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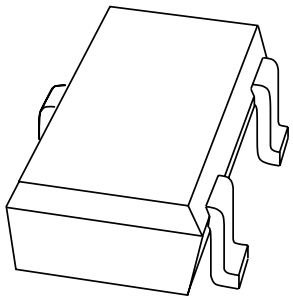
Team Nexperia

# DATA SHEET



# BF824W
## PNP medium frequency transistor

Product data sheet
Supersedes data of 1997 Jul 07

1999 Apr 15

# PNP medium frequency transistor BF824W

## FEATURES

- Low current (max. 25 mA)
- Low voltage (max. 30 V).

## APPLICATIONS

- RF stages in FM front-ends in common base configuration.

## DESCRIPTION

PNP medium frequency transistor in a SOT323 plastic package.

## MARKING

| TYPE NUMBER | MARKING CODE(1) |
|---|---|
| BF824W | F8∗ |

**Note**

1. ∗ = - : Made in Hong Kong.
   ∗ = t : Made in Malaysia.

## PINNING

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

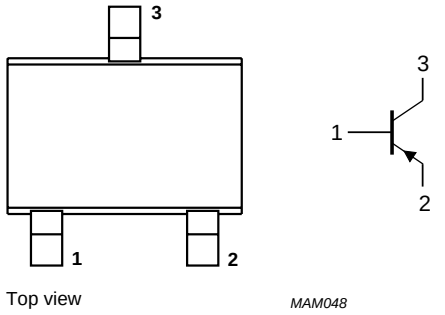



Fig.1 Simplified outline (SOT323) and symbol.

## LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|---|---|---|---|---|---|
| $V_{CBO}$ | collector-base voltage | open emitter | – | −30 | V |
| $V_{CEO}$ | collector-emitter voltage | open base | – | −30 | 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 | $T_{amb} \leq 25$ °C; note 1 | – | 200 | 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.

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $R_{th\ j\text{-}a}$ | thermal resistance from junction to ambient | note 1 | 625 | K/W |

**Note**

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

## CHARACTERISTICS

$T_{amb}$ = 25 °C unless otherwise specified.

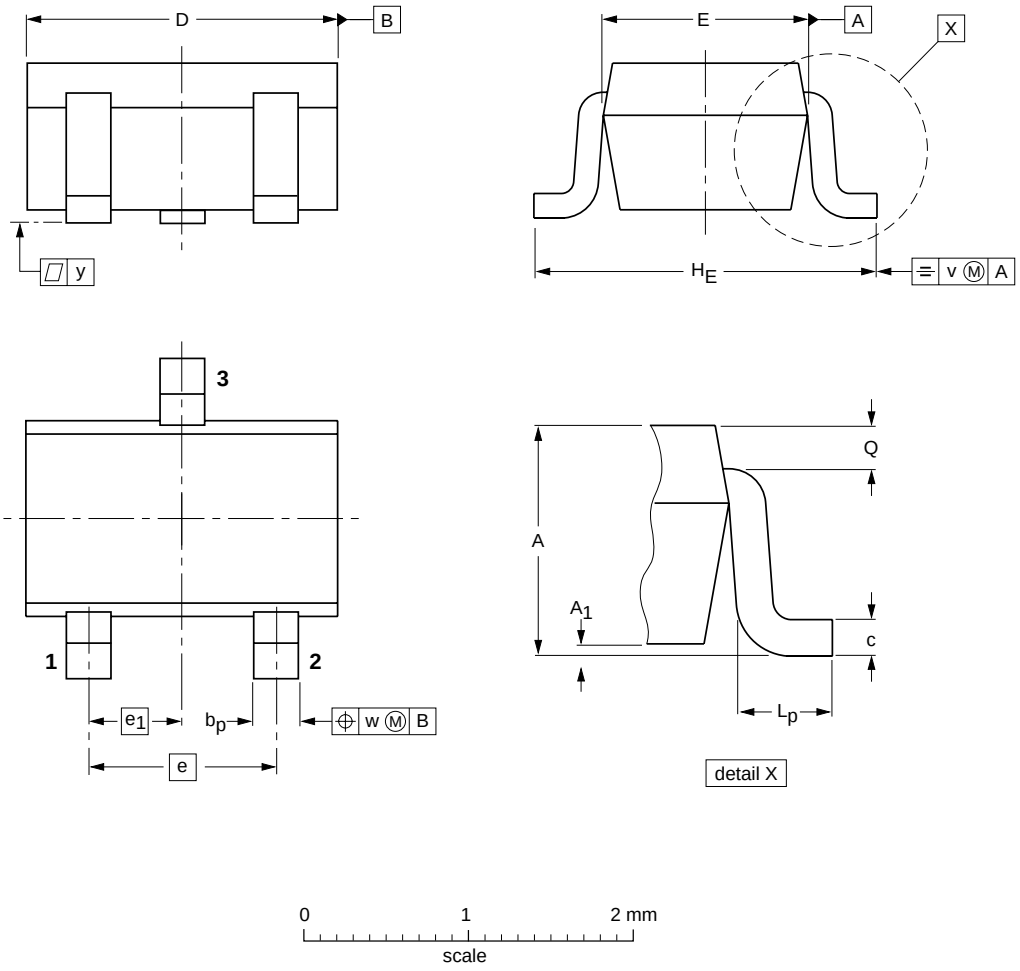
| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|---|---|---|---|---|---|
| $I_{CBO}$ | collector cut-off current | $I_E$ = 0; $V_{CB}$ = −30 V | − | −50 | nA |
| | | $I_E$ = 0; $V_{CB}$ = −30 V; $T_j$ = 150 °C | − | −10 | μA |
| $I_{EBO}$ | emitter cut-off current | $I_C$ = 0; $V_{EB}$ = −4 V | − | −100 | nA |
| $h_{FE}$ | DC current gain | $I_C$ = −1 mA; $V_{CE}$ = −10 V | 25 | − | |
| | | $I_C$ = −4 mA; $V_{CE}$ = −10 V | 25 | − | |
| $V_{BE}$ | base-emitter voltage | $I_C$ = −4 mA; $V_{CE}$ = −10 V | − | −900 | mV |
| $C_{rb}$ | feedback capacitance | $I_C$ = 0; $V_{CE}$ = −10 V; f = 1 MHz | − | 0.3 | pF |
| $f_T$ | transition frequency | $V_{CE}$ = −10 V; f = 100 MHz; note 1 | | | |
| | | $I_C$ = −1 mA | 250 | − | MHz |
| | | $I_C$ = −4 mA | 400 | − | MHz |
| | | $I_C$ = −8 mA | 390 | − | MHz |

**Note**

1. Pulse test: $t_p \leq 300\ \mu s$; $\delta \leq 0.02$.

## PACKAGE OUTLINE

**Plastic surface mounted package; 3 leads** **SOT323**




**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<br>0.8 | 0.1 | 0.4<br>0.3 | 0.25<br>0.10 | 2.2<br>1.8 | 1.35<br>1.15 | 1.3 | 0.65 | 2.2<br>2.0 | 0.45<br>0.15 | 0.23<br>0.13 | 0.2 | 0.2 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | EIAJ | | | |
| SOT323 | | | SC-70 | | | 97-02-28 |

## 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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Printed in The Netherlands 115002/00/03/pp6 Date of release: 1999 Apr 15 Document order number: 9397 750 05674

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