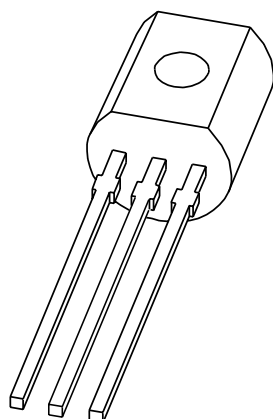




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DATA SHEET



BF420; BF422 NPN high-voltage transistors

Product specification
Supersedes data of 1996 Dec 09

2004 Nov 10

NPN high-voltage transistors

BF420; BF422

FEATURES

- Low feedback capacitance.

APPLICATIONS

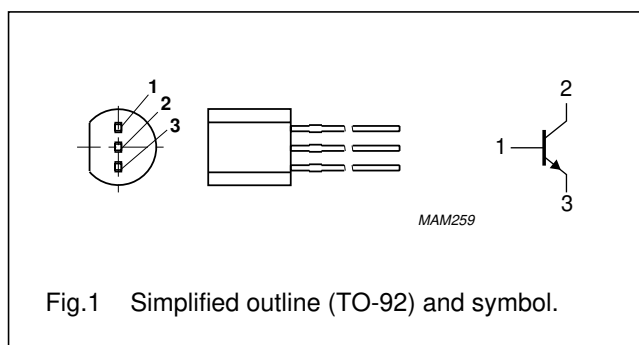
- Class-B video output stages in colour television and professional monitor equipment.

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter



ORDERING INFORMATION

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

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	—	300	V
	BF420		—	250	V
V_{CEO}	collector-emitter voltage	open base	—	300	V
	BF420		—	250	V
I_{CM}	peak collector current		—	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	—	830	mW
h_{FE}	DC current gain	$V_{CE} = 20\text{ V}; I_C = 25\text{ mA}$	50	—	
C_{re}	feedback capacitance	$V_{CE} = 30\text{ V}; I_C = i_c = 0\text{ A}; f = 1\text{ MHz}$	—	1.6	pF
f_T	transition frequency	$V_{CE} = 10\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}$	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_{CBO}	collector-base voltage	open emitter			
	BF420		–	300	V
	BF422		–	250	V
V_{CEO}	collector-emitter voltage	open base			
	BF420		–	300	V
	BF422		–	250	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	50	mA
I_{CM}	peak collector current		–	100	mA
I_{BM}	peak base current		–	50	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	830	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 a printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	150	K/W

Note

1. Transistor mounted on a printed-circuit board.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = 200\text{ V}$; $I_E = 0\text{ A}$	–	10	nA
		$V_{CB} = 200\text{ V}$; $I_E = 0\text{ A}$; $T_j = 150\text{ °C}$	–	10	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 5\text{ V}$; $I_C = 0\text{ A}$	–	50	nA
h_{FE}	DC current gain	$V_{CE} = 20\text{ V}$; $I_C = 25\text{ mA}$	50	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 30\text{ mA}$; $I_B = 5\text{ mA}$	–	0.6	V
C_{re}	feedback capacitance	$V_{CE} = 30\text{ V}$; $I_C = i_c = 0\text{ A}$; $f = 1\text{ MHz}$	–	1.6	pF
f_T	transition frequency	$V_{CE} = 10\text{ V}$; $I_C = 10\text{ mA}$; $f = 100\text{ MHz}$	60	–	MHz

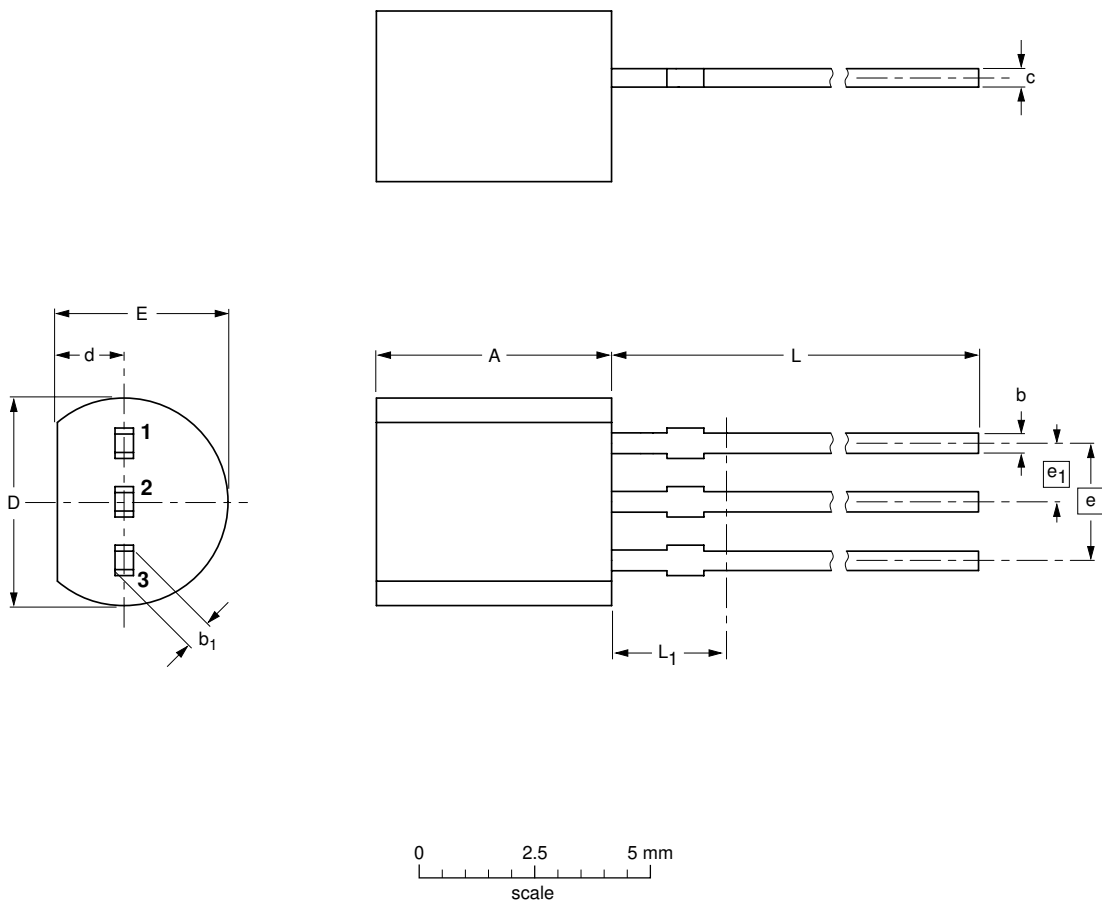
NPN high-voltage transistors

BF420; BF422

PACKAGE OUTLINE

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

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b 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			-97-02-28 04-06-28

NPN high-voltage transistors

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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Contact information

For additional information please visit **<http://www.semiconductors.philips.com>**. Fax: **+31 40 27 24825**

For sales offices addresses send e-mail to: **sales.addresses@www.semiconductors.philips.com**.

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