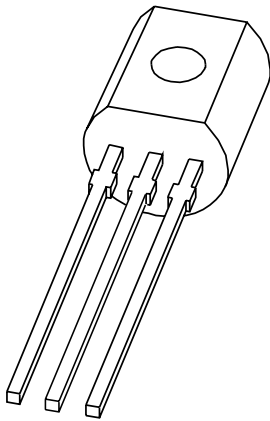


# DATA SHEET



## **BF420; BF422** NPN high-voltage transistors

Product data sheet  
Supersedes data of 1996 Dec 09

2004 Nov 10

# NPN high-voltage transistors

# BF420; BF422

### FEATURES

- Low feedback capacitance.

### APPLICATIONS

- Class-B video output stages in colour television and professional monitor equipment.

### DESCRIPTION

NPN transistors in a TO-92 plastic package.  
PNP complements: BF421 and BF423.

### PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter

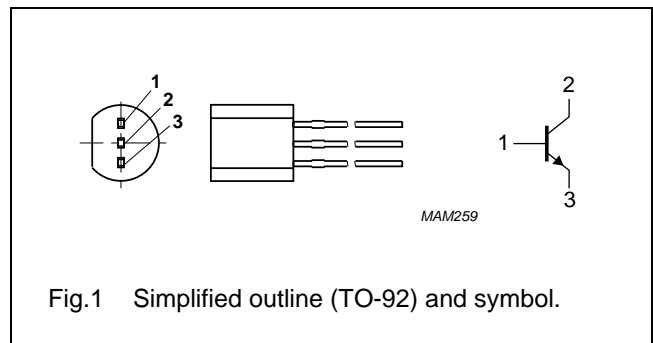


Fig.1 Simplified outline (TO-92) and symbol.

### ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BF420	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54
BF422			

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BF420		–	300	V
	BF422		–	250	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BF420		–	300	V
	BF422		–	250	V
I <sub>CM</sub>	peak collector current		–	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C	–	830	mW
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 20 V; I <sub>C</sub> = 25 mA	50	–	
C <sub>re</sub>	feedback capacitance	V <sub>CE</sub> = 30 V; I <sub>C</sub> = I <sub>c</sub> = 0 A; f = 1 MHz	–	1.6	pF
f <sub>T</sub>	transition frequency	V <sub>CE</sub> = 10 V; I <sub>C</sub> = 10 mA; f = 100 MHz	60	–	MHz

## NPN high-voltage transistors

## BF420; BF422

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BF420		–	300	V
	BF422		–	250	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BF420		–	300	V
	BF422		–	250	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	5	V
I <sub>C</sub>	collector current (DC)		–	50	mA
I <sub>CM</sub>	peak collector current		–	100	mA
I <sub>BM</sub>	peak base current		–	50	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	830	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	ambient temperature		–65	+150	°C

**Note**

1. Transistor mounted on a printed-circuit board.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	note 1	150	K/W

**Note**

1. Transistor mounted on a printed-circuit board.

**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = 200 V; I <sub>E</sub> = 0 A	–	10	nA
		V <sub>CB</sub> = 200 V; I <sub>E</sub> = 0 A; T <sub>j</sub> = 150 °C	–	10	μA
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = 5 V; I <sub>C</sub> = 0 A	–	50	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 20 V; I <sub>C</sub> = 25 mA	50	–	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 30 mA; I <sub>B</sub> = 5 mA	–	0.6	V
C <sub>re</sub>	feedback capacitance	V <sub>CE</sub> = 30 V; I <sub>C</sub> = i <sub>c</sub> = 0 A; f = 1 MHz	–	1.6	pF
f <sub>T</sub>	transition frequency	V <sub>CE</sub> = 10 V; I <sub>C</sub> = 10 mA; f = 100 MHz	60	–	MHz

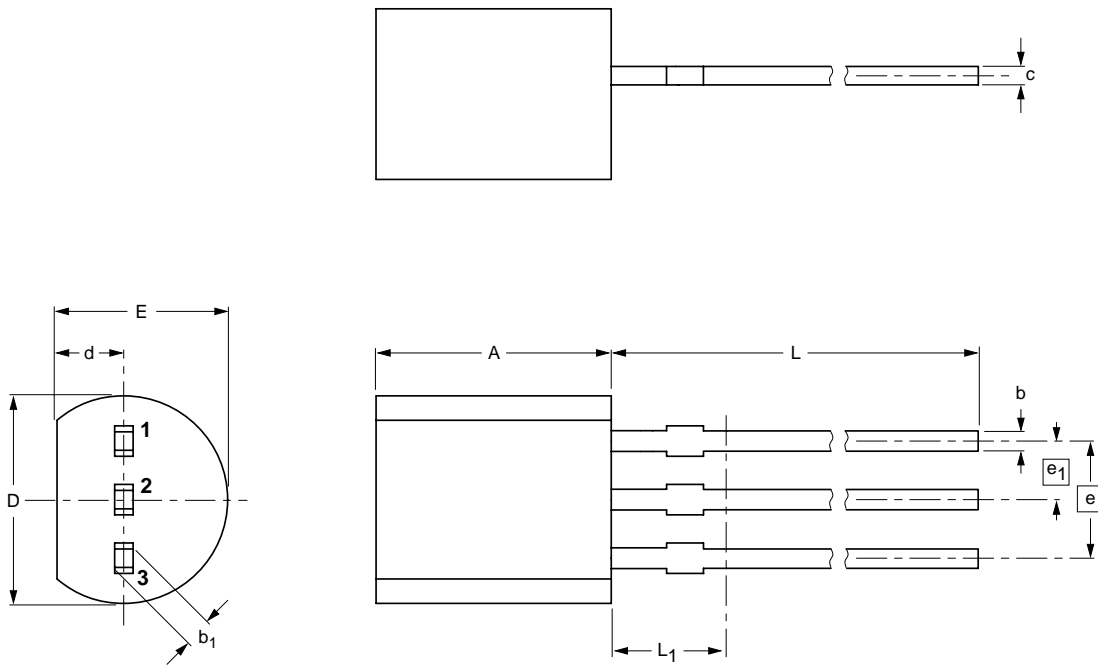
NPN high-voltage transistors

BF420; BF422

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 high-voltage transistors

BF420; BF422

## 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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