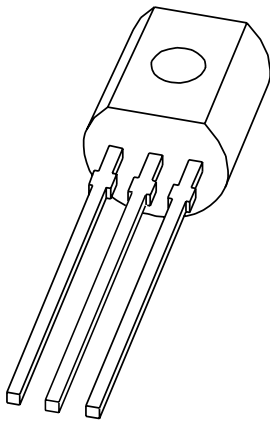


# DATA SHEET



**BC559**

**PNP general purpose transistor**

Product data sheet  
Supersedes data of 1999 May 28

2004 Nov 05

## PNP general purpose transistor

BC559

## FEATURES

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

## APPLICATIONS

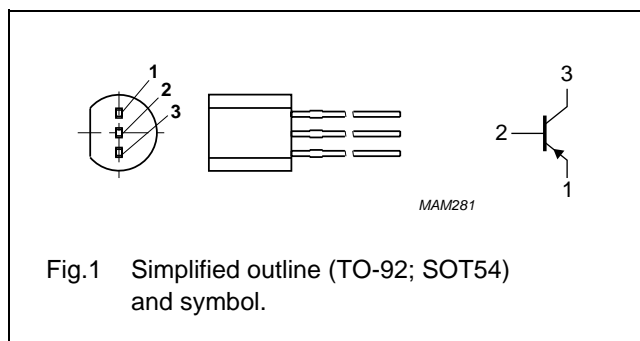
- General purpose switching and amplification.

## DESCRIPTION

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

## PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector



## 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	$T_{amb} \leq 25\text{ °C}$	–	500	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	ambient temperature		–65	+150	°C

## PNP general purpose transistor

## BC559

## 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

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

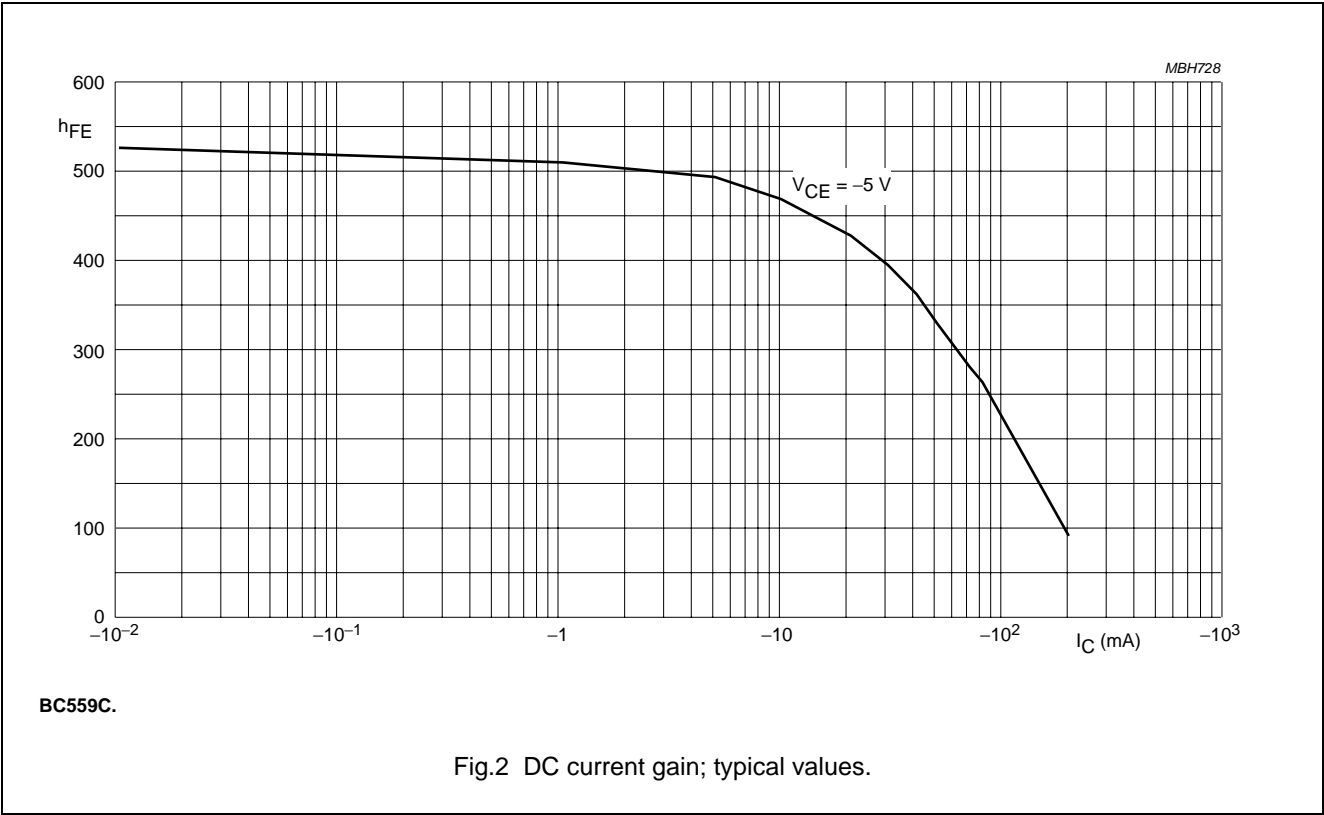
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector-base cut-off current	$V_{CB} = -30\text{ V}; I_E = 0\text{ A}$	–	–1	–15	nA
		$V_{CB} = -30\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$	–	–	–4	$\mu\text{A}$
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = -5\text{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

