

DATA SHEET



BCV29; BCV49 NPN Darlington transistors

Product data sheet
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

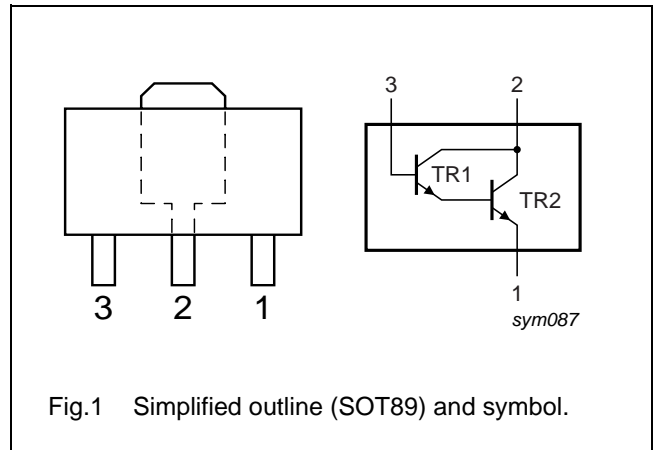
NPN small-signal Darlington transistor in a surface mount SOT89 plastic package. PNP complements: BCV28 and BCV48.

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			

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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”*.

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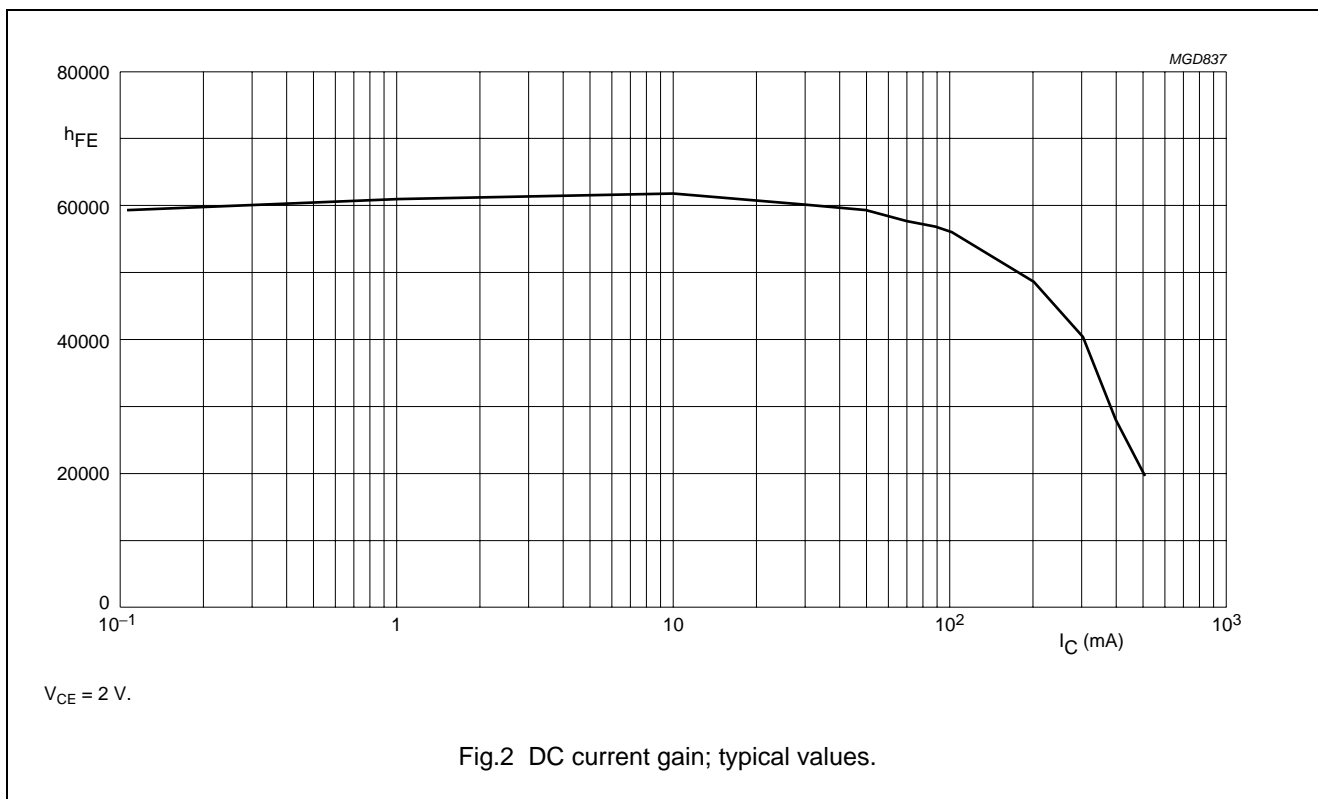
CHARACTERISTICS

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

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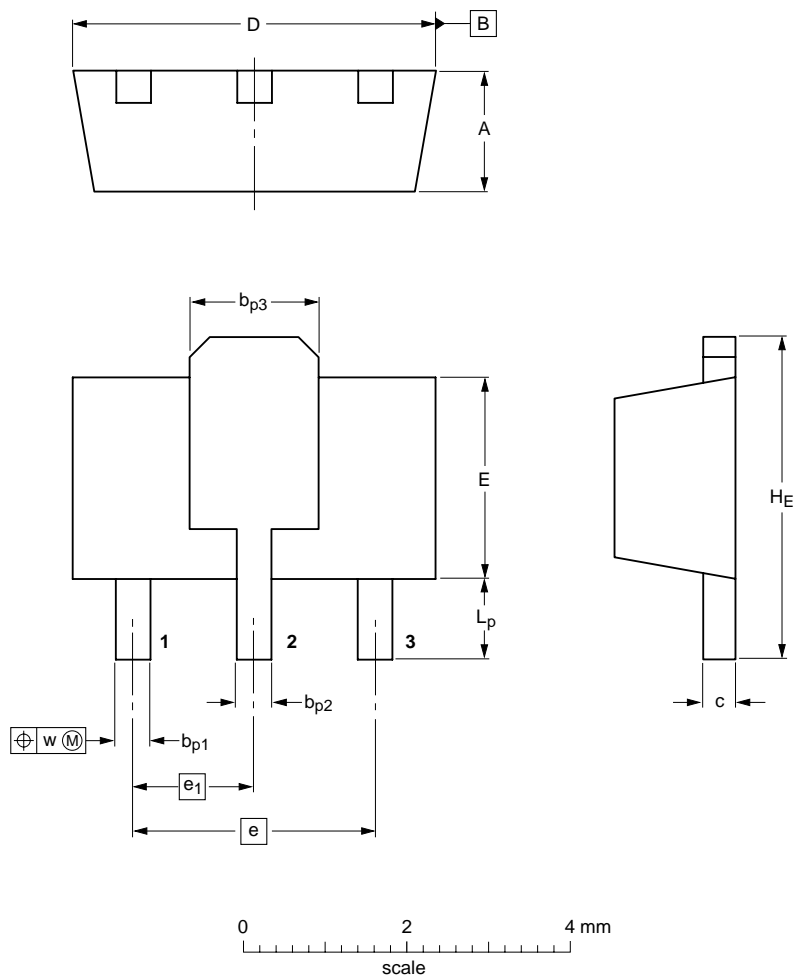
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PACKAGE OUTLINE

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		04-08-03 06-03-16

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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

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