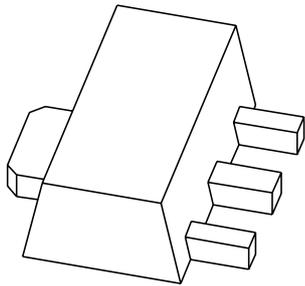


# DATA SHEET



## **BCV29; BCV49** NPN Darlington transistors

Product specification  
Supersedes data of 1999 Apr 08

2004 Dec 06

# NPN Darlington transistors

# BCV29; BCV49

### FEATURES

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

### APPLICATIONS

- Preamplifier input applications.

### DESCRIPTION

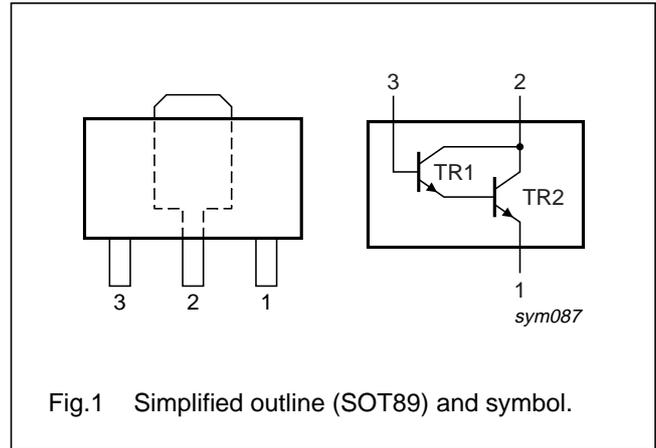
NPN small-signal Darlington transistor in a surface mount SOT89 plastic package. PNP complements: BCV28 and BCV48.

### MARKING

TYPE NUMBER	MARKING CODE
BCV29	EF
BCV49	EG

### PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



### ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BCV29	SC-62	plastic surface mounted package; collector pad for good heat transfer; 3 leads	SOT89
BCV49			

## NPN Darlington transistors

## BCV29; BCV49

**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			
	BCV29		–	40	V
	BCV49		–	80	V
V <sub>CES</sub>	collector-emitter voltage	V <sub>BE</sub> = 0 V			
	BCV29		–	30	V
	BCV49		–	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		–	1	A
I <sub>BM</sub>	peak base current		–	200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	1.3	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	ambient temperature		–65	+150	°C

**Note**

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.  
For other mounting conditions, see *“Thermal considerations for SOT89 in the General Part of associated Handbook”*.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	note 1	96	K/W
R <sub>th(j-s)</sub>	thermal resistance from junction to soldering point		16	K/W

**Note**

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.  
For other mounting conditions, see *“Thermal considerations for SOT89 in the General Part of associated Handbook”*.

## NPN Darlington transistors

## BCV29; BCV49

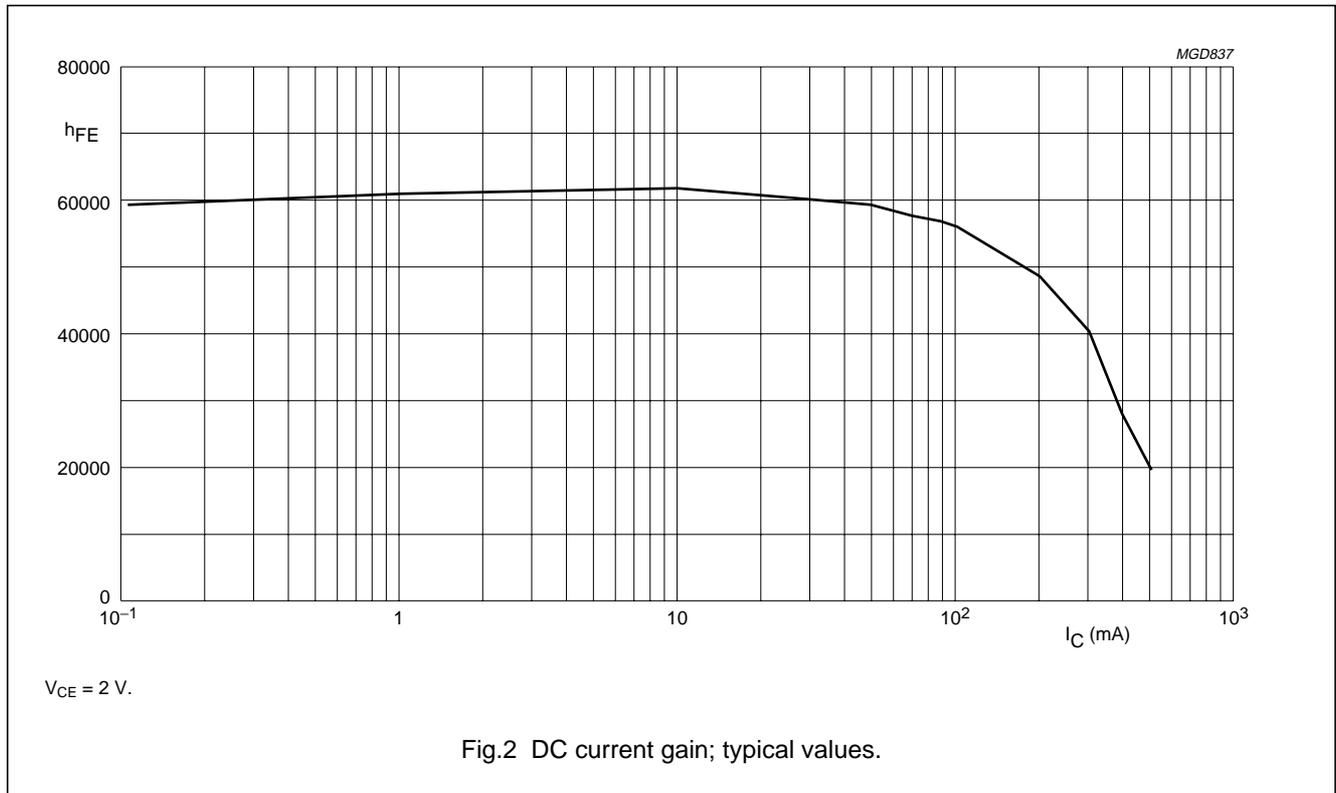
**CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT		
$I_{CBO}$	collector-base cut-off current							
	BCV29	$I_E = 0\text{ A}; V_{CB} = 30\text{ V}$	–	–	100	nA		
	BCV49	$I_E = 0\text{ A}; V_{CB} = 60\text{ V}$	–	–	100	nA		
$I_{EBO}$	emitter-base cut-off current	$I_C = 0\text{ A}; V_{EB} = 10\text{ V}$	–	–	100	nA		
$h_{FE}$	DC current gain	$V_{CE} = 5\text{ V};$ see Fig.2						
			BCV29	$I_C = 1\text{ mA}$	4000	–	–	
				$I_C = 10\text{ mA}$	10000	–	–	
				$I_C = 100\text{ mA}$	20000	–	–	
		$I_C = 500\text{ mA}$	4000	–	–			
	DC current gain	$V_{CE} = 5\text{ V};$ see Fig.2						
			BCV49	$I_C = 1\text{ mA}$	2000	–	–	
				$I_C = 10\text{ mA}$	4000	–	–	
			$I_C = 100\text{ mA}$	10000	–	–		
	$I_C = 500\text{ mA}$	2000	–	–				
$V_{CEsat}$	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

