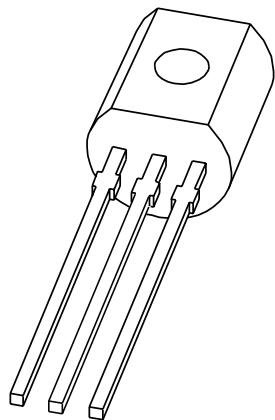


# DATA SHEET



## **BC556; BC557** PNP general purpose transistors

Product specification

1999 Apr 15

Supersedes data of 1997 Mar 27

**PNP general purpose transistors****BC556; BC557****FEATURES**

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

**APPLICATIONS**

- General purpose switching and amplification.

**DESCRIPTION**

PNP transistor in a TO-92; SOT54 plastic package.  
NPN complements: BC546 and BC547.

**PINNING**

PIN	DESCRIPTION
1	emitter
2	base
3	collector

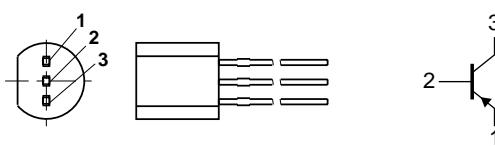


Fig.1 Simplified outline (TO-92; SOT54)  
and symbol.

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage BC556 BC557	open emitter	—	-80	V
$V_{CEO}$	collector-emitter voltage BC556 BC557	open base	—	-65	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	$T_{amb} \leq 25^\circ\text{C}$	—	500	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		—	150	°C
$T_{amb}$	operating ambient temperature		-65	+150	°C

## PNP general purpose transistors

BC556; BC557

## THERMAL CHARACTERISTICS

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

## Note

- Transistor mounted on an FR4 printed-circuit board.

## CHARACTERISTICS

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

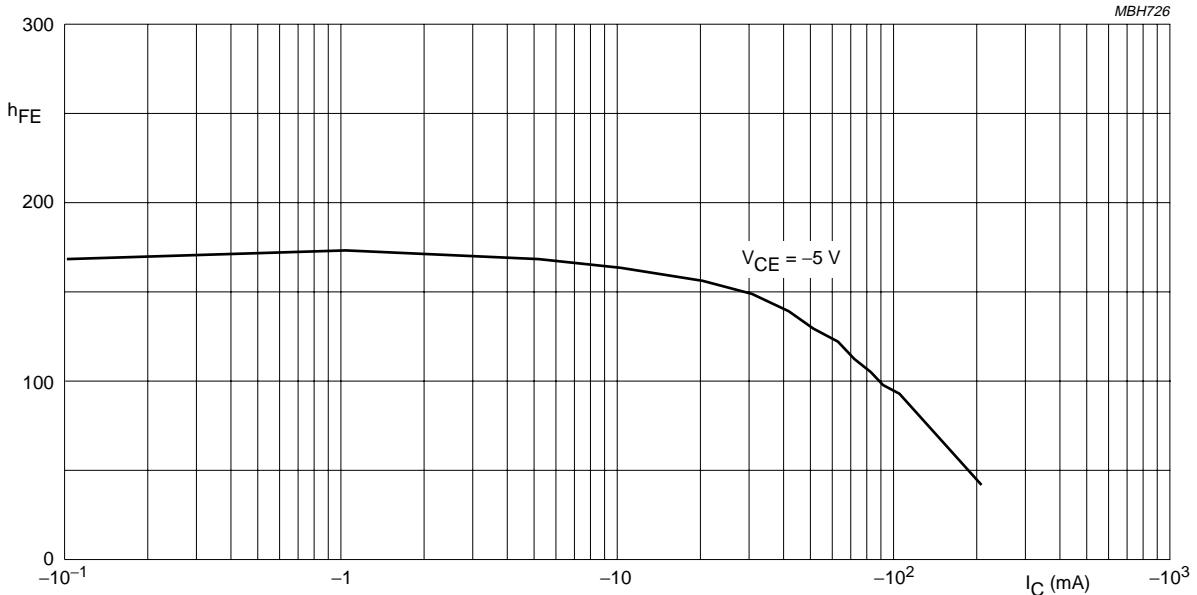
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = -30\text{ V}$	–	–1	–15	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 150^\circ\text{C}$	–	–	–4	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–	–100	nA
$h_{FE}$	DC current gain BC556 BC557 BC556A BC556B; BC557B BC557C	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V};$ see Figs 2, 3 and 4	125	–	475	
			125	–	800	
			125	–	250	
			220	–	475	
			420	–	800	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$	–	–60	–300	mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA}$	–	–180	–650	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}; \text{note 1}$	–	–750	–	mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA}; \text{note 1}$	–	–930	–	mV
$V_{BE}$	base-emitter voltage	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}; \text{note 2}$	–600	–650	–750	mV
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; \text{note 2}$	–	–	–820	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	3	–	pF
$C_e$	emitter capacitance	$I_C = i_e = 0; V_{EB} = -0.5\text{ V}; f = 1\text{ MHz}$	–	10	–	pF
$f_T$	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz
$F$	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 200\text{ Hz}$	–	2	10	dB

