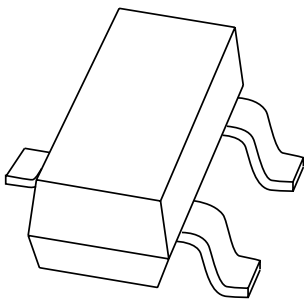


# DATA SHEET



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

Product specification  
Supersedes data of 1997 Sep 04

1999 Apr 08

# NPN Darlington transistors

# BCV27; BCV47

### FEATURES

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

### APPLICATIONS

- Pre-amplifier input applications.

### DESCRIPTION

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

### MARKING

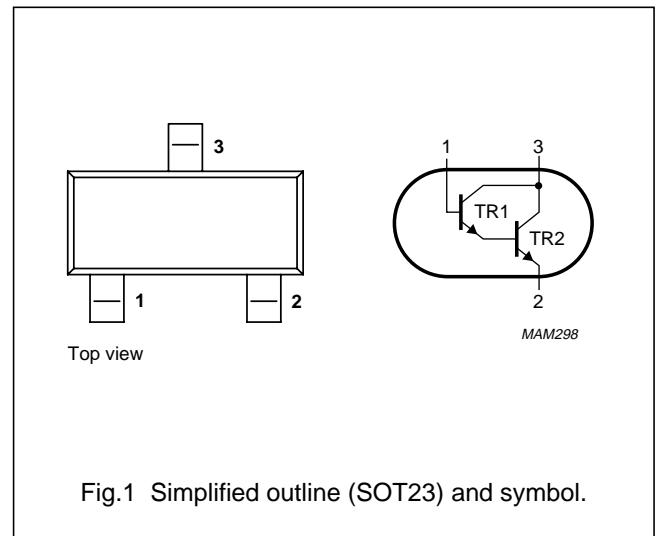
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BCV27	FF*
BCV47	FG*

### Note

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

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BCV27		–	40	V
	BCV47		–	80	V
V <sub>CES</sub>	collector-emitter voltage	open base			
	BCV27		–	30	V
	BCV47		–	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.

## NPN Darlington transistors

## BCV27; BCV47

## 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.

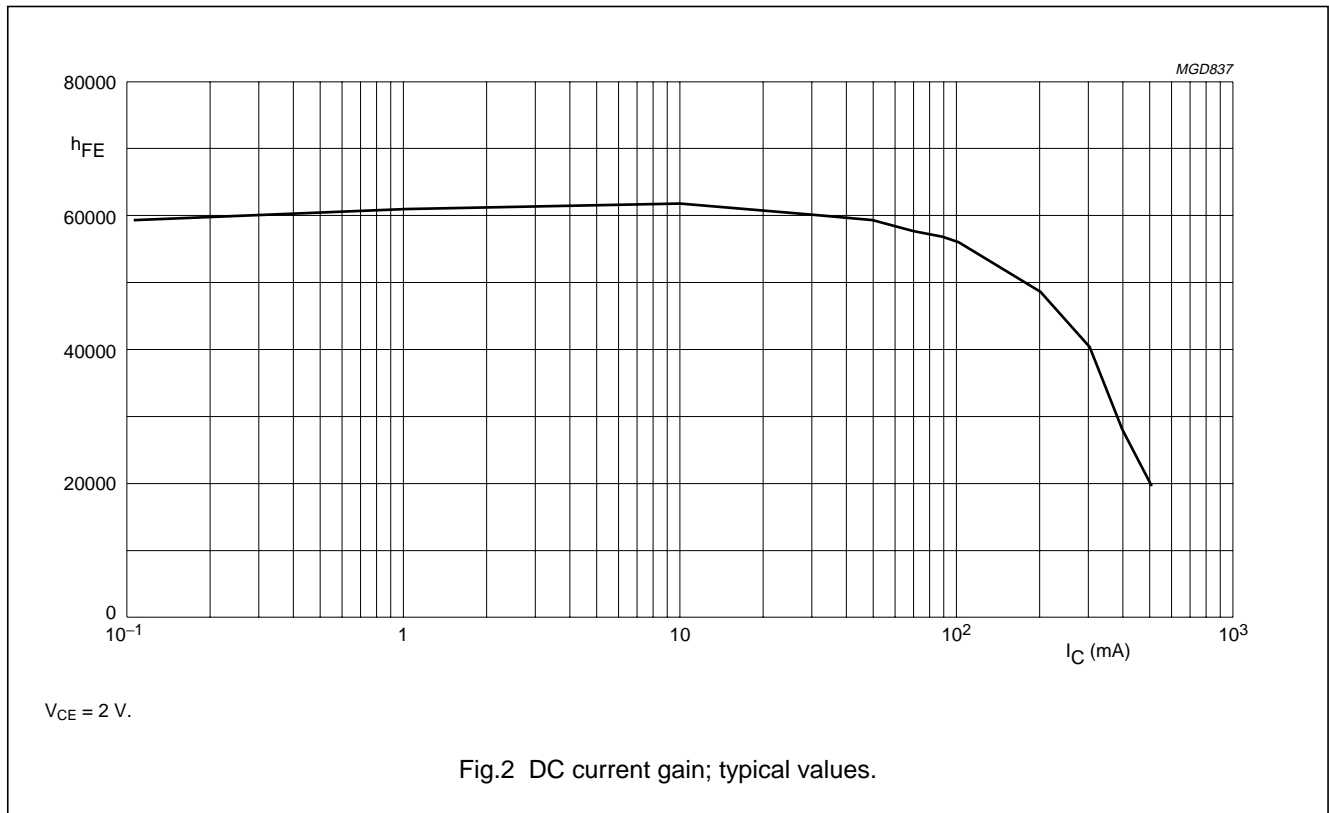
## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
$I_{CBO}$	collector cut-off current						
	BCV27	$I_E = 0; V_{CBO} = 30\text{ V}$	–	–	100	nA	
	BCV47	$I_E = 0; V_{CBO} = 60\text{ V}$	–	–	100	nA	
$I_{EBO}$	emitter cut-off current	$I_E = 0; V_{EB} = 10\text{ V}$	–	–	100	nA	
$h_{FE}$	DC current gain	$V_{CE} = 5\text{ V};$ (see Fig.2)					
		BCV27	$I_C = 1\text{ mA}$	4000	–	–	
		$I_C = 10\text{ mA}$	10000	–	–		
		$I_C = 100\text{ mA}$	20000	–	–		
	DC current gain	$V_{CE} = 5\text{ V};$ (see Fig.2)					
		BCV47	$I_C = 1\text{ mA}$	2000	–	–	
$I_C = 10\text{ mA}$		4000	–	–			
	$I_C = 100\text{ mA}$	10000	–	–			
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 0.1\text{ mA}$	–	–	1	V	
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 0.1\text{ mA}$	–	–	1.5	V	
$V_{BEon}$	base-emitter on-state voltage	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	–	–	1.4	V	
$f_T$	transition frequency	$I_C = 30\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	–	220	–	MHz	

NPN Darlington transistors

BCV27; BCV47



NPN Darlington transistors

BCV27; BCV47

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	EIAJ			
SOT23						97-02-28

## NPN Darlington transistors

BCV27; BCV47

**DEFINITIONS**

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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NPN Darlington transistors

BCV27; BCV47

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