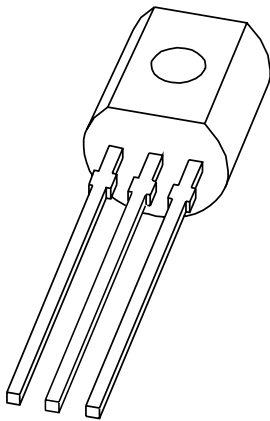


DATA SHEET



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

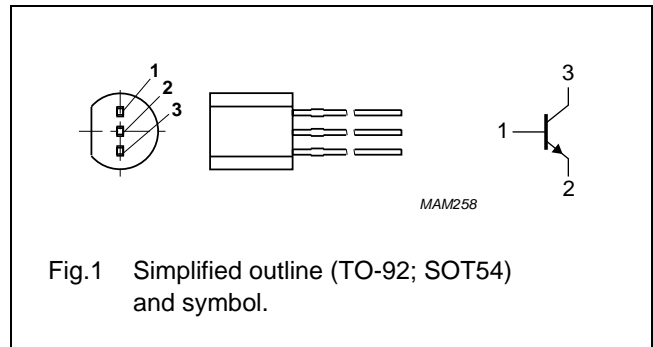
- Output stage of a vision IF amplifier.

DESCRIPTION

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

PINNING

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



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 | $T_{amb} \leq 25\text{ °C}$ | – | – | 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 | $T_{amb} \leq 25\text{ °C}$; 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 $T_{amb} = 25\text{ °C}$ 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 |

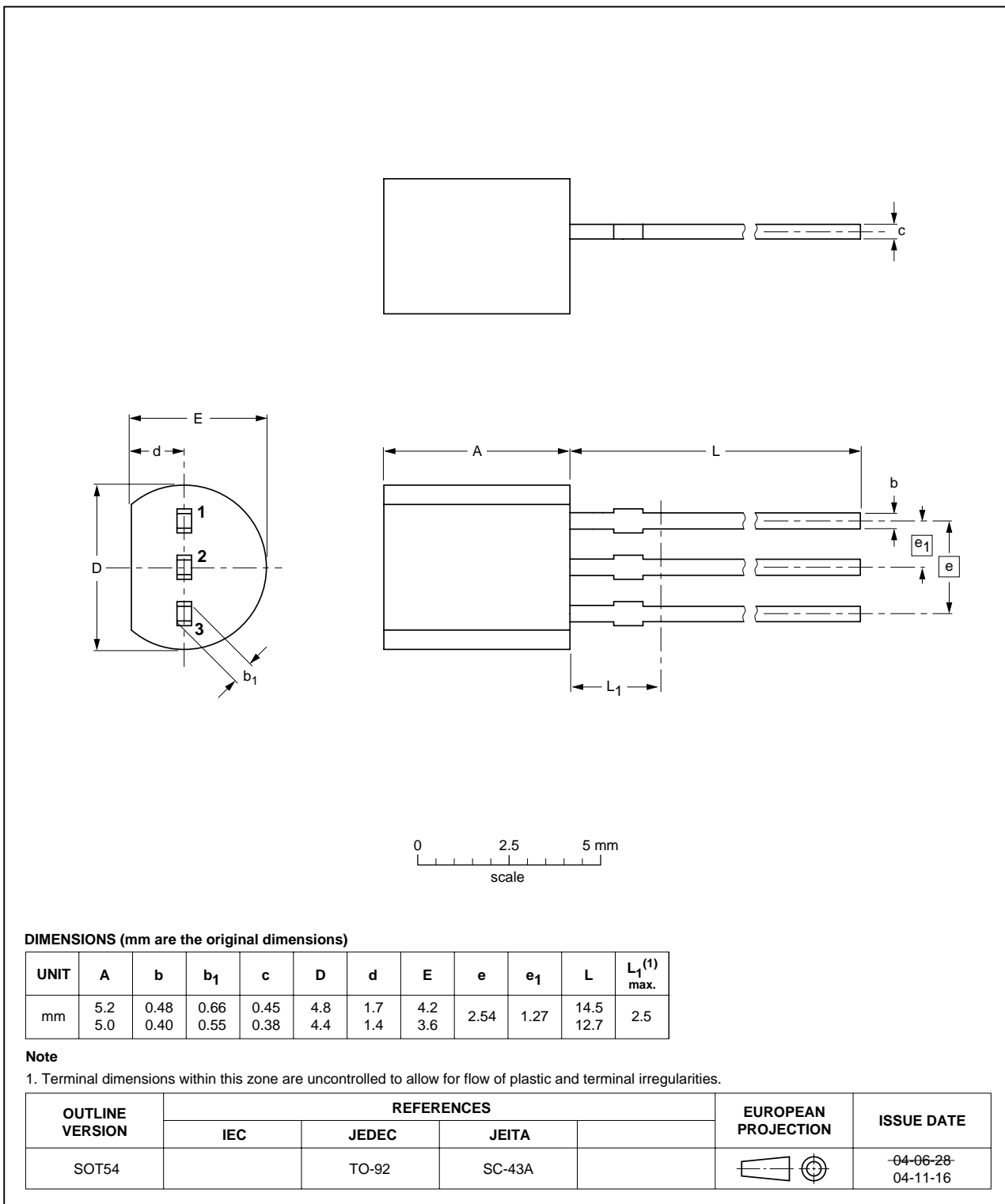
NPN medium frequency transistor

BF199

PACKAGE OUTLINE

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

SOT54



NPN medium frequency transistor

BF199

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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