## Notes

- $V_{BEsat}$  decreases by about  $-1.7\text{ mV/K}$  with increasing temperature.
- $V_{BE}$  decreases by about  $-2\text{ mV/K}$  with increasing temperature.

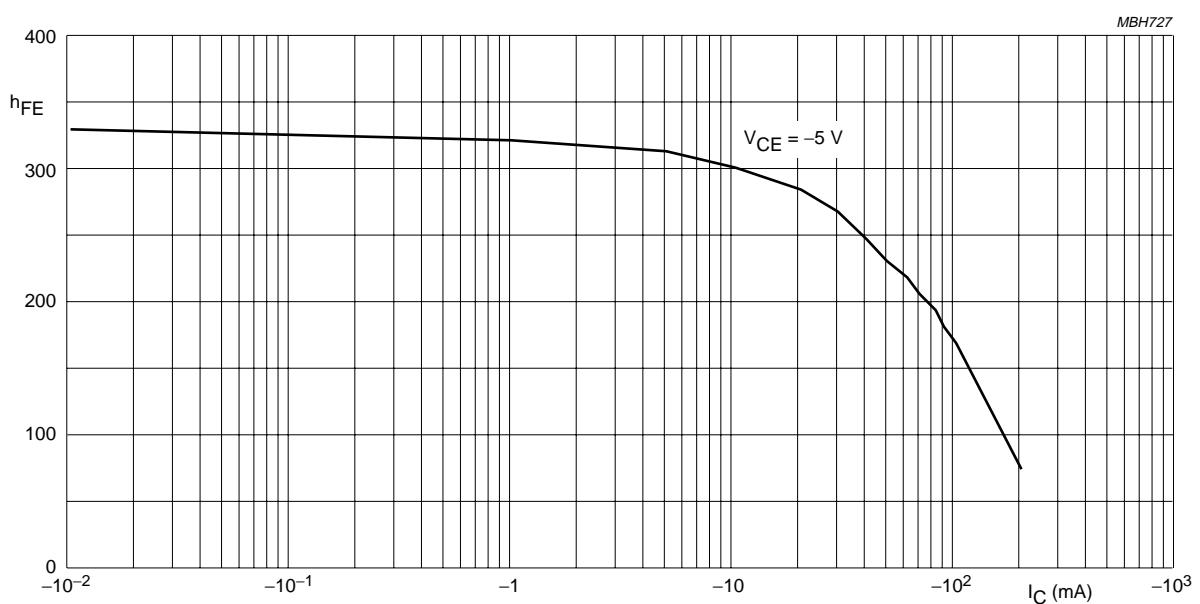
## PNP general purpose transistors

BC556; BC557



BC556A.

Fig.2 DC current gain; typical values.

