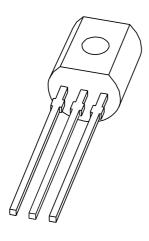
# **DISCRETE SEMICONDUCTORS**

# DATA SHEET



# **BC517**NPN Darlington transistor

Product specification Supersedes data of 2003 Oct 16 2004 Nov 05





# **NPN Darlington transistor**

**BC517** 

#### **FEATURES**

- High current (max. 500 mA)
- Low voltage (max. 30 V)
- Very high DC current gain (min. 30000).

#### **APPLICATIONS**

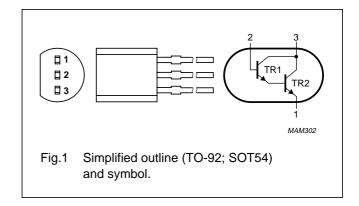
· Where very high amplification is required.

#### **DESCRIPTION**

NPN Darlington transistor in a TO-92; SOT54 plastic package. PNP complement: BC516.

#### **PINNING**

PIN	DESCRIPTION
1	emitter
2	base
3	collector



#### **ORDERING INFORMATION**

TYPE NUMBER	PACKAGE				
I THE NOWIBER	NAME	DESCRIPTION	VERSION		
BC517	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54		

#### **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		40	V
V <sub>CES</sub>	collector-emitter voltage	V <sub>BE</sub> = 0 V	_	30	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		_	800	mA
I <sub>B</sub>	base current (DC)		-	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	_	625	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
Tj	junction temperature		_	150	°C
T <sub>amb</sub>	ambient temperature		-65	+150	°C

#### Note

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

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# NPN Darlington transistor

BC517

#### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	note 1	200	K/W

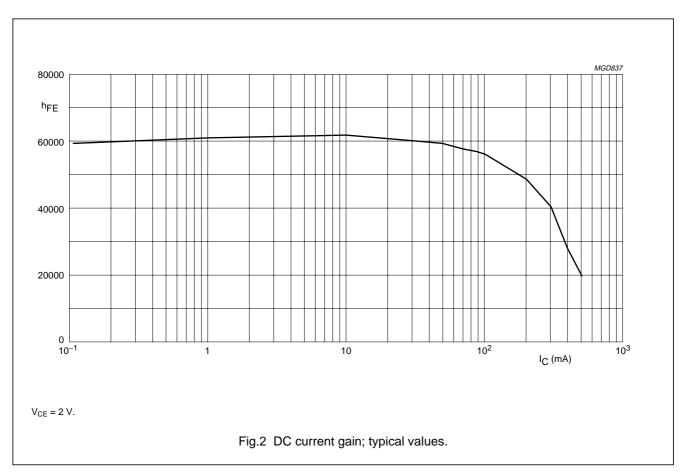
#### Note

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

#### **CHARACTERISTICS**

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

SYMBOL	PARAMETER	PARAMETER CONDITIONS			MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = 30 V; I <sub>E</sub> = 0 A	_	_	100	nA
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = 10 V; I <sub>C</sub> = 0 A	_	_	100	nA
h <sub>FE</sub>	DC current gain	$V_{CE} = 2 \text{ V}; I_{C} = 20 \text{ mA}; \text{ see Fig.2}$	30000	_	_	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 100 mA; I <sub>B</sub> = 0.1 mA	_	_	1	٧
V <sub>BEsat</sub>	base-emitter saturation voltage	$I_C = 100 \text{ mA}; I_B = 0.1 \text{ mA}$	_	_	1.5	٧
V <sub>BEon</sub>	base-emitter on-state voltage	V <sub>CE</sub> = 5 V; I <sub>C</sub> = 10 mA	_	_	1.4	٧
f <sub>T</sub>	transition frequency	$V_{CE} = 5 \text{ V; } I_{C} = 30 \text{ mA;}$ f = 100 MHz	_	220	_	MHz



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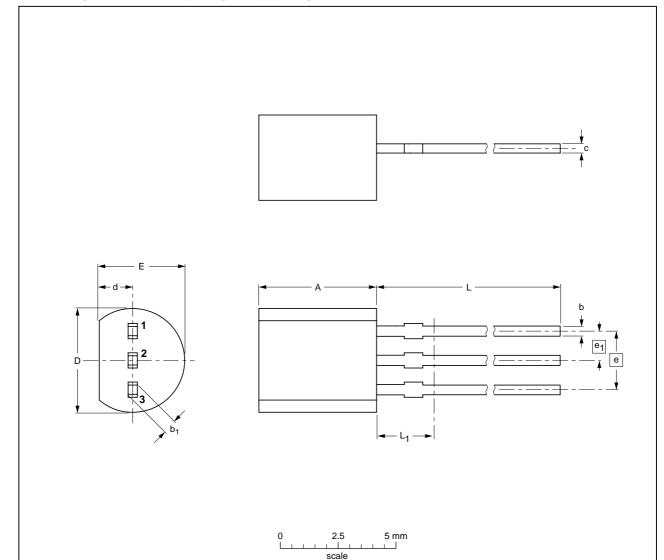
# NPN Darlington transistor

BC517

#### **PACKAGE OUTLINE**

#### Plastic single-ended leaded (through hole) package; 3 leads

SOT54



#### DIMENSIONS (mm are the original dimensions)

UNIT	Α	b	b <sub>1</sub>	С	D	d	E	е	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

#### Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE	OUTLINE REFERENCES					ISSUE DATE
VERSION	IEC	JEDEC	JEITA		PROJECTION	
SOT54		TO-92	SC-43A			<del>97-02-28</del> 04-06-28

Philips Semiconductors Product specification

### NPN Darlington transistor

BC517

#### **DATA SHEET STATUS**

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	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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Printed in The Netherlands

R75/06/pp6

Date of release: 2004 Nov 05

Document order number: 9397 750 13567

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