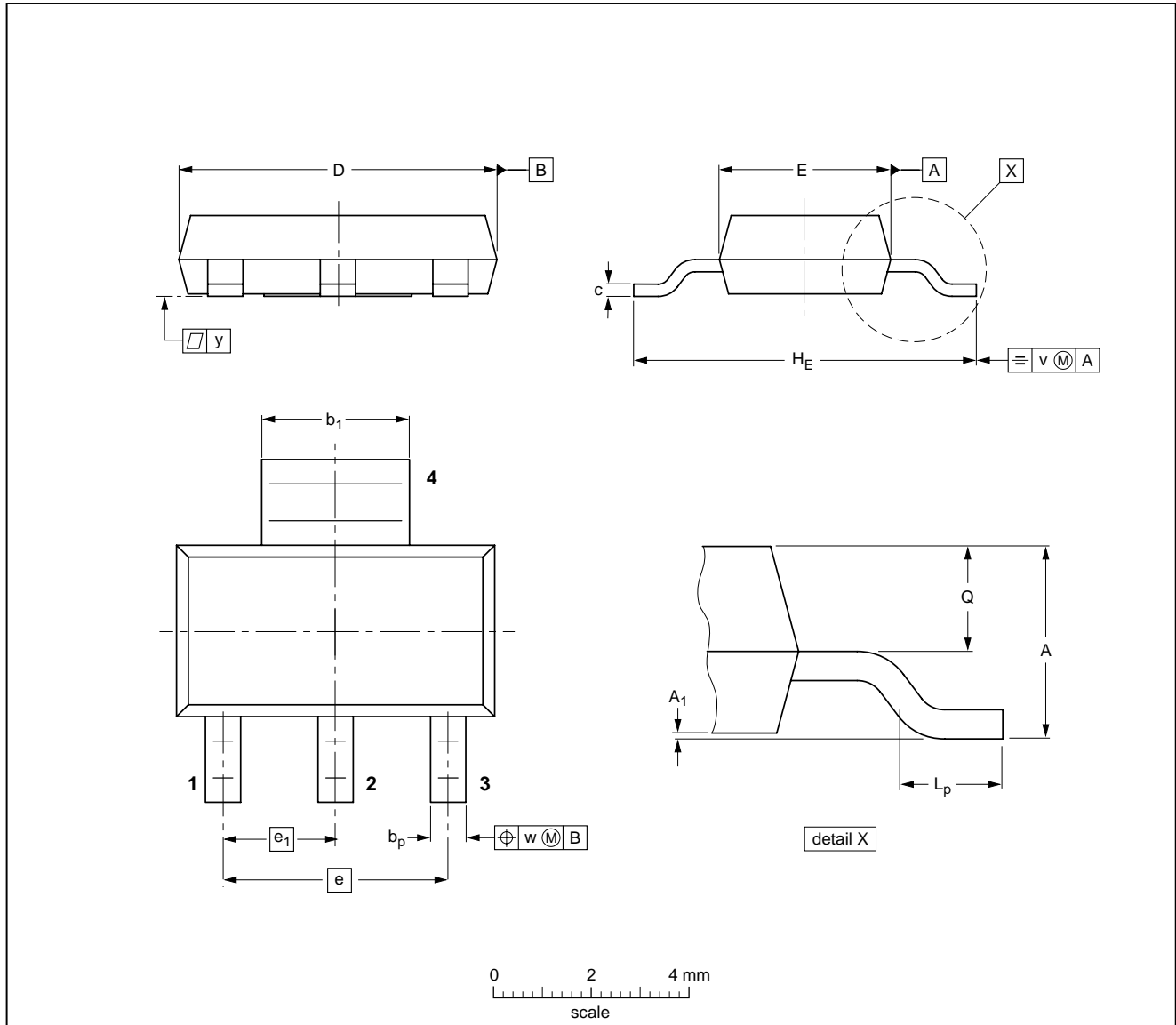
NPN medium power transistors

BCP54; BCP55; BCP56

PACKAGE OUTLINE

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

SOT223



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b <sub>p</sub>	b <sub>1</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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						96-11-11 97-02-28

## NPN medium power transistors

## BCP54; BCP55; BCP56

**DEFINITIONS**

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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NPN medium power transistors

BCP54; BCP55; BCP56

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**NOTES**

NPN medium power transistors

BCP54; BCP55; BCP56

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**NOTES**

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