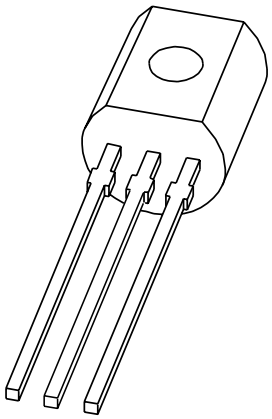
DATA SHEET



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

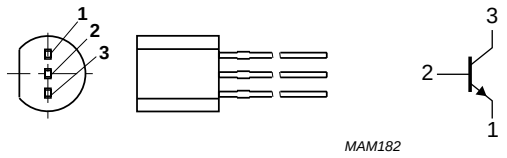


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

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	$T_{amb} \leq 25$ °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.

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.

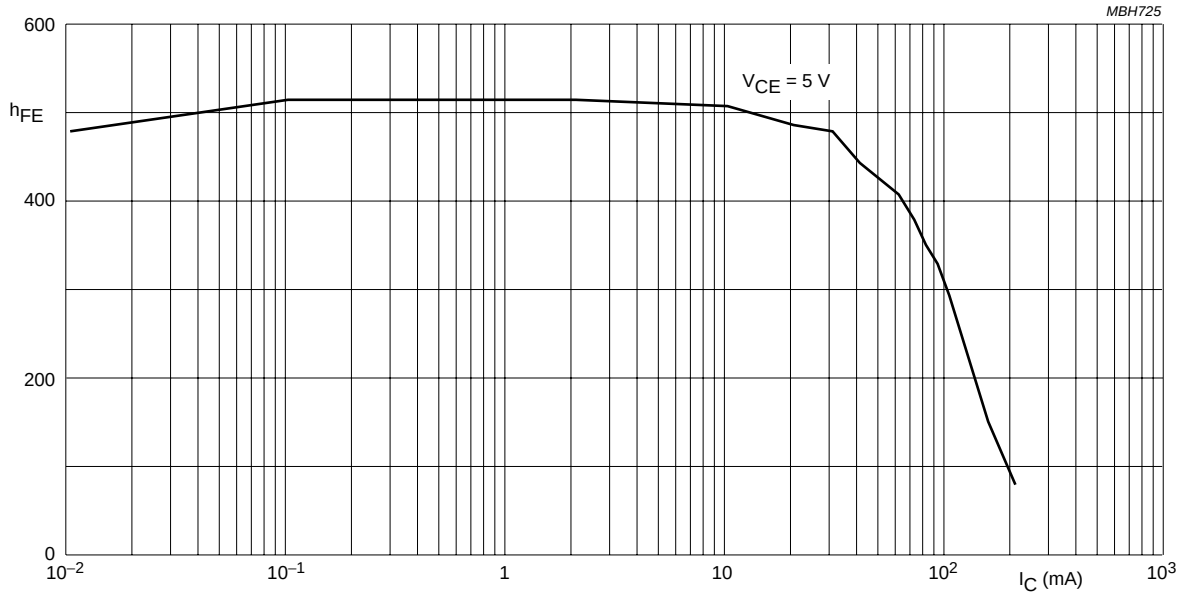
CHARACTERISTICS

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	–	–	15	nA
		V_{CB} = 30 V; I_E = 0 A; T_j = 150 °C	–	–	5	μA
I_{EBO}	emitter-base cut-off current	V_{EB} = 5 V; I_C = 0 A	–	–	100	nA
h_{FE}	DC current gain	V_{CE} = 5 V; see Fig.2				
		I_C = 10 μA	–	270	–	
		I_C = 2 mA	420	520	800	
V_{CEsat}	collector-emitter saturation voltage	I_C = 10 mA; I_B = 0.5 mA	–	90	250	mV
		I_C = 100 mA; I_B = 5 mA	–	200	600	mV
V_{BEsat}	base-emitter saturation voltage	I_C = 10 mA; I_B = 0.5 mA; note 1	–	700	–	mV
		I_C = 100 mA; I_B = 5 mA; note 1	–	900	–	mV
V_{BE}	base-emitter voltage	V_{CE} = 5 V; I_C = 2 mA; note 2	580	660	700	mV
		V_{CE} = 5 V; I_C = 10 mA; note 2	–	–	770	mV
C_c	collector capacitance	V_{CB} = 10 V; I_E = i_e = 0 A; f = 1 MHz	–	1.5	–	pF
C_e	emitter capacitance	V_{EB} = 0.5 V; I_C = i_c = 0 A; f = 1 MHz	–	11	–	pF
f_T	transition frequency	V_{CE} = 5 V; I_C = 10 mA; f = 100 MHz	100	–	–	MHz
F	noise figure	V_{CE} = 5 V; I_C = 200 μA; R_S = 2 kΩ; f = 10 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.

