

NPN medium power transistors

BCP54; BCP55; BCP56

FEATURES

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

APPLICATIONS

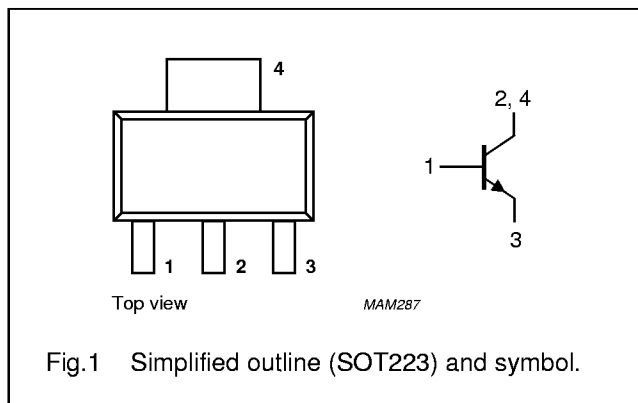
- Switching.

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_{CBO}	collector-base voltage	open emitter			
	BCP54		—	45	V
	BCP55		—	60	V
	BCP56		—	100	V
V_{CEO}	collector-emitter voltage	open base			
	BCP54		—	45	V
	BCP55		—	60	V
	BCP56		—	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	$T_{amb} \leq 25\text{ °C}$; note 1	—	1.33	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 printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm². 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 cm².
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	$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$		–		
	BCP55-10; 56-10		63	–	160	
	BCP54-16; 55-16; 56-16		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	

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PACKAGE OUTLINE

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

SOT223

