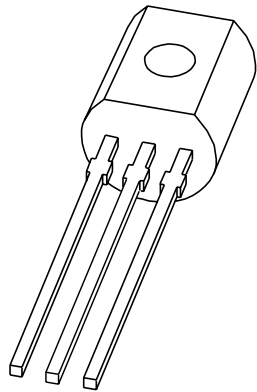


# DATA SHEET



## **BC549; BC550** NPN general purpose transistors

Product data sheet  
Supersedes data of 1999 Apr 22

2004 Oct 11

## NPN general purpose transistors

## BC549; BC550

## FEATURES

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

## APPLICATIONS

- Low noise stages in audio frequency equipment.

## DESCRIPTION

NPN transistor in a TO-92; SOT54 plastic package.  
PNP complements: BC559 and BC560.

## PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector

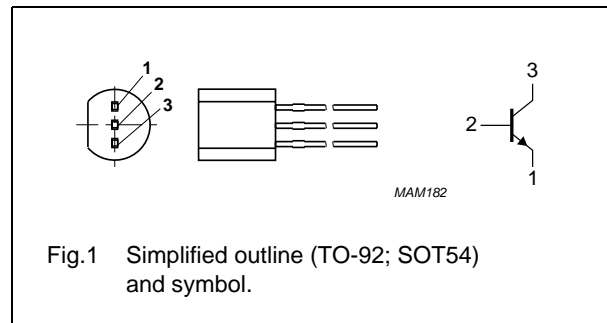


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC549C	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54
BC550C			

## 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			
	BC549		–	30	V
	BC550		–	50	V
$V_{CEO}$	collector-emitter voltage	open base			
	BC549		–	30	V
	BC550		–	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
$T_{amb}$	ambient temperature		–65	+150	°C

## Note

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

## NPN general purpose transistors

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## 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.

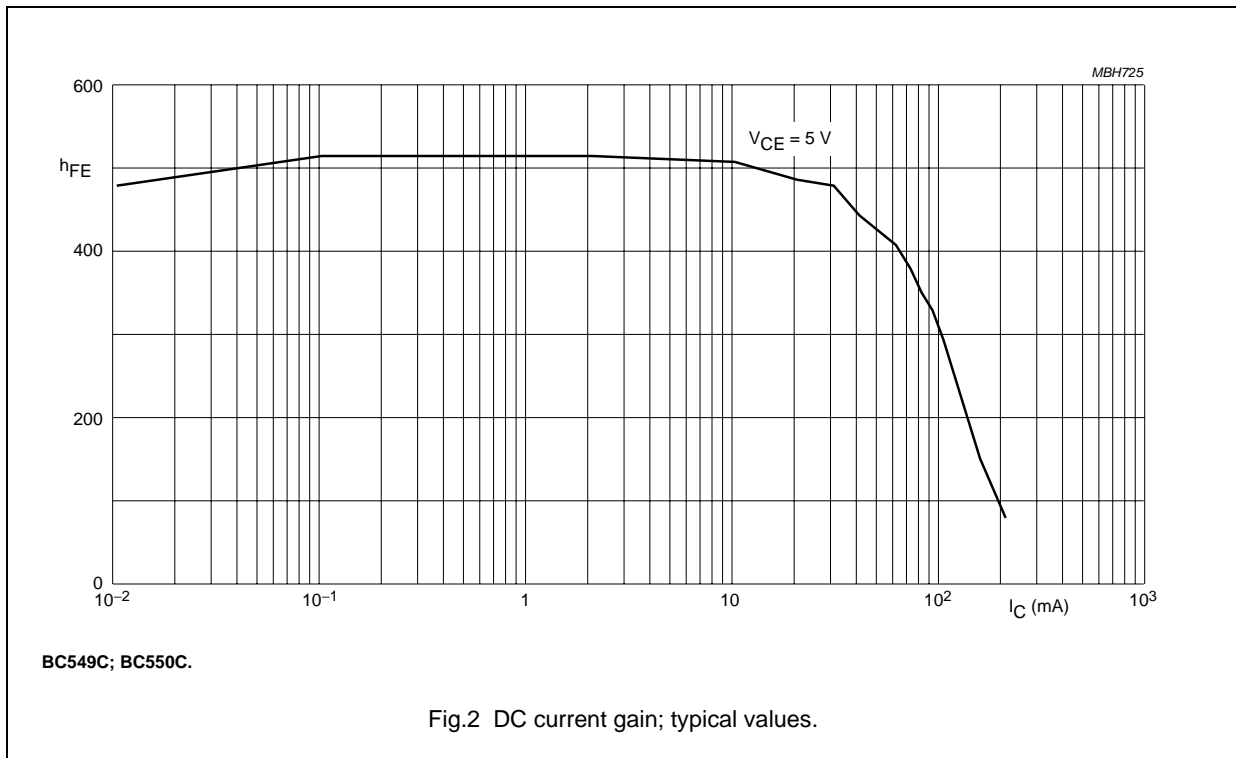
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 30\text{ V}; I_E = 0\text{ A}$	–	–	15	nA
		$V_{CB} = 30\text{ V}; I_E = 0\text{ A}; T_J = 150\text{ }^{\circ}\text{C}$	–	–	5	$\mu\text{A}$
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0\text{ A}$	–	–	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 5\text{ V}$ ; see Fig.2				
		$I_C = 10\text{ }\mu\text{A}$	–	270	–	
		$I_C = 2\text{ mA}$	420	520	800	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	90	250	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA}$	–	200	600	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$ ; note 1	–	700	–	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA}$ ; note 1	–	900	–	mV
$V_{BE}$	base-emitter voltage	$V_{CE} = 5\text{ V}; I_C = 2\text{ mA}$ ; note 2	580	660	700	mV
		$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}$ ; note 2	–	–	770	mV
$C_c$	collector capacitance	$V_{CB} = 10\text{ V}; I_E = i_e = 0\text{ A}$ ; $f = 1\text{ MHz}$	–	1.5	–	pF
$C_e$	emitter capacitance	$V_{EB} = 0.5\text{ V}; I_C = i_c = 0\text{ A}$ ; $f = 1\text{ MHz}$	–	11	–	pF
$f_T$	transition frequency	$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}$ ; $f = 100\text{ MHz}$	100	–	–	MHz
F	noise figure	$V_{CE} = 5\text{ V}; I_C = 200\text{ }\mu\text{A}$ ; $R_S = 2\text{ k}\Omega$ ; $f = 10\text{ Hz to }15.7\text{ kHz}$	–	–	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 mV/K with increasing temperature.
2.  $V_{BE}$  decreases by about 2 mV/K with increasing temperature.

