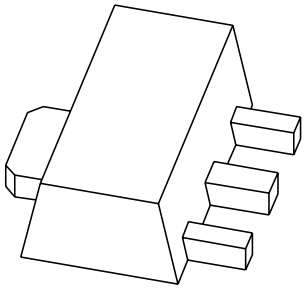
DATA SHEET



BCV29; BCV49
NPN Darlington transistors

Product specification
Supersedes data of 1999 Apr 08

2004 Dec 06

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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.

Note: Pin numbering is according to standard SOT89 package

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
3 ~~1~~	emitter
2	collector
1 ~~3~~	base

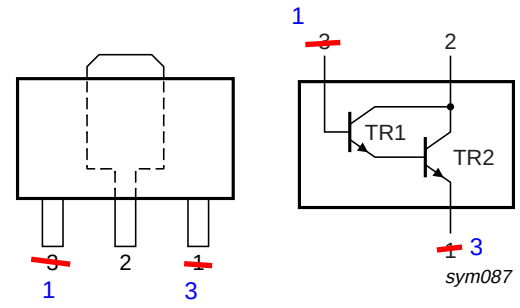


Fig.1 Simplified outline (SOT89) and symbol.

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			

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	$T_{amb} \leq 25$ °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

1. Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 1 cm^2. 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