BCV29; BCV49



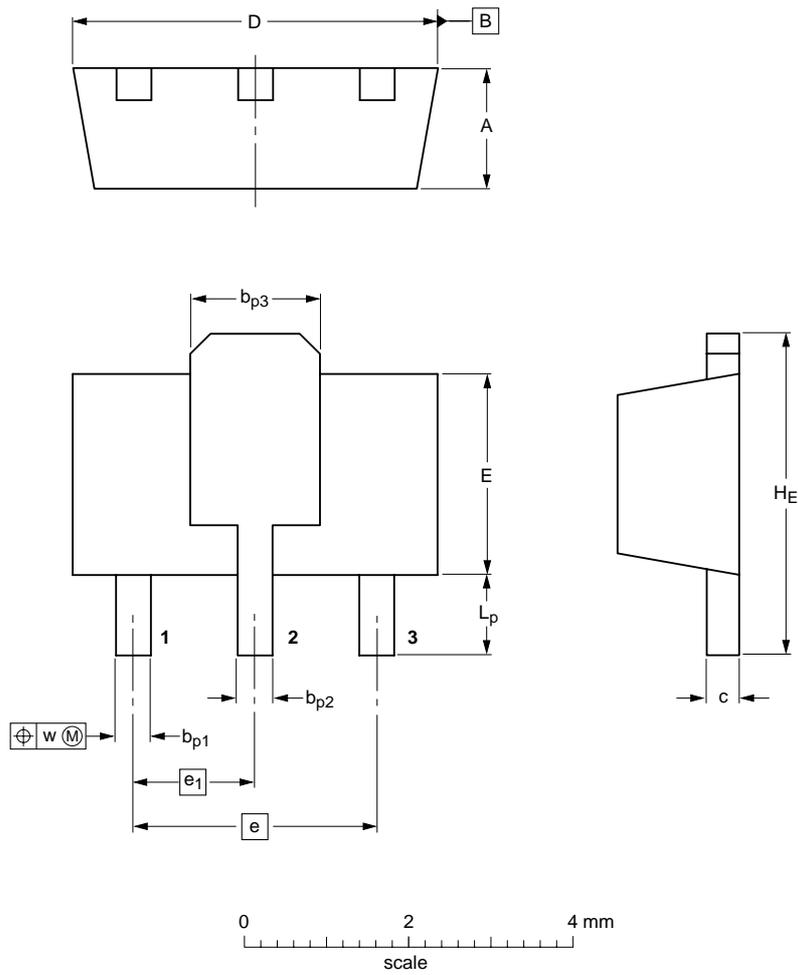
NPN Darlington transistors

BCV29; BCV49

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p1</sub>	b <sub>p2</sub>	b <sub>p3</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT89		TO-243	SC-62		99-09-13 04-08-03

## NPN Darlington transistors

## BCV29; BCV49

## DATA SHEET STATUS

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