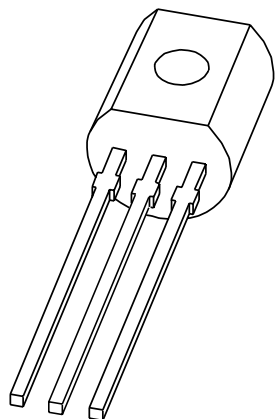


# DATA SHEET



## **BC307; BC307B** PNP general purpose transistors

Product specification  
File under Discrete Semiconductors, SC04

1997 Mar 07

# PNP general purpose transistors

# BC307; BC307B

### FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 45 V).

### APPLICATIONS

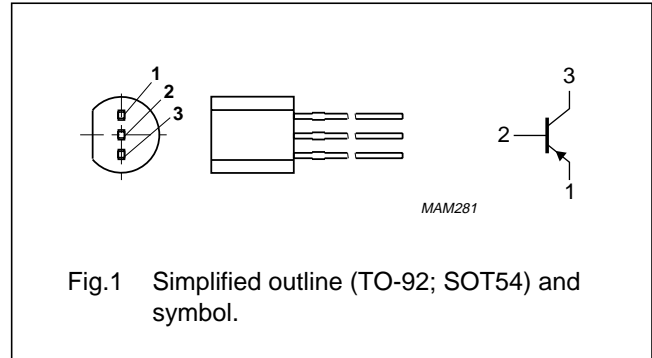
- General purpose switching and amplification.

### DESCRIPTION

PNP transistor in a TO-92; SOT54 plastic package.  
NPN complements: BC237 and BC237B.

### PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	–50	V
$V_{CEO}$	collector-emitter voltage	open base	–	–45	V
$I_{CM}$	peak collector current		–	–200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	500	mW
$h_{FE}$	DC current gain	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$			
	BC307		125	455	
	BC307B		222	455	
$f_T$	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	MHz

## PNP general purpose transistors

## BC307; BC307B

**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	–	–50	V
$V_{CEO}$	collector-emitter voltage	open base	–	–45	V
$V_{EBO}$	emitter-base voltage	open collector	–	–5	V
$I_C$	collector current (DC)		–	–100	mA
$I_{CM}$	peak collector current		–	–200	mA
$I_{BM}$	peak base current		–	–200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	500	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	250	K/W

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

PNP general purpose transistors

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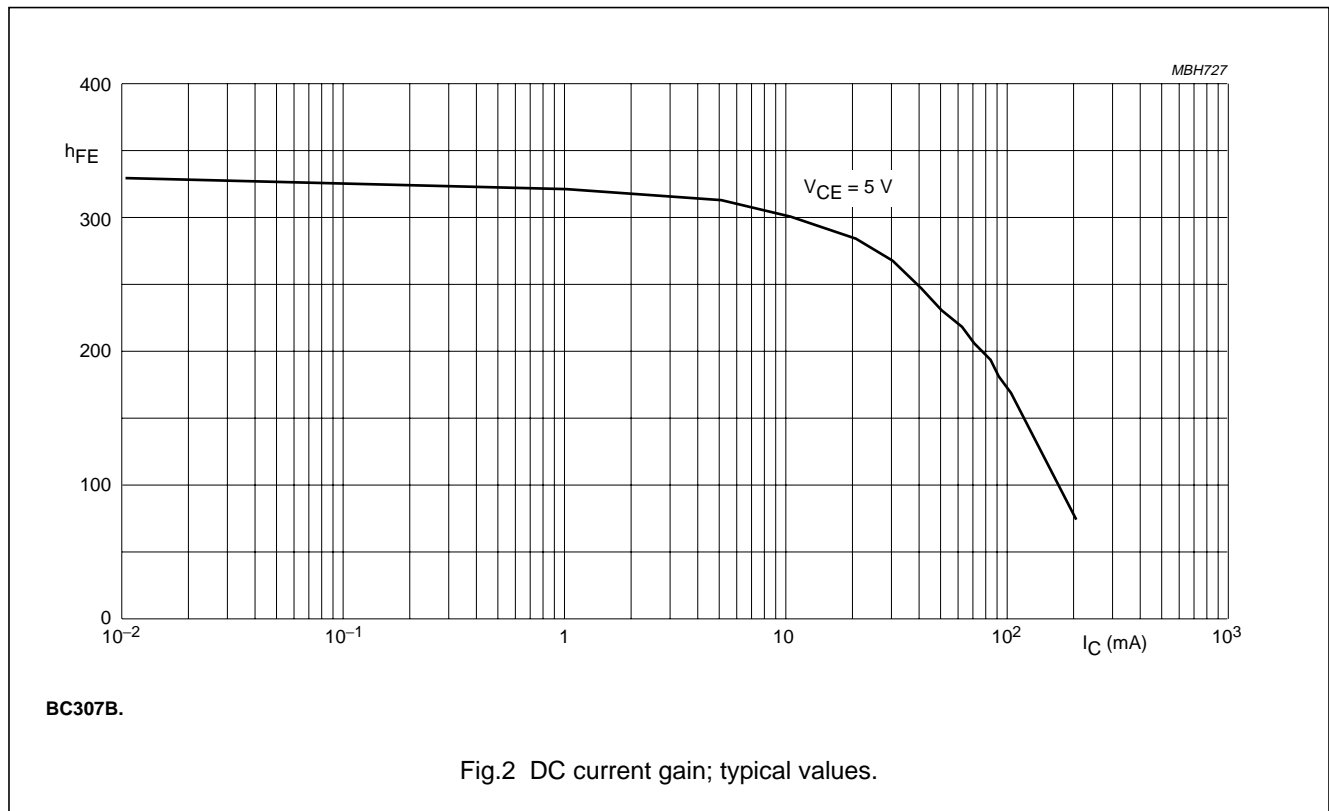
**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>CBO</sub>	collector cut-off current	I <sub>E</sub> = 0; V <sub>CB</sub> = -30 V;	-	-15	nA
		I <sub>E</sub> = 0; V <sub>CB</sub> = -30 V; T <sub>j</sub> = 150 °C	-	-4	μA
I <sub>EBO</sub>	emitter cut-off current	I <sub>C</sub> = 0; V <sub>EB</sub> = -4 V	-	-15	nA
h <sub>FE</sub>	DC current gain BC307 BC307B	I <sub>C</sub> = -2 mA; V <sub>CE</sub> = -5 V; see Fig.2	125	455	
			222	455	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = -100 mA; I <sub>B</sub> = -5 mA; note 1	-	-600	mV
V <sub>BEsat</sub>	base-emitter saturation voltage	I <sub>C</sub> = -100 mA; I <sub>B</sub> = -5 mA; note 1	-	-1.1	V
V <sub>BE</sub>	base-emitter voltage	I <sub>C</sub> = -2 mA; V <sub>CE</sub> = -5 V; note 1	600	720	mV
C <sub>c</sub>	collector capacitance	I <sub>E</sub> = i <sub>e</sub> = 0; V <sub>CB</sub> = -10 V; f = 1 MHz	-	3	pF
f <sub>T</sub>	transition frequency	I <sub>C</sub> = -10 mA; V <sub>CE</sub> = -5 V; f = 100 MHz; note 1	100	-	MHz
F	noise figure	I <sub>C</sub> = -200 μA; V <sub>CE</sub> = -5 V; R <sub>S</sub> = 2 kΩ; f = 1 kHz; B = 200 Hz	-	10	dB