NPN general purpose transistors

BC549; BC550



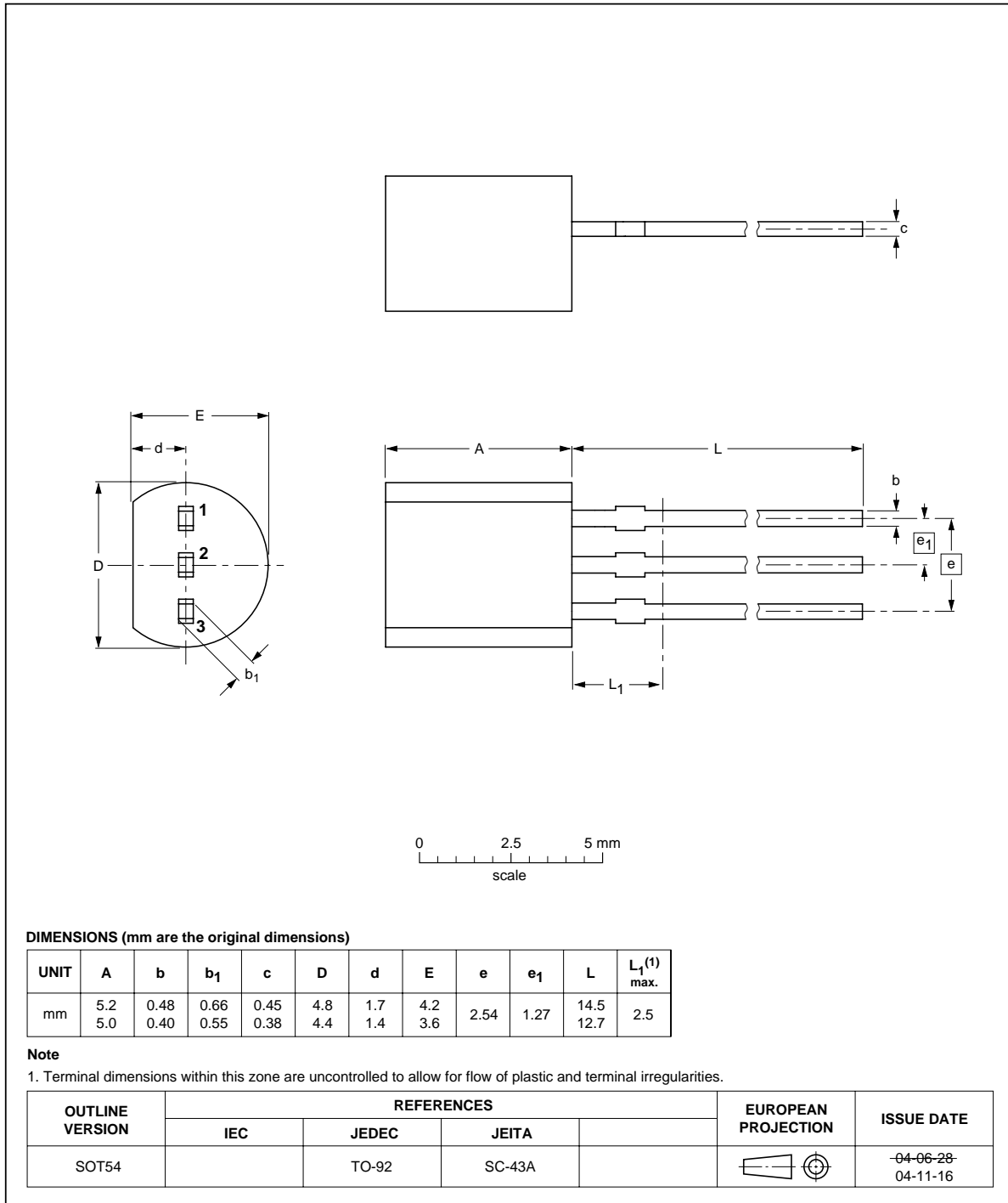
NPN general purpose transistors

BC549; BC550

PACKAGE OUTLINE

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

SOT54



## NPN general purpose transistors

BC549; BC550

## 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.

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# ***NXP Semiconductors***

## **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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