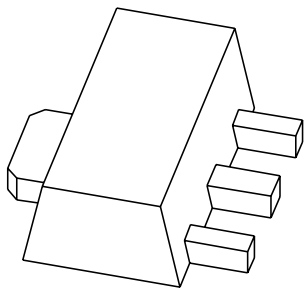


DATA SHEET



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

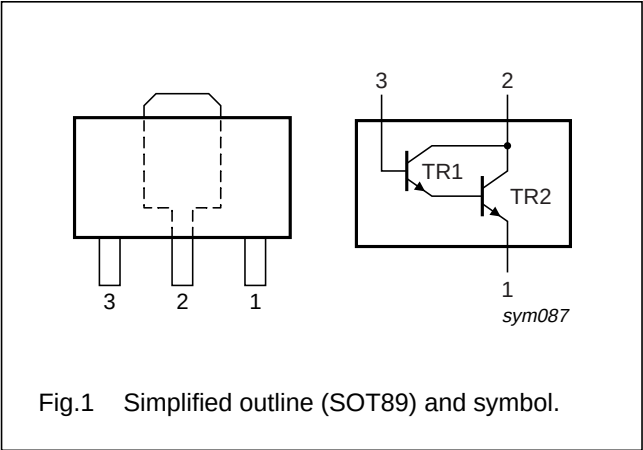
NPN small-signal Darlington transistor in a surface mount SOT89 plastic package. PNP complements: BCV28 and BCV48.

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 _{CBO}	collector-base voltage	open emitter			
	BCV29		–	40	V
	BCV49		–	80	V
V _{CES}	collector-emitter voltage	V _{BE} = 0 V			
	BCV29		–	30	V
	BCV49		–	60	V
V _{EBO}	emitter-base voltage	open collector	–	10	V
I _C	collector current (DC)		–	500	mA
I _{CM}	peak collector current		–	1	A
I _{BM}	peak base current		–	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	1.3	W
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	ambient temperature		–65	+150	°C

Note

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 1 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th(j-a)}	thermal resistance from junction to ambient	note 1	96	K/W
R _{th(j-s)}	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 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

NPN Darlington transistors

BCV29; BCV49

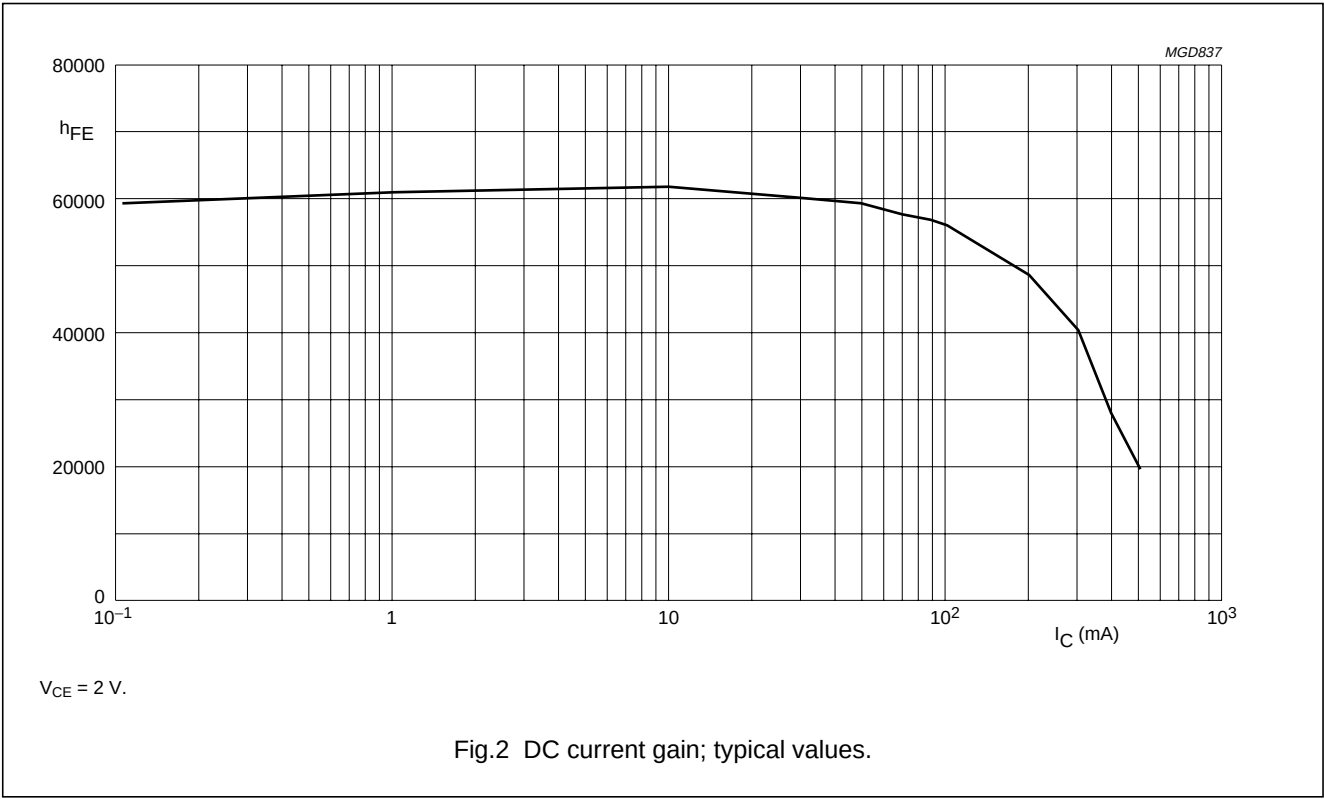
CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ 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



