

Important notice

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Should be replaced with:

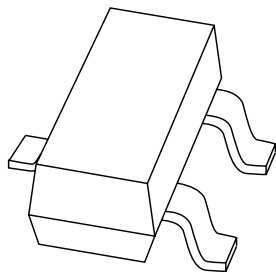
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

DATA SHEET



BF840

NPN medium frequency transistor

Product data sheet
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

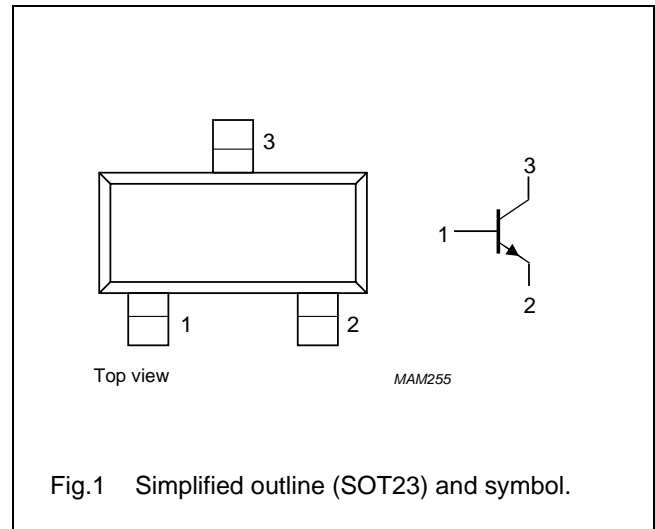
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BF840 | NC* |

Note

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

PINNING

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



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 _{CB0} | collector-base voltage | open emitter | – | 40 | V |
| V _{CE0} | collector-emitter voltage | open base | – | 40 | V |
| V _{EB0} | 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} ≤ 25 °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.

NPN medium frequency transistor

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

$T_j = 25\text{ }^\circ\text{C}$ 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 |

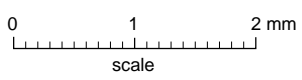
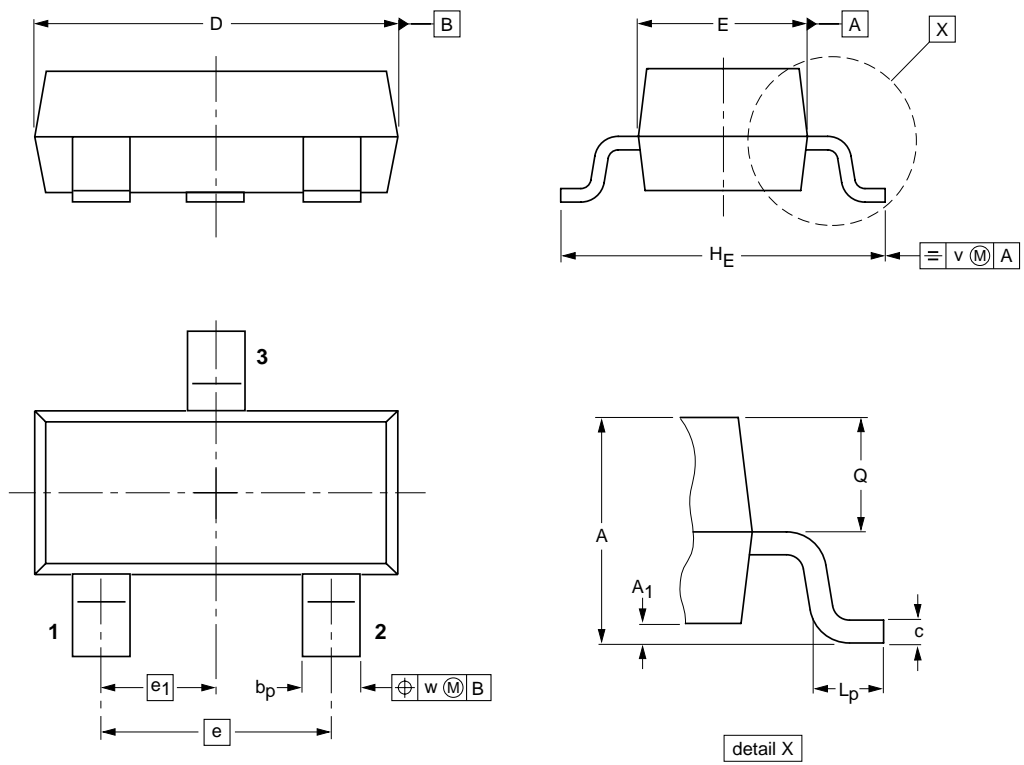
NPN medium frequency transistor

BF840

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max. | b _p | c | D | E | e | e ₁ | H _E | L _p | Q | v | w |
|------|------------|---------------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm | 1.1 0.9 | 0.1 | 0.48 0.38 | 0.15 0.09 | 3.0 2.8 | 1.4 1.2 | 1.9 | 0.95 | 2.5 2.1 | 0.45 0.15 | 0.55 0.45 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|----------|-------|--|---------------------|----------------------|
| | IEC | JEDEC | JEITA | | | |
| SOT23 | | TO-236AB | | | | 04-11-04 06-03-16 |

NPN medium frequency transistor

BF840

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. |

Notes

1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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NXP Semiconductors

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

For additional information please visit: <http://www.nxp.com>

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