

# DATA SHEET



## **BCV27; BCV47** NPN Darlington transistors

Product data sheet  
Supersedes data of 1999 Apr 08

2004 Jan 13

# NPN Darlington transistors

# BCV27; BCV47

### FEATURES

- Medium current (max. 500 mA)
- Low voltage (max. 60 V)
- High DC current gain (min. 20000).

### APPLICATIONS

- Preamplifier input applications.

### DESCRIPTION

NPN Darlington transistor in a SOT23 plastic package.  
PNP complements: BCV26 and BCV46.

### MARKING

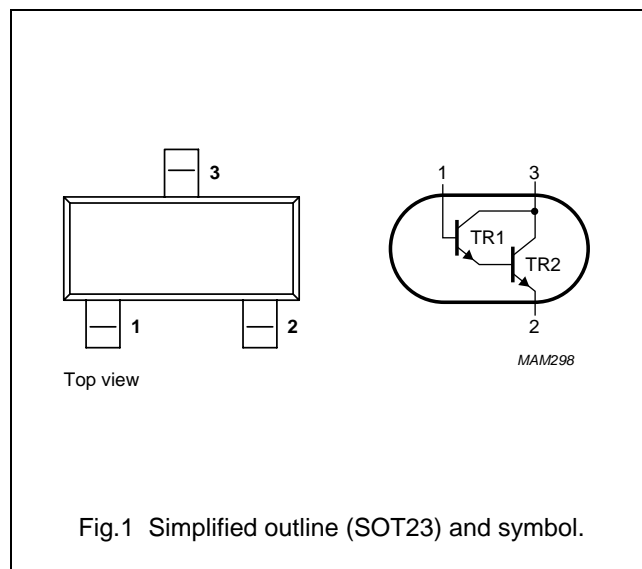
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BCV27	FF*
BCV47	FG*

### 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
BCV27	–	plastic surface mounted package; 3 leads	SOT23
BCV47			

## NPN Darlington transistors

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**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	–	40	V
	BCV27			80	V
V <sub>CES</sub>	collector-emitter voltage	open base	–	30	V
	BCV27			60	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	10	V
I <sub>C</sub>	collector current (DC)		–	500	mA
I <sub>CM</sub>	peak collector current		–	800	mA
I <sub>B</sub>	base current		–	100	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.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	note 1	500	K/W