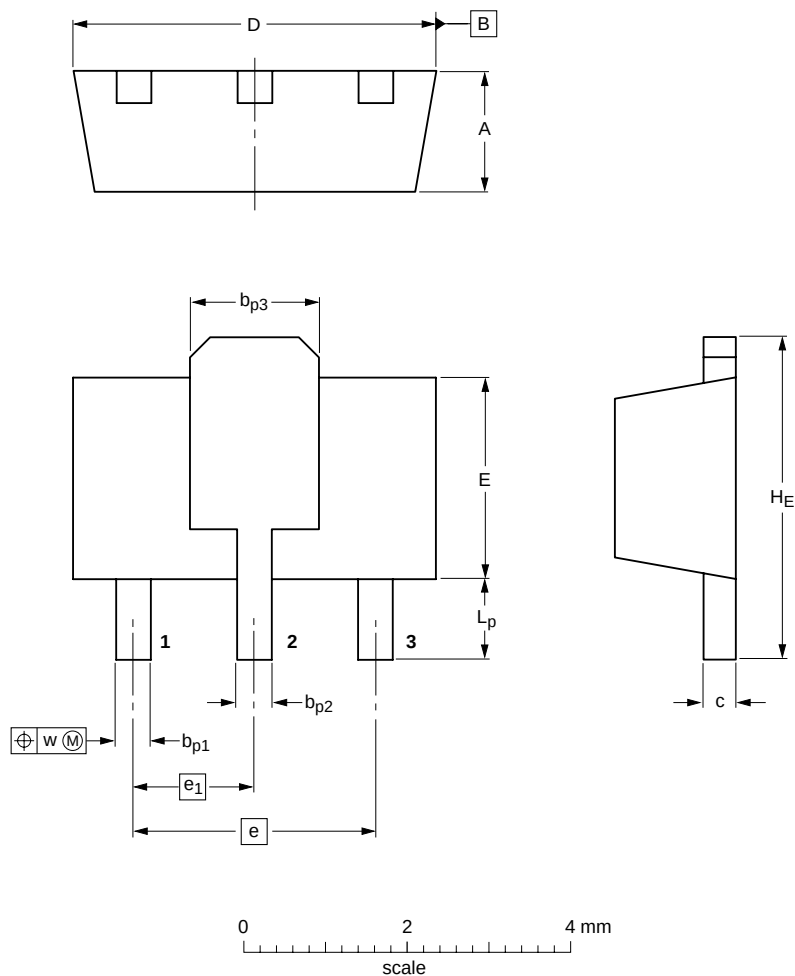
NPN Darlington transistors

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	bp1	bp2	bp3	c	D	E	e	e1	HE	Lp	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

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: **+31 40 27 24825**

For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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