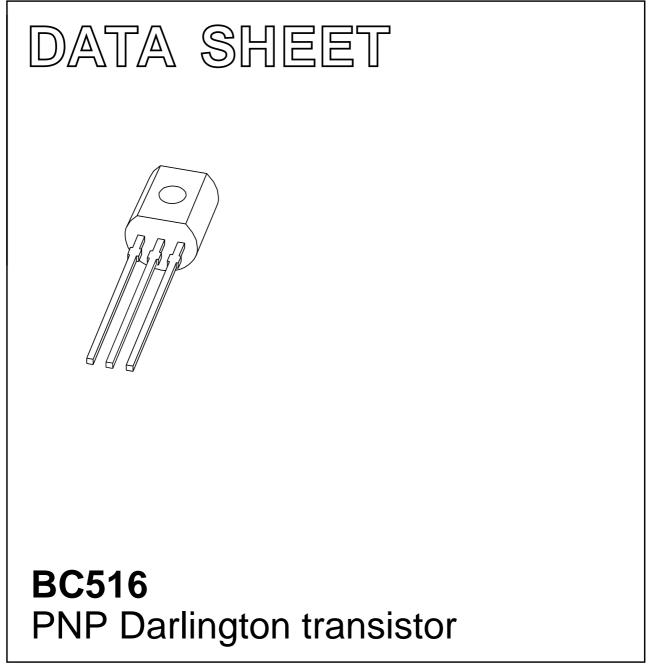
DISCRETE SEMICONDUCTORS



Product specification Supersedes data of 1999