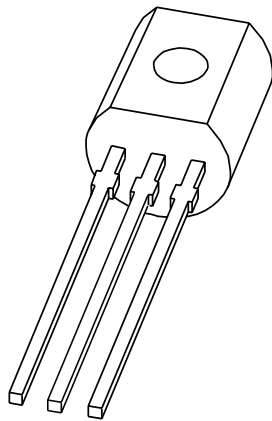


# DATA SHEET



**BF240**

**NPN medium frequency transistor**

Product specification  
Supersedes data of 1999 Apr 21

2004 Nov 05

# NPN medium frequency transistor

# BF240

### FEATURES

- Low current (max. 25 mA)
- Low voltage (max. 40 V).

### APPLICATIONS

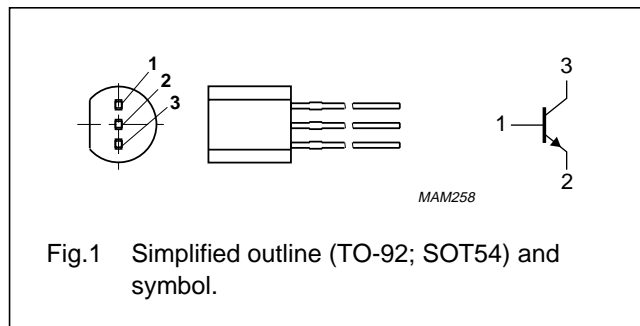
- AM mixers
- IF amplifiers in AM/FM receivers.

### DESCRIPTION

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

### PINNING

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



### ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |   |         |
|-------------|---------|---|---------|
|             | NAME    | DESCRIPTION   | VERSION |
| BF240       | SC-43A  | plastic single-ended leaded (through hole) package; 3 leads | SOT54   |

## NPN medium frequency transistor

BF240

**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                            | –    | 40   | 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 | –    | 300  | 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     | 420   | 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 | $V_{CB} = 20\text{ V}$ ; $I_E = 0\text{ A}$                             | –    | –    | 100  | nA            |
|           |                                | $V_{CB} = 20\text{ V}$ ; $I_E = 0\text{ A}$ ; $T_{amb} = 150\text{ °C}$ | –    | –    | 4    | $\mu\text{A}$ |
| $I_{EBO}$ | emitter-base cut-off current   | $V_{EB} = 4\text{ V}$ ; $I_C = 0\text{ A}$                              | –    | –    | 100  | nA            |
| $h_{FE}$  | DC current gain                | $V_{CE} = 10\text{ V}$ ; $I_C = 1\text{ mA}$                            | 67   | –    | 220  |               |
| $V_{BE}$  | base-emitter voltage           | $V_{CE} = 10\text{ V}$ ; $I_C = 1\text{ mA}$                            | 675  | 725  | 775  | 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           | $V_{CE} = 10\text{ V}$ ; $I_C = 1\text{ mA}$ ; $f = 100\text{ MHz}$     | 150  | –    | –    | MHz           |

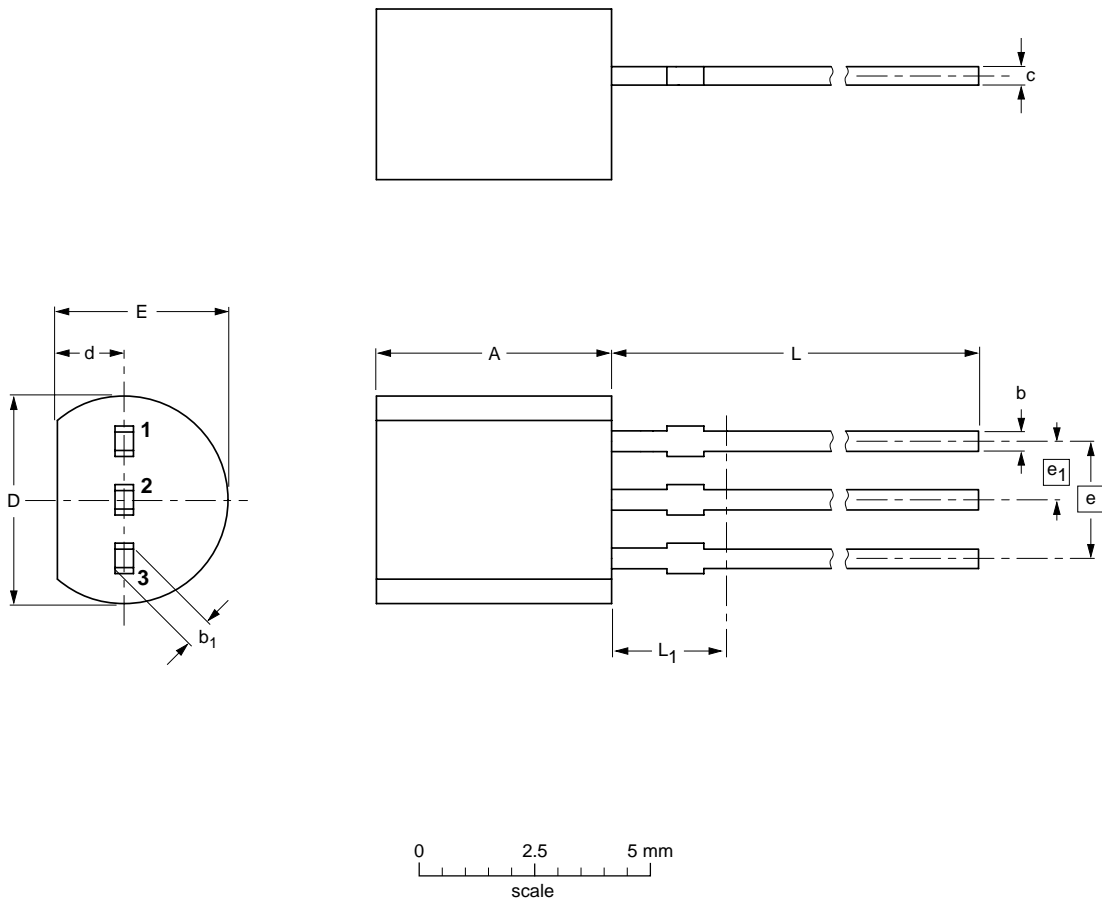
NPN medium frequency transistor

BF240

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><br>max. |
|------|------------|--------------|----------------|--------------|------------|------------|------------|------|----------------|--------------|---------------------------------------|
| mm   | 5.2<br>5.0 | 0.48<br>0.40 | 0.66<br>0.55   | 0.45<br>0.38 | 4.8<br>4.4 | 1.7<br>1.4 | 4.2<br>3.6 | 2.54 | 1.27           | 14.5<br>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<br>04-06-28 |

## NPN medium frequency transistor

BF240

## DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)(3)</sup> | 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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