**Note**

1. Pulse test: t<sub>p</sub> ≤ 300 μs; δ ≤ 0.02.



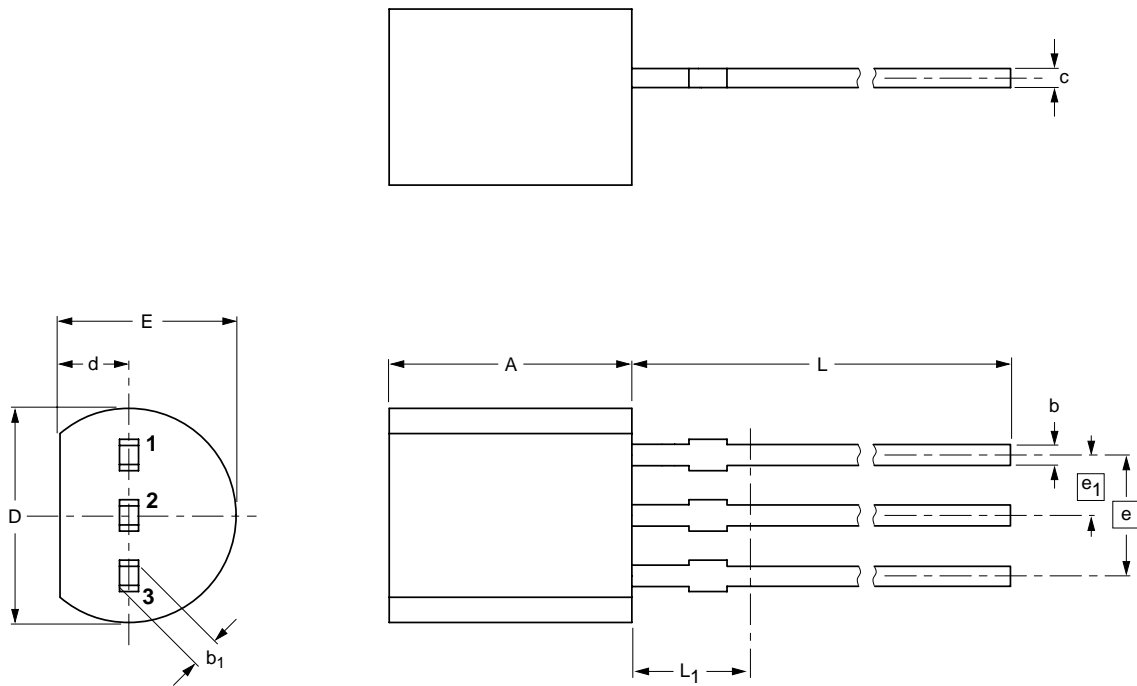
PNP general purpose transistors

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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup>
mm	5.2	0.48	0.66	0.45	4.8	1.7	4.2	2.54	1.27	14.5	2.5
	5.0	0.40	0.56	0.40	4.4	1.4	3.6				

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT54		TO-92	SC-43			97-02-28

## PNP general purpose transistors

BC307; BC307B

**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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PNP general purpose transistors

BC307; BC307B

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