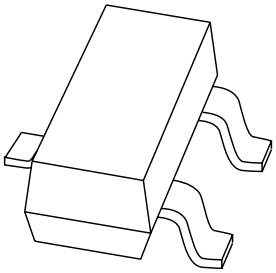
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DATA SHEET



BCV27; BCV47
NPN Darlington transistors

Product data sheet
Supersedes data of 1999 Apr 08

2004 Jan 13

NXP founded by Philips

NPN Darlington transistors BCV27; BCV47

FEATURES

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

APPLICATIONS

- Preamplifier input applications.

DESCRIPTION

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

MARKING

TYPE NUMBER	MARKING CODE(1)
BCV27	FF*
BCV47	FG*

Note

1. * = p : Made in Hong Kong.
   * = t : Made in Malaysia.
   * = W : Made in China.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

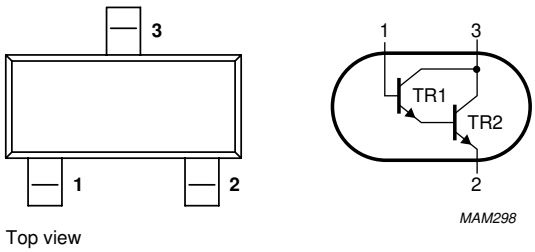


Fig.1 Simplified outline (SOT23) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BCV27	–	plastic surface mounted package; 3 leads	SOT23
BCV47			

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			
	BCV27		−	40	V
	BCV47		−	80	V
V_{CES}	collector-emitter voltage	open base			
	BCV27		−	30	V
	BCV47		−	60	V
V_{EBO}	emitter-base voltage	open collector	−	10	V
I_C	collector current (DC)		−	500	mA
I_{CM}	peak collector current		−	800	mA
I_B	base current		−	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	−	250	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		−	150	°C
T_{amb}	operating ambient temperature		−65	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	500	K/W

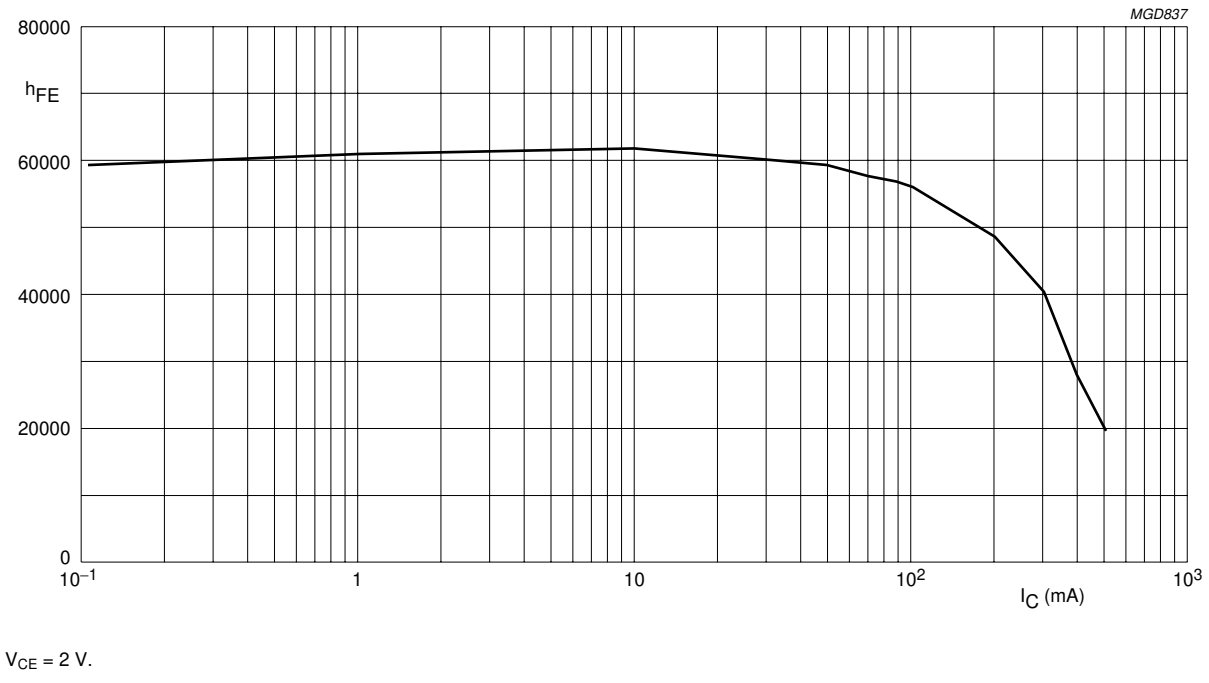
Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current					
	BCV27	I_E = 0; V_{CBO} = 30 V	–	–	100	nA
	BCV47	I_E = 0; V_{CBO} = 60 V	–	–	100	nA
I_{EBO}	emitter cut-off current	I_E = 0; V_{EB} = 10 V	–	–	100	nA
h_{FE}	DC current gain	V_{CE} = 5 V; (see Fig.2)				
	BCV27	I_C = 1 mA	4000	–	–	
		I_C = 10 mA	10000	–	–	
		I_C = 100 mA	20000	–	–	
	DC current gain	V_{CE} = 5 V; (see Fig.2)				
	BCV47	I_C = 1 mA	2000	–	–	
		I_C = 10 mA	4000	–	–	
		I_C = 100 mA	10000	–	–	
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

