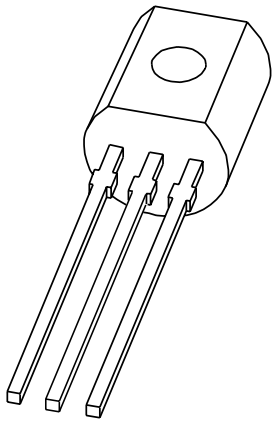
DATA SHEET



BC559
PNP general purpose transistor

Product specification
Supersedes data of 1999 May 28

2004 Nov 05

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PNP general purpose transistor BC559

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 30 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

PNP transistor in a TO-92 (SOT54) plastic package.
NPN complement: BC549.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector

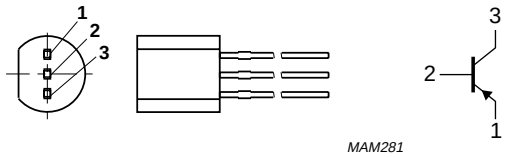


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC559C	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–30	V
V_{CEO}	collector-emitter voltage	open base	–	–30	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	$T_{amb} \leq 25$ °C	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	ambient temperature		–65	+150	°C

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.

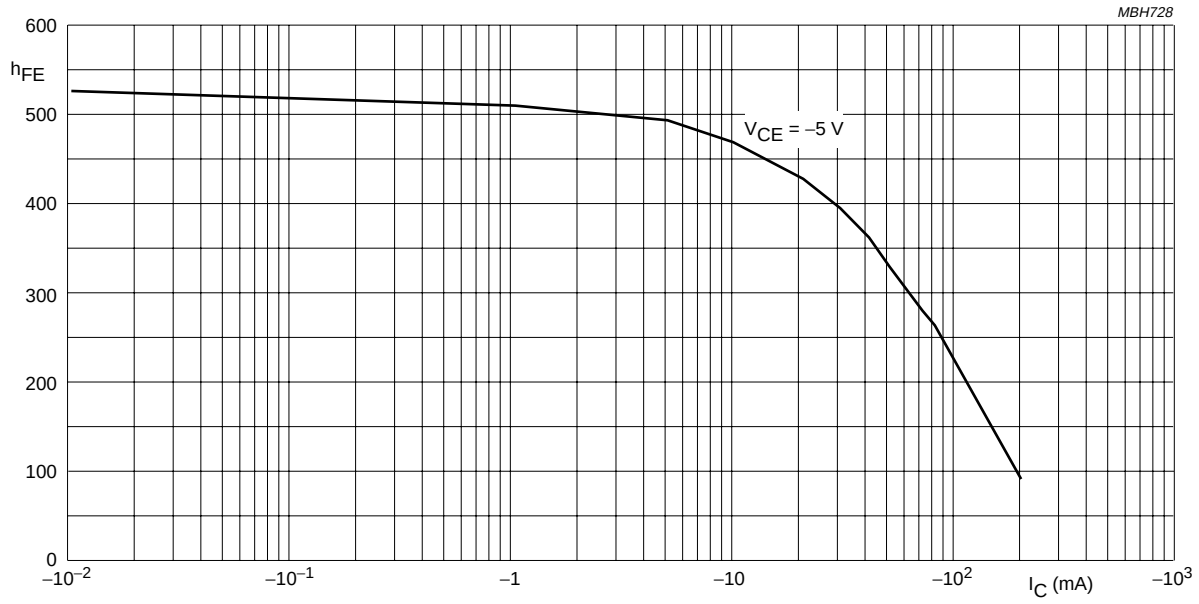
CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	V_{CB} = –30 V; I_E = 0 A	–	–1	–15	nA
		V_{CB} = –30 V; I_E = 0 A; T_j = 150 °C	–	–	–4	μA
I_{EBO}	emitter-base cut-off current	V_{EB} = –5 V; I_C = 0 A	–	–	–100	nA
h_{FE}	DC current gain; BC559C	V_{CE} = –5 V; I_C = –2 mA; see Fig.2	420	–	800	
V_{CEsat}	collector-emitter saturation voltage	I_C = –10 mA; I_B = –0.5 mA	–	–60	–300	mV
		I_C = –100 mA; I_B = –5 mA	–	–180	–650	mV
V_{BEsat}	base-emitter saturation voltage	I_C = –10 mA; I_B = –0.5 mA; note 1	–	–750	–	mV
		I_C = –100 mA; I_B = –5 mA; note 1	–	–930	–	mV
V_{BE}	base-emitter voltage	V_{CE} = –5 V; I_C = –2 mA; note 2	–600	–650	–750	mV
		V_{CE} = –5 V; I_C = –10 mA; note 2	–	–	–820	mV
C_c	collector capacitance	V_{CB} = –10 V; I_E = i_e = 0 A; f = 1 MHz	–	4	–	pF
f_T	transition frequency	V_{CB} = –5 V; I_E = –10 mA; f = 100 MHz	100	–	–	MHz
F	noise figure; BC559C	V_{CE} = –5 V; I_C = –200 μA; R_S = 2 kΩ; f = 30 Hz to 15.7 kHz	–	–	4	dB
		V_{CE} = –5 V; I_C = –200 μA; R_S = 2 kΩ; f = 1 kHz; B = 200 Hz	–	–	4	dB