**Note**

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

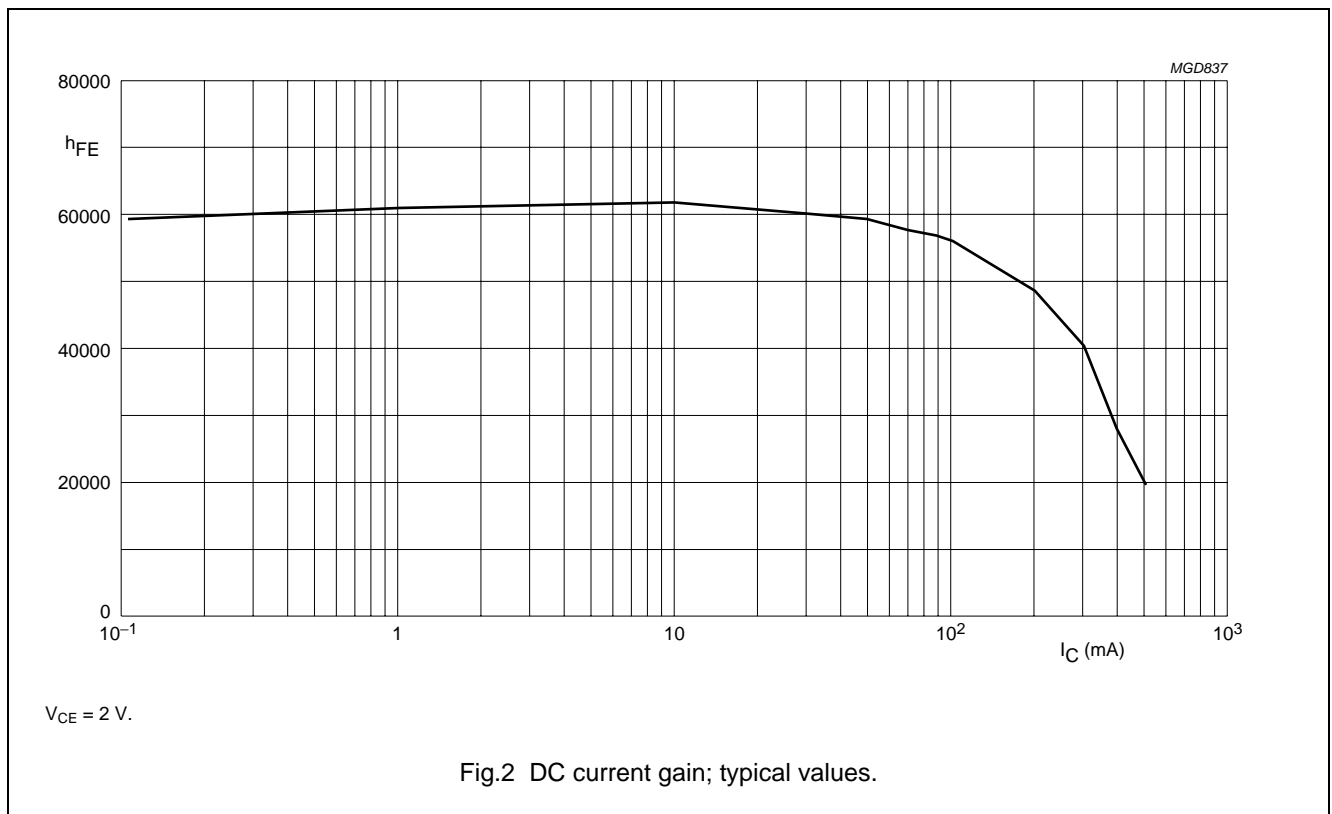
NPN Darlington transistors

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**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT		
I <sub>CBO</sub>	collector cut-off current							
	BCV27	I <sub>E</sub> = 0; V <sub>CB0</sub> = 30 V	–	–	100	nA		
	BCV47	I <sub>E</sub> = 0; V <sub>CB0</sub> = 60 V	–	–	100	nA		
I <sub>EBO</sub>	emitter cut-off current	I <sub>E</sub> = 0; V <sub>EB</sub> = 10 V	–	–	100	nA		
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 5 V; (see Fig.2)						
			BCV27	I <sub>C</sub> = 1 mA	4 000	–	–	
				I <sub>C</sub> = 10 mA	10 000	–	–	
		I <sub>C</sub> = 100 mA	20 000	–	–			
	DC current gain	V <sub>CE</sub> = 5 V; (see Fig.2)						
			BCV47	I <sub>C</sub> = 1 mA	2 000	–	–	
			I <sub>C</sub> = 10 mA	4 000	–	–		
	I <sub>C</sub> = 100 mA	10 000	–	–				
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 100 mA; I <sub>B</sub> = 0.1 mA	–	–	1	V		
V <sub>BEsat</sub>	base-emitter saturation voltage	I <sub>C</sub> = 100 mA; I <sub>B</sub> = 0.1 mA	–	–	1.5	V		
V <sub>BEon</sub>	base-emitter on-state voltage	I <sub>C</sub> = 10 mA; V <sub>CE</sub> = 5 V	–	–	1.4	V		
f <sub>T</sub>	transition frequency	I <sub>C</sub> = 30 mA; V <sub>CE</sub> = 5 V; f = 100 MHz	–	220	–	MHz		



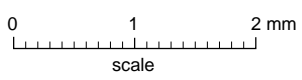
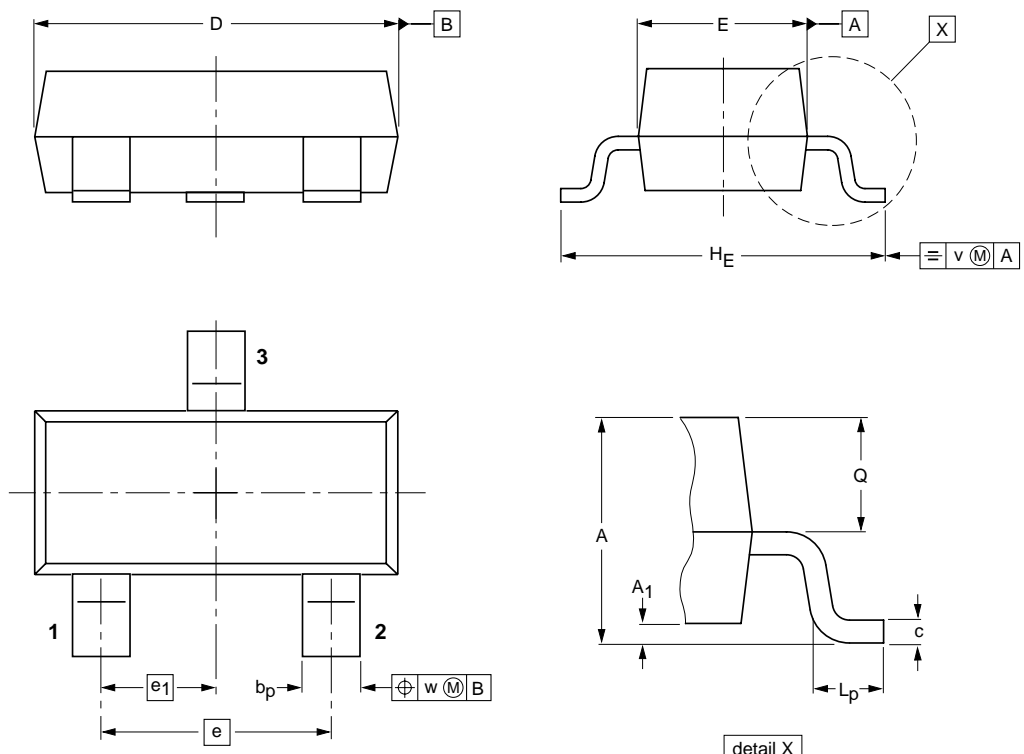
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PACKAGE OUTLINE

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

## NPN Darlington transistors

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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.

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## **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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