## Notes

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

PNP general purpose transistor

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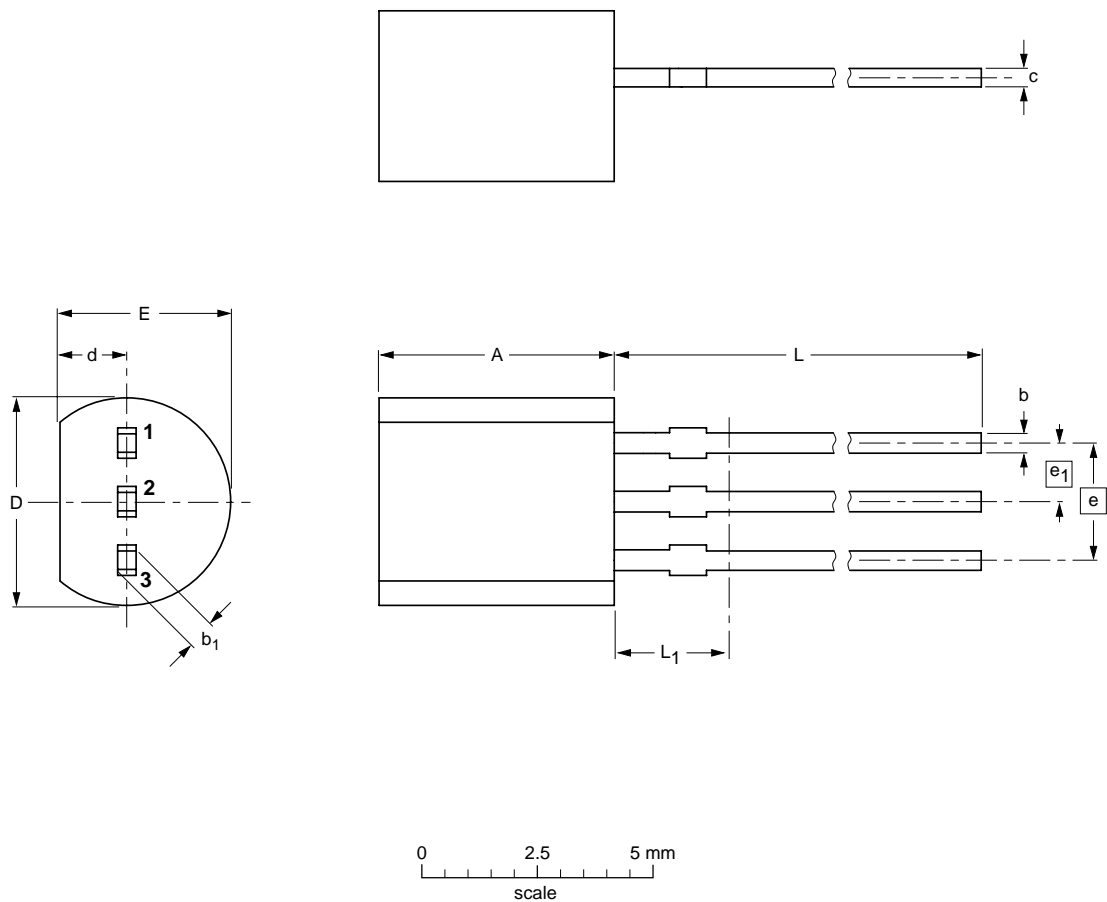
PNP general purpose transistor

BC559

PACKAGE OUTLINE

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

SOT54

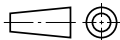


DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> 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			04-06-28 04-11-16

## PNP general purpose transistor

BC559

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

## Notes

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## **Customer notification**

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

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