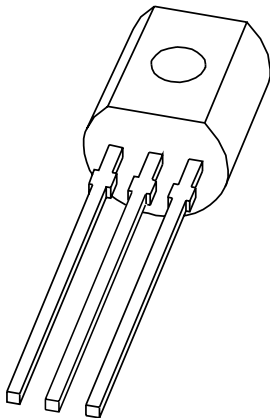


DATA SHEET



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

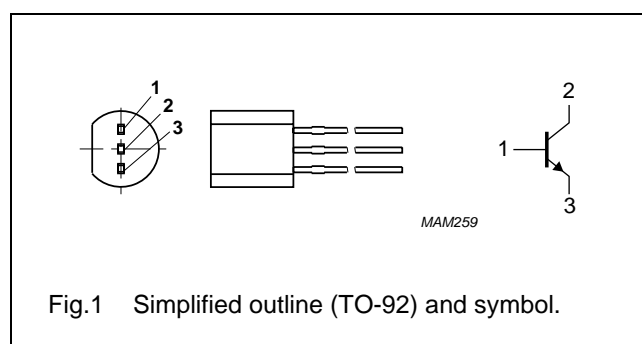
- Class-B video output stages in colour television and professional monitor equipment.

DESCRIPTION

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

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | base |
| 2 | collector |
| 3 | emitter |



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_{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 |
| 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} ≤ 25 °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 °C unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|--------------------|--------------------------------------|--|------|------|------|
| I _{CBO} | collector-base cut-off current | V _{CB} = 200 V; I _E = 0 A | – | 10 | nA |
| | | V _{CB} = 200 V; I _E = 0 A; T _j = 150 °C | – | 10 | μA |
| I _{EBO} | emitter-base cut-off current | V _{EB} = 5 V; I _C = 0 A | – | 50 | nA |
| h _{FE} | DC current gain | V _{CE} = 20 V; I _C = 25 mA | 50 | – | |
| V _{CEsat} | collector-emitter saturation voltage | I _C = 30 mA; I _B = 5 mA | – | 0.6 | V |
| C _{re} | feedback capacitance | V _{CE} = 30 V; I _C = i _c = 0 A; f = 1 MHz | – | 1.6 | pF |
| f _T | transition frequency | V _{CE} = 10 V; I _C = 10 mA; f = 100 MHz | 60 | – | MHz |

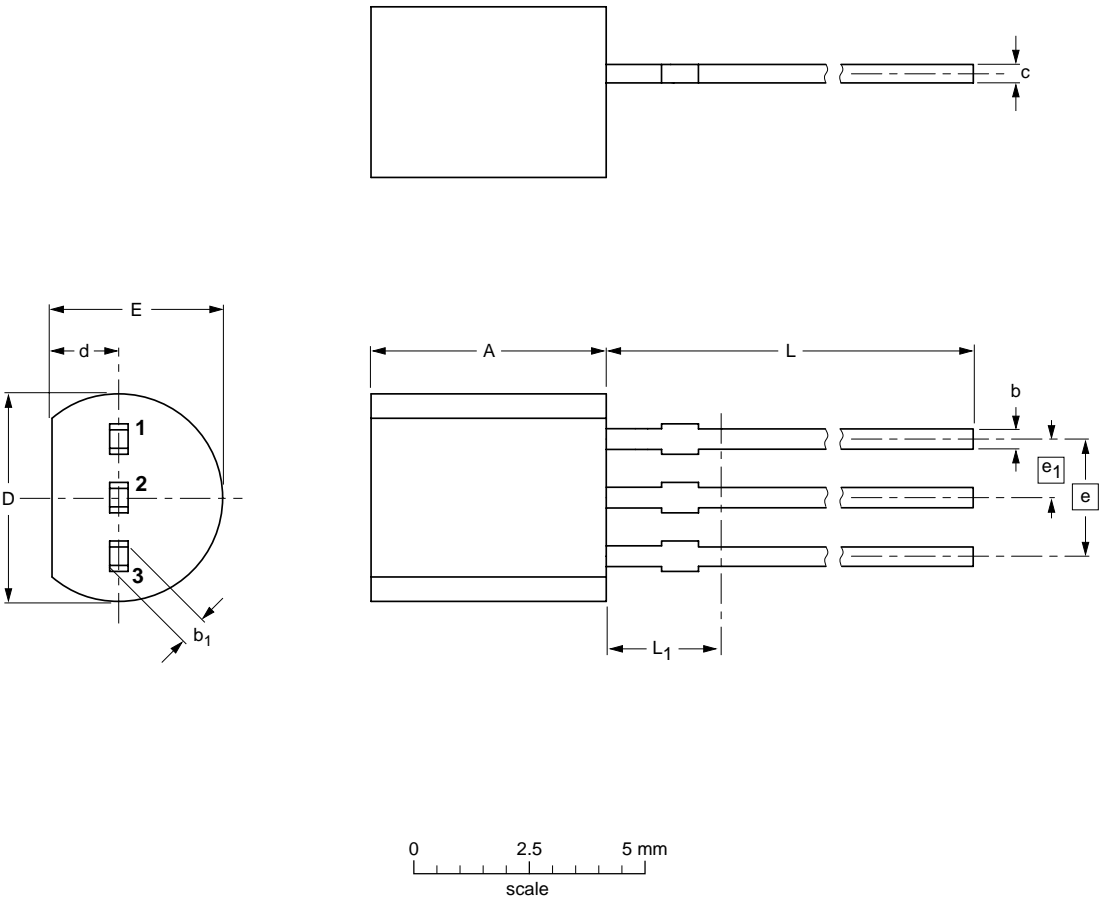
NPN high-voltage transistors

BF420; BF422

PACKAGE OUTLINE

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

SOT54




DIMENSIONS (mm are the original dimensions)

| UNIT | A | b | b 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 |

NPN high-voltage transistors

BF420; BF422

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. |

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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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