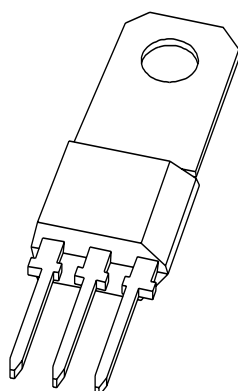


# DATA SHEET



## **BF869; BF871** NPN high-voltage transistors

Product specification  
Supersedes data of 1996 Dec 09

1999 Apr 12

NPN high-voltage transistors

BF869; BF871

FEATURES

- Low feedback capacitance.

APPLICATIONS

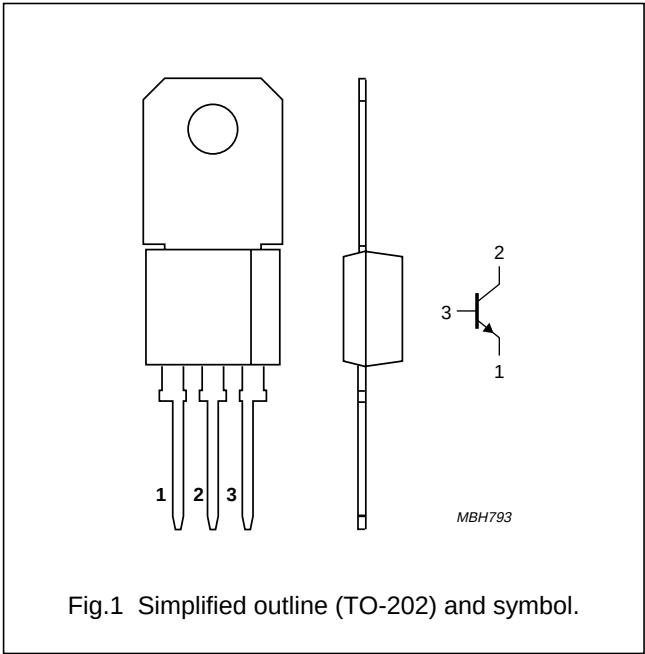
- For use in class-B video output stages in colour television receivers.

DESCRIPTION

NPN transistors in a TO-202 plastic package.  
PNP complement: BF872.

PINNING

| PIN | DESCRIPTION                           |
|-----|---------------------------------------|
| 1   | emitter                               |
| 2   | collector, connected to mounting base |
| 3   | base                                  |



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL           | PARAMETER                     | CONDITIONS               | MIN. | MAX. | UNIT |
|------------------|-------------------------------|--------------------------|------|------|------|
| V <sub>CBO</sub> | collector-base voltage        | open emitter             |      |      |      |
|                  | BF869                         |                          | —    | 250  | V    |
|                  | BF871                         |                          | —    | 300  | V    |
| V <sub>CEO</sub> | collector-emitter voltage     | open base                |      |      |      |
|                  | BF869                         |                          | —    | 250  | V    |
|                  | BF871                         |                          | —    | 300  | 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        | peak value               | —    | 100  | mA   |
| I <sub>BM</sub>  | peak base current             |                          | —    | 50   | mA   |
| P <sub>tot</sub> | total power dissipation       | T <sub>amb</sub> ≤ 25 °C | —    | 1.6  | W    |
|                  |                               | T <sub>mb</sub> ≤ 25 °C  | —    | 5    | W    |
| T <sub>stg</sub> | storage temperature           |                          | −65  | +150 | °C   |
| T <sub>j</sub>   | junction temperature          |                          | —    | 150  | °C   |
| T <sub>amb</sub> | operating ambient temperature |                          | −65  | +150 | °C   |

## NPN high-voltage transistors

BF869; BF871

## THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER                                         | VALUE | UNIT |
|----------------|---------------------------------------------------|-------|------|
| $R_{th\ j-a}$  | thermal resistance from junction to ambient       | 78    | K/W  |
| $R_{th\ j-mb}$ | thermal resistance from junction to mounting base | 25    | K/W  |

## CHARACTERISTICS

 $T_j = 25\ ^\circ\text{C}$  unless otherwise specified.