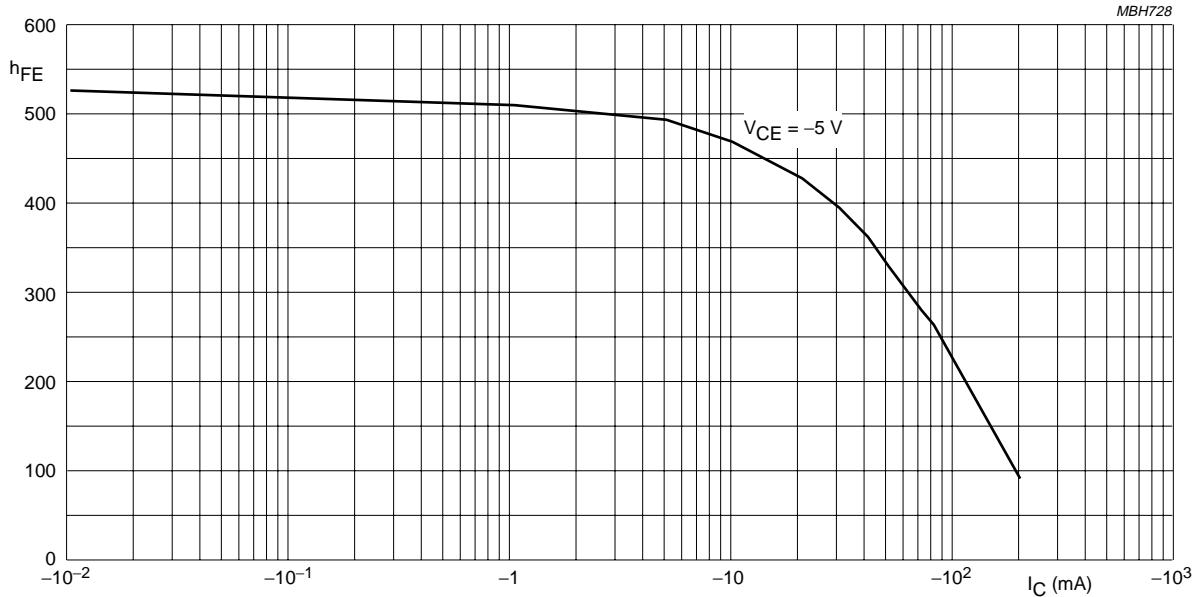


BC556B; BC557B.

Fig.3 DC current gain; typical values.

## PNP general purpose transistors

BC556; BC557



BC557C.

Fig.4 DC current gain; typical values.

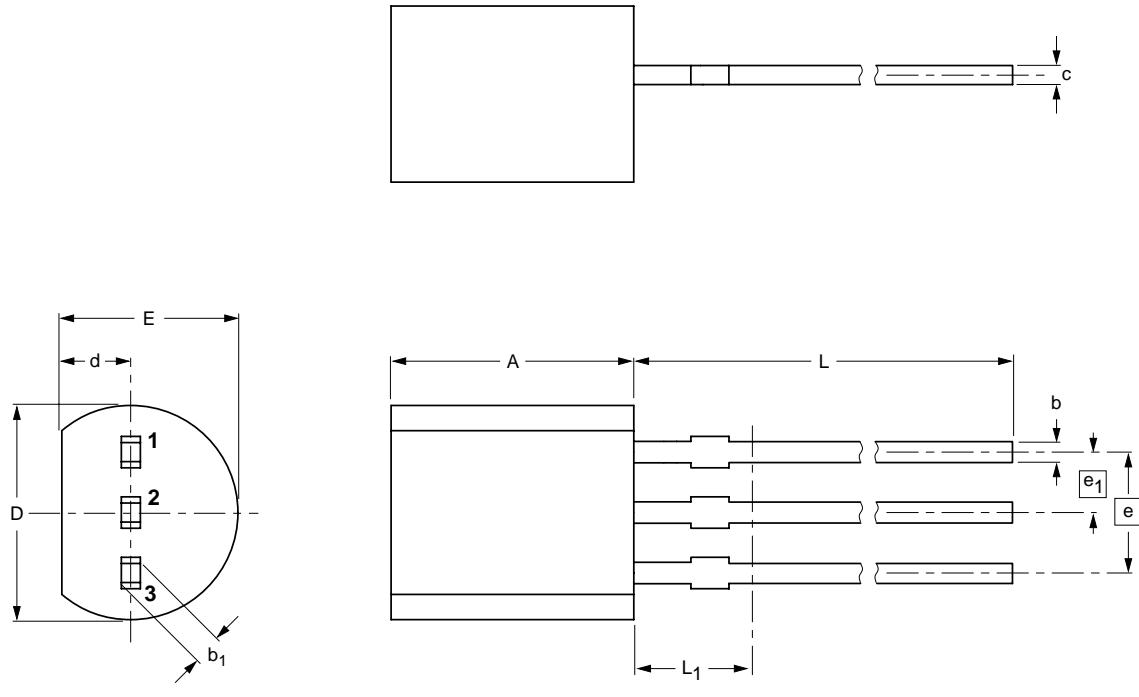
## PNP general purpose transistors

BC556; BC557

## 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 5.0	0.48 0.40	0.66 0.56	0.45 0.40	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

## 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