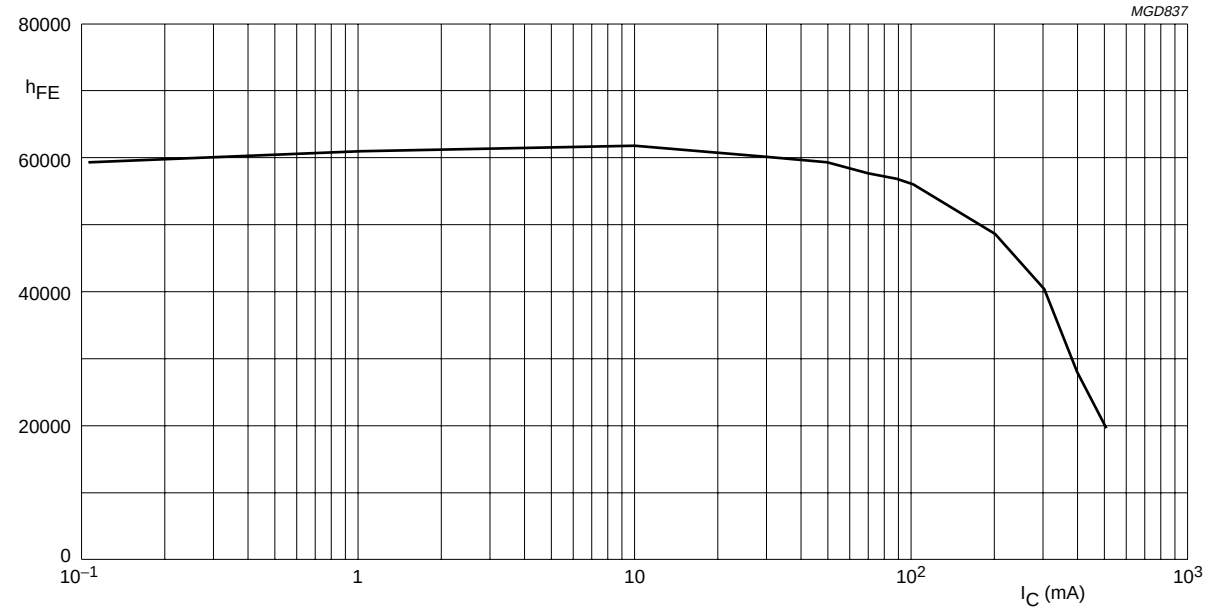
Note

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

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current					
	BCV29	I_E = 0 A; V_{CB} = 30 V	–	–	100	nA
	BCV49	I_E = 0 A; V_{CB} = 60 V	–	–	100	nA
I_{EBO}	emitter-base cut-off current	I_C = 0 A; V_{EB} = 10 V	–	–	100	nA
h_{FE}	DC current gain	V_{CE} = 5 V; see Fig.2				
	BCV29	I_C = 1 mA	4000	–	–	
		I_C = 10 mA	10000	–	–	
		I_C = 100 mA	20000	–	–	
		I_C = 500 mA	4000	–	–	
	DC current gain	V_{CE} = 5 V; see Fig.2				
	BCV49	I_C = 1 mA	2000	–	–	
		I_C = 10 mA	4000	–	–	
		I_C = 100 mA	10000	–	–	
		I_C = 500 mA	2000	–	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = 100 mA; I_B = 0.1 mA	–	–	1	V
V_{BEsat}	base-emitter saturation voltage	I_C = 100 mA; I_B = 0.1 mA	–	–	1.5	V
V_{BEon}	base-emitter on-state voltage	I_C = 10 mA; V_{CE} = 5 V	–	–	1.4	V
f_T	transition frequency	I_C = 30 mA; V_{CE} = 5 V; f = 100 MHz	–	220	–	MHz

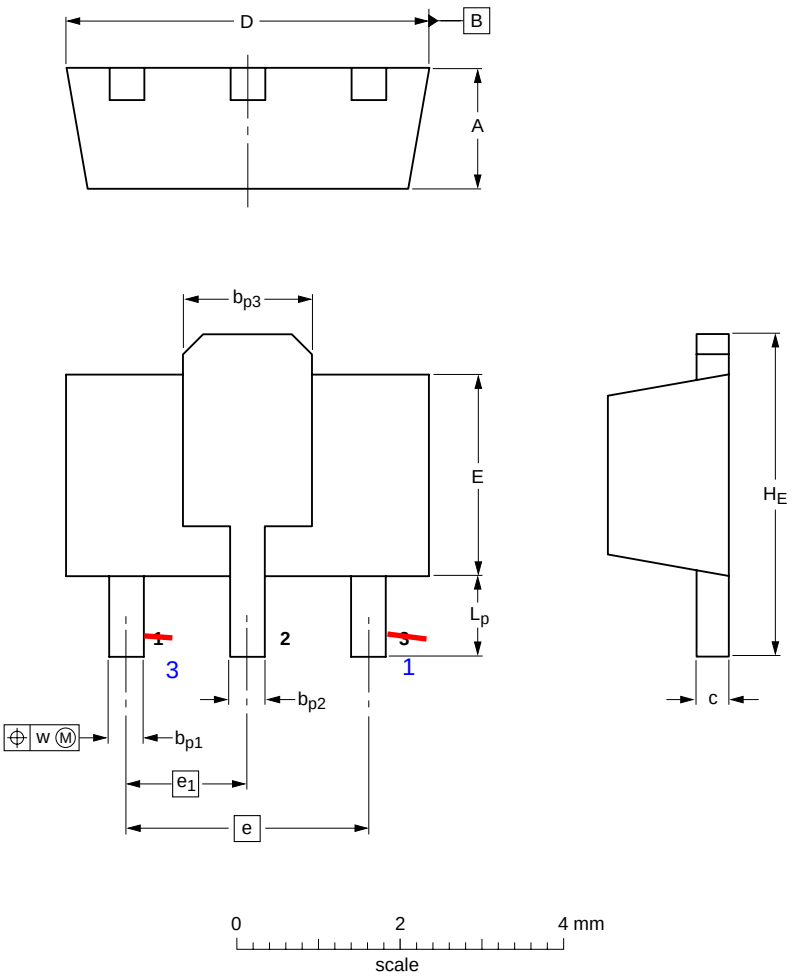


V_{CE} = 2 V.

Fig.2 DC current gain; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads **SOT89**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	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

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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