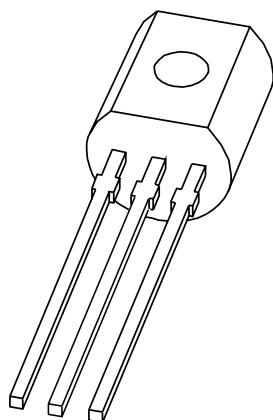


# DATA SHEET



## BF199 NPN medium frequency transistor

Product data sheet  
Supersedes data of 1997 Jul 07

2004 Nov 08

## NPN medium frequency transistor

BF199

## FEATURES

- Low current (max. 25 mA)
- Low voltage (max. 25 V).

## APPLICATIONS

- Output stage of a vision IF amplifier.

## DESCRIPTION

NPN medium frequency transistor in a TO-92; SOT54 plastic package.

## PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

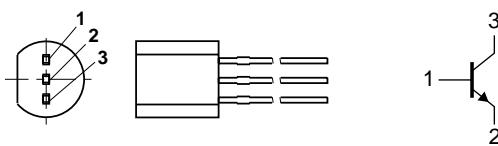


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	—	—	40	V
$V_{CEO}$	collector-emitter voltage	open base	—	—	25	V
$I_{CM}$	peak collector current		—	—	25	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25^\circ\text{C}$	—	—	500	mW
$h_{FE}$	DC current gain	$V_{CE} = 10\text{ V}; I_C = 7\text{ mA}$	38	—	—	
$f_T$	transition frequency	$V_{CE} = 10\text{ V}; I_C = 5\text{ mA}; f = 100\text{ MHz}$	—	550	—	MHz

## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BF199	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54

## NPN medium frequency transistor

BF199

**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	–	40	V
$V_{CEO}$	collector-emitter voltage	open base	–	25	V
$V_{EBO}$	emitter-base voltage	open collector	–	4	V
$I_C$	collector current (DC)		–	25	mA
$I_{CM}$	peak collector current		–	25	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25 \text{ }^{\circ}\text{C}$ ; note 1	–	500	mW
$T_{stg}$	storage temperature		–65	+150	$^{\circ}\text{C}$
$T_j$	junction temperature		–	150	$^{\circ}\text{C}$
$T_{amb}$	ambient temperature		–65	+150	$^{\circ}\text{C}$

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 40 \text{ V}$ ; $I_E = 0 \text{ A}$	–	–	100	nA
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 4 \text{ V}$ ; $I_C = 0 \text{ A}$	–	–	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 10 \text{ V}$ ; $I_C = 7 \text{ mA}$	38	–	–	
$V_{BE}$	base-emitter voltage	$V_{CE} = 10 \text{ V}$ ; $I_C = 7 \text{ mA}$	–	775	925	mV
$C_{re}$	feedback capacitance	$V_{CB} = 10 \text{ V}$ ; $I_C = 0 \text{ A}$ ; $f = 1 \text{ MHz}$	–	–	0.5	pF
$f_T$	transition frequency	$V_{CE} = 10 \text{ V}$ ; $I_C = 5 \text{ mA}$ ; $f = 100 \text{ MHz}$	–	550	–	MHz

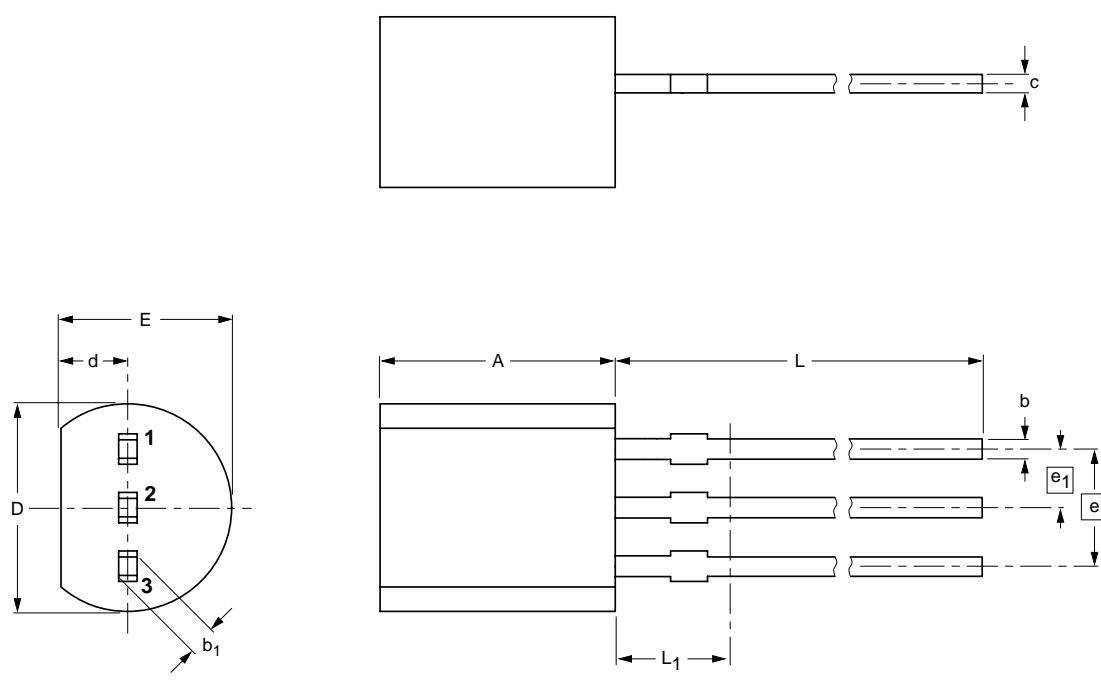
## NPN medium frequency transistor

BF199

## 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

## NPN medium frequency transistor

BF199

## 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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## **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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