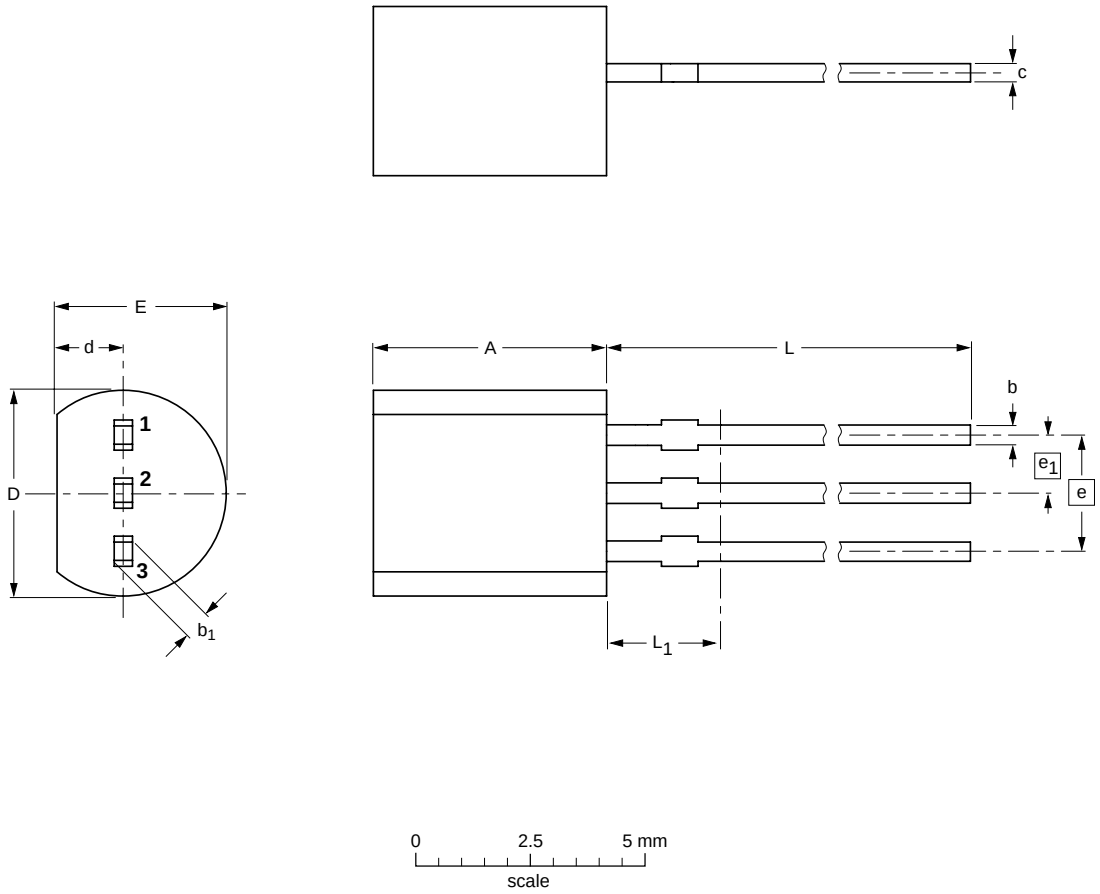


BC549C; BC550C.

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			~~04-06-28~~ 04-11-16

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	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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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.

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