Notes

1. V_{BEsat} decreases by about –1.7 mV/K with increasing temperature.
2. V_{BE} decreases by about –2 mV/K with increasing temperature.

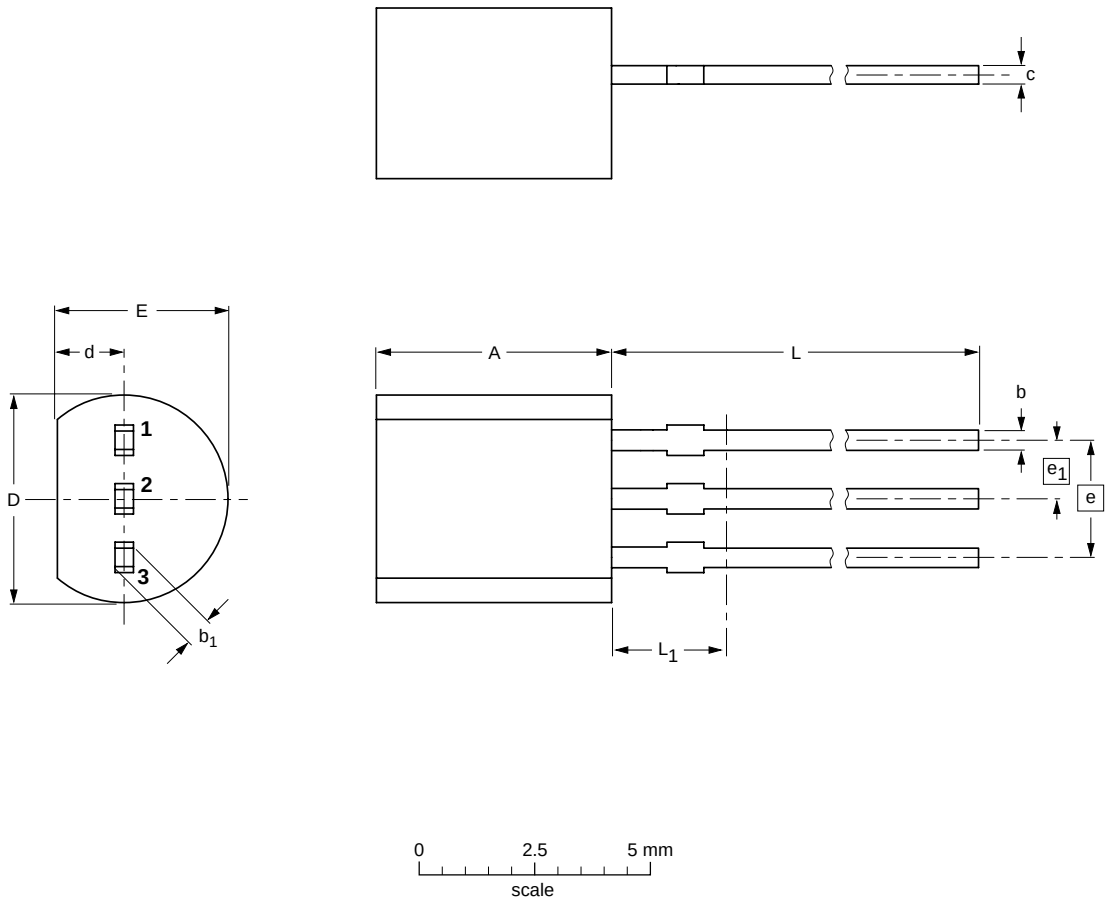


BC559C.

Fig.2 DC current gain; typical values.

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads **SOT54**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b_1	c	D	d	E	e	e_1	L	L_1 (1) max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	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	JEITA			
SOT54		TO-92	SC-43A			~~97-02-28~~ 04-06-28

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS(1)	PRODUCT STATUS(2)(3)	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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