

# 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

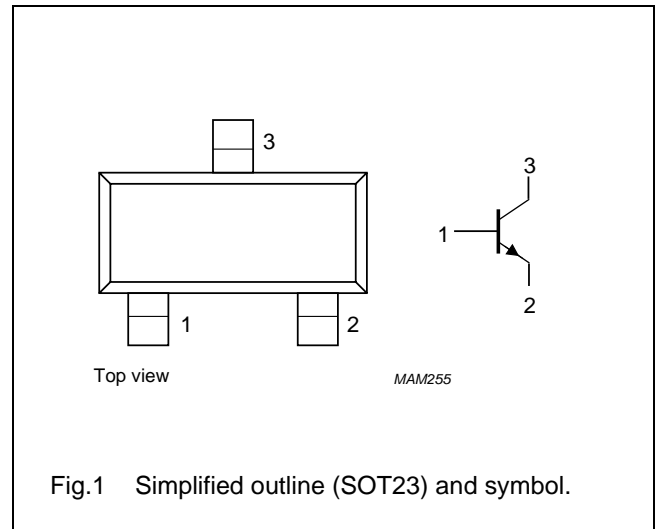
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BF840	NC*

### 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 <sub>CB0</sub>	collector-base voltage	open emitter	–	40	V
V <sub>CE0</sub>	collector-emitter voltage	open base	–	40	V
V <sub>EB0</sub>	emitter-base voltage	open collector	–	4	V
I <sub>C</sub>	collector current (DC)		–	25	mA
I <sub>CM</sub>	peak collector current		–	25	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	250	mW
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

### Note

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

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## 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

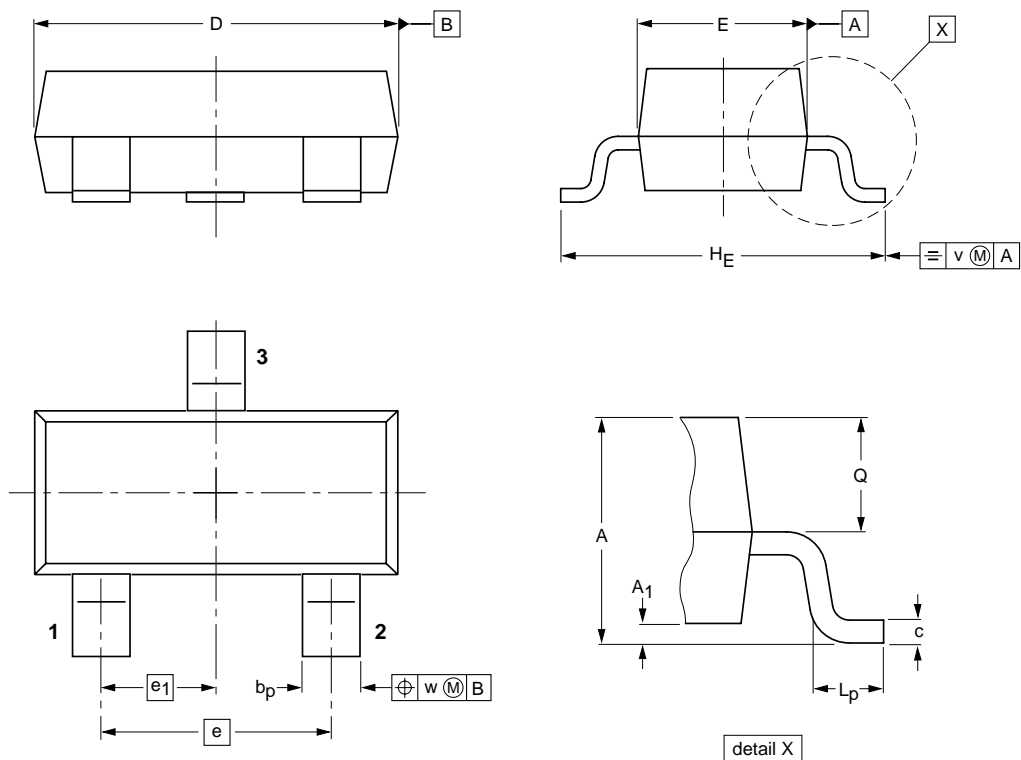
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PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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

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## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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.
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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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