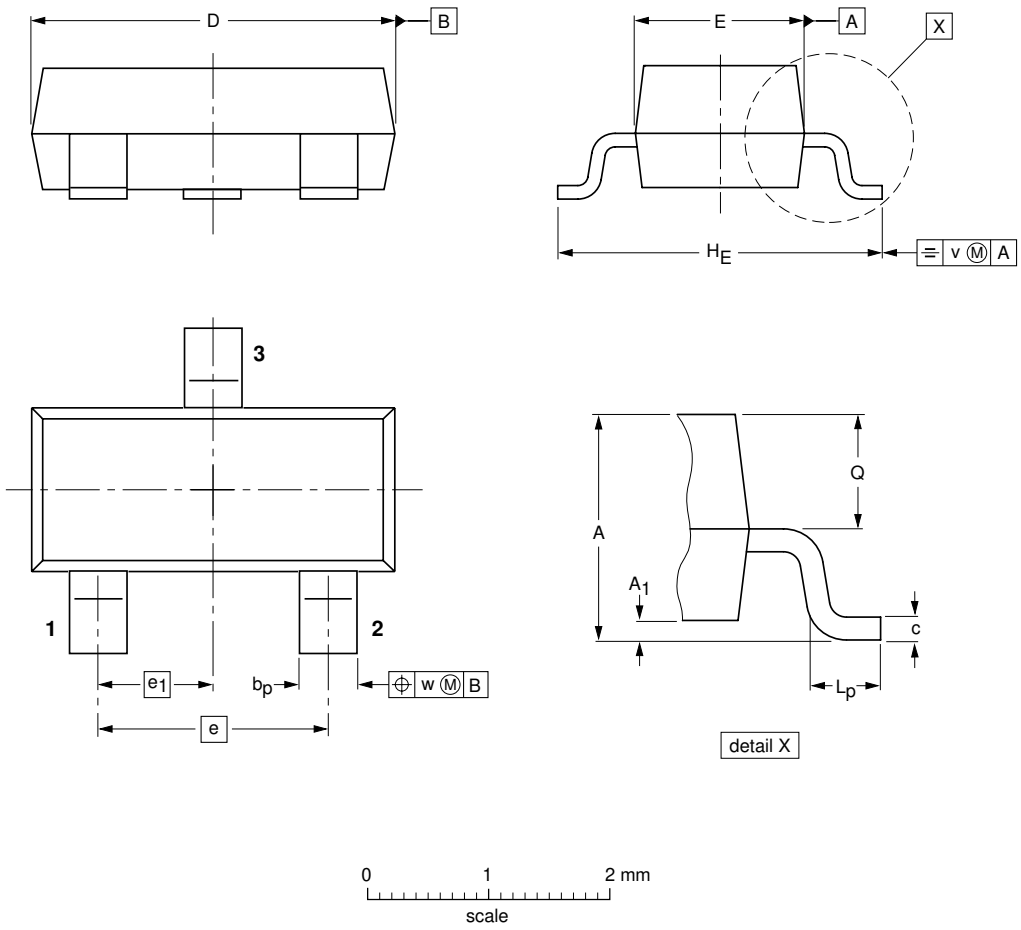


V_{CE} = 2 V.

Fig.2 DC current gain; typical values.

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads **SOT23**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	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	JEITA			
SOT23		TO-236AB				~~04-11-04~~ 06-03-16

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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NXP Semiconductors

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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