

DATA SHEET



BF840

NPN medium frequency transistor

Product specification
Supersedes data of 1999 Apr 12

2004 Jan 13

NPN medium frequency transistor

BF840

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 SOT23 plastic package.

MARKING

| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BF840 | NC* |

Note

- * = p : Made in Hong Kong.
* = t : Made in Malaysia.
* = W : Made in China.

PINNING

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

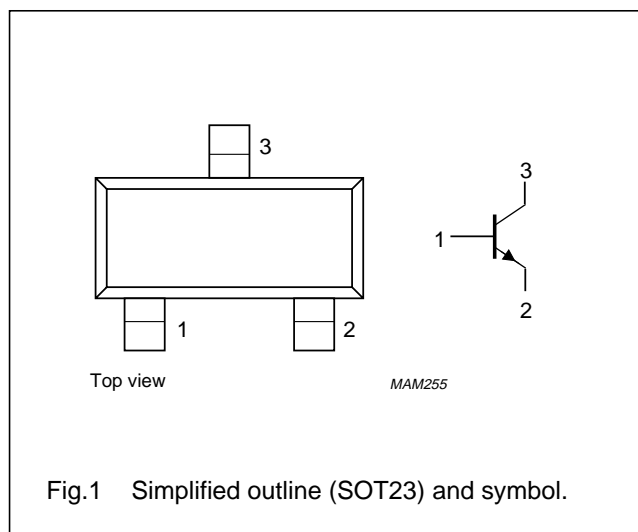


Fig.1 Simplified outline (SOT23) and symbol.

ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| BF840 | – | plastic surface mounted package; 3 leads | SOT23 |

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 | – | 250 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |
| T_{amb} | operating ambient temperature | | –65 | +150 | °C |

Note

1. Transistor mounted on an FR4 printed-circuit board.

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BF840

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | note 1 | 500 | K/W |

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|---------------------------|---|------|------|------|------|
| I_{CBO} | collector cut-off current | $I_E = 0$; $V_{CB} = 20\text{ V}$ | – | – | 100 | nA |
| I_{EBO} | emitter cut-off current | $I_C = 0$; $V_{EB} = 4\text{ V}$ | – | – | 100 | nA |
| h_{FE} | DC current gain | $I_C = 1\text{ mA}$; $V_{CE} = 10\text{ V}$ | 67 | – | 222 | |
| V_{BE} | base-emitter voltage | $I_C = 1\text{ mA}$; $V_{CE} = 10\text{ V}$ | 675 | 725 | 775 | mV |
| C_{re} | feedback capacitance | $I_C = 0$; $V_{CB} = 10\text{ V}$; $f = 1\text{ MHz}$ | – | 0.3 | – | pF |
| f_T | transition frequency | $I_C = 1\text{ mA}$; $V_{CE} = 10\text{ V}$; $f = 100\text{ MHz}$ | – | 380 | – | MHz |

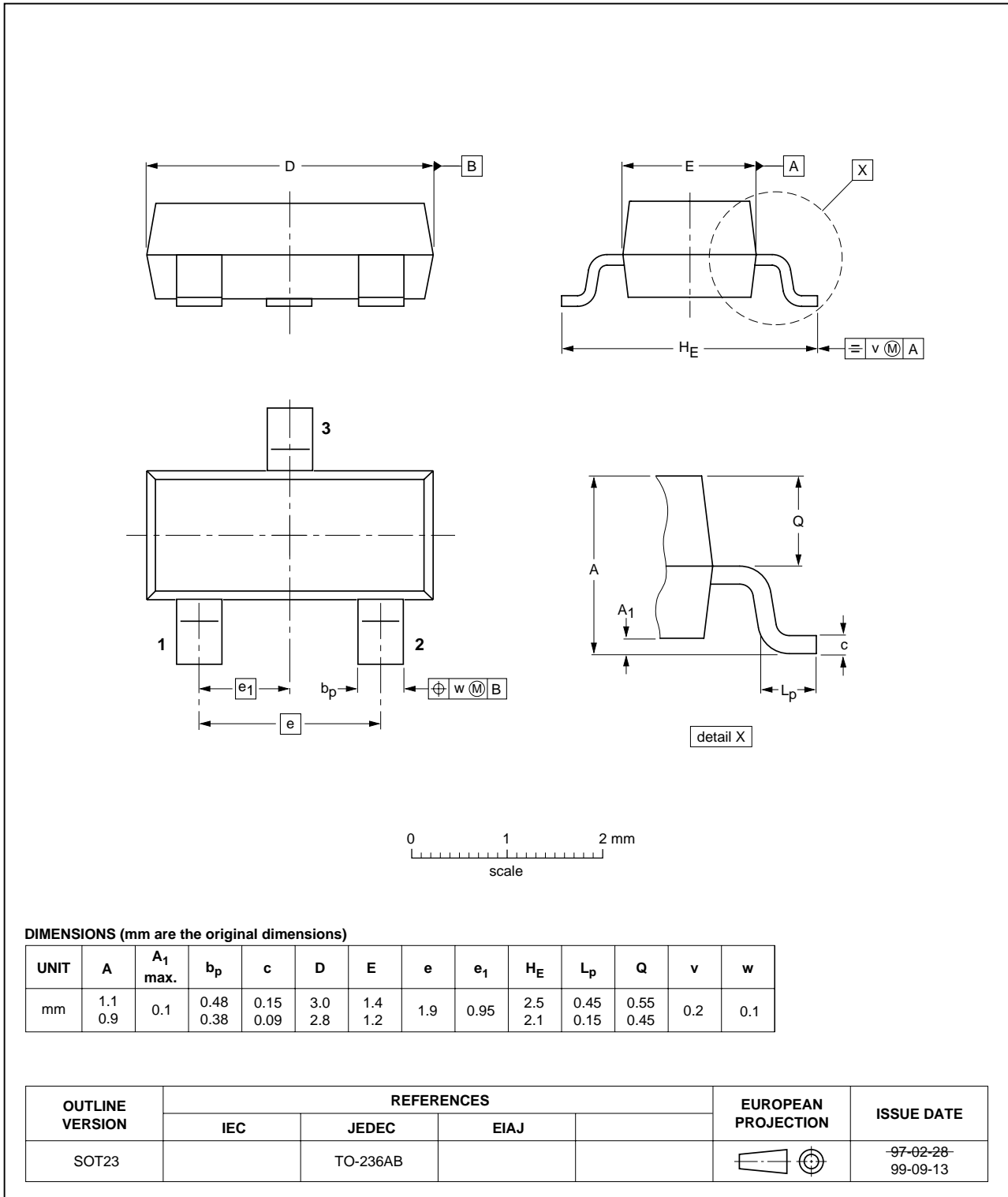
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



NPN medium frequency transistor

BF840

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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