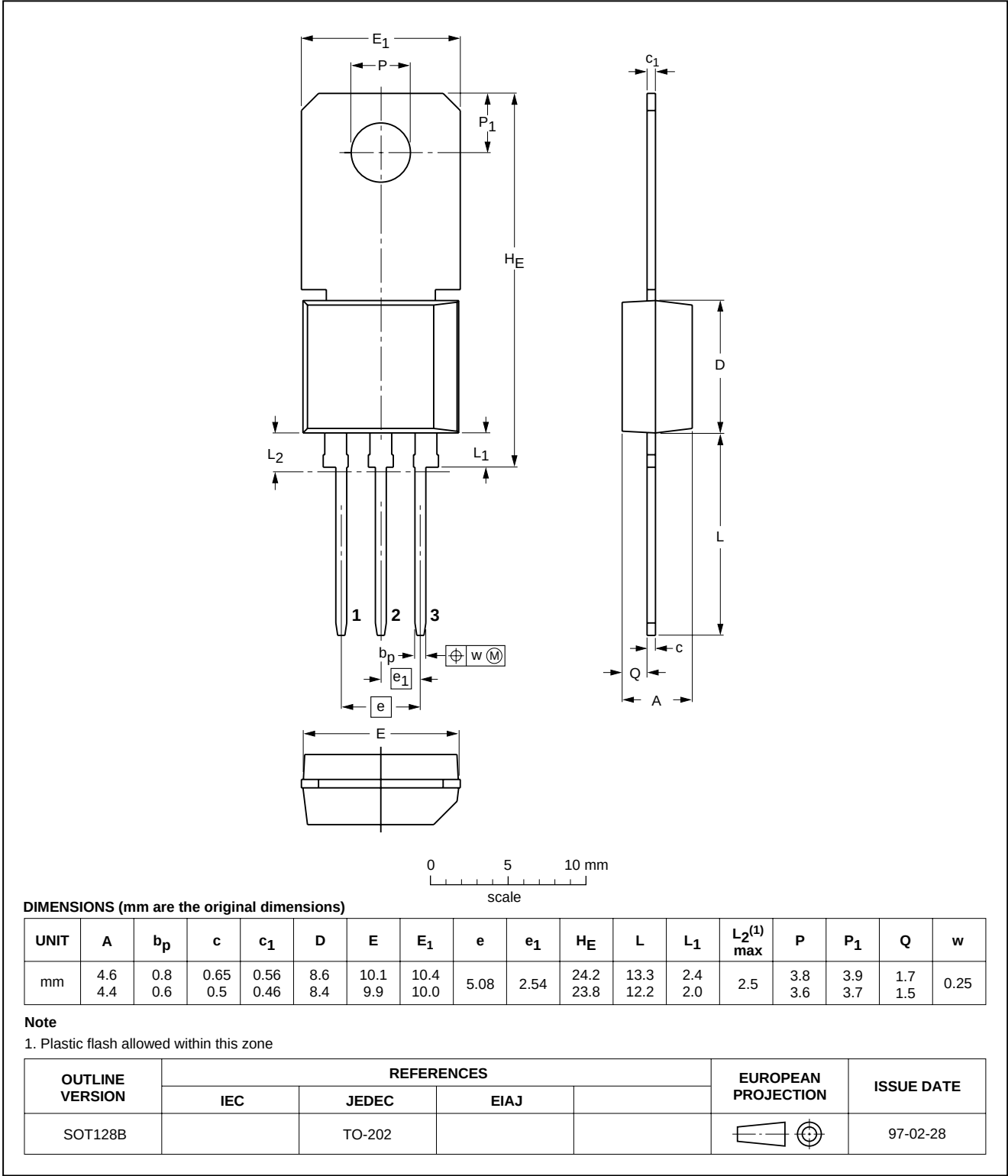
| SYMBOL      | PARAMETER                            | CONDITIONS                                                        | MIN. | MAX. | UNIT          |
|-------------|--------------------------------------|-------------------------------------------------------------------|------|------|---------------|
| $I_{CBO}$   | collector cut-off current            | $I_E = 0; V_{CB} = 200\ \text{V}$                                 | –    | 10   | nA            |
|             |                                      | $I_E = 0; V_{CB} = 200\ \text{V}; T_j = 150\ ^\circ\text{C}$      |      | 10   | $\mu\text{A}$ |
| $I_{EBO}$   | emitter cut-off current              | $I_C = 0; V_{EB} = 5\ \text{V}$                                   | –    | 50   | nA            |
| $h_{FE}$    | DC current gain                      | $I_C = 25\ \text{mA}; V_{CE} = 20\ \text{V}$                      | 50   | –    |               |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C = 30\ \text{mA}; I_B = 5\ \text{mA}$                         | –    | 600  | mV            |
| $C_{re}$    | feedback capacitance                 | $I_C = i_c = 0; V_{CE} = 30\ \text{V}; f = 1\ \text{MHz}$         | –    | 2    | pF            |
| $f_T$       | transition frequency                 | $I_C = 10\ \text{mA}; V_{CE} = 10\ \text{V}; f = 100\ \text{MHz}$ | 60   | –    | MHz           |

NPN high-voltage transistors

BF869; BF871

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; with cooling fin, mountable to heatsink,  
1 mounting hole; 3 leads (in-line) SOT128B



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NPN high-voltage transistors

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BF869; BF871

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**DEFINITIONS**

| <b>Data sheet status</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Objective specification                                                                                                                                                                                                                                                                                                                                                                                                                                   | This data sheet contains target or goal specifications for product development.       |
| Preliminary specification                                                                                                                                                                                                                                                                                                                                                                                                                                 | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification                                                                                                                                                                                                                                                                                                                                                                                                                                     | This data sheet contains final product specifications.                                |
| <b>Limiting values</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                       |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. |                                                                                       |
| <b>Application information</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |
| Where application information is given, it is advisory and does not form part of the specification.                                                                                                                                                                                                                                                                                                                                                       |                                                                                       |

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NPN high-voltage transistors

BF869; BF871

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**NOTES**

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NPN high-voltage transistors

BF869; BF871

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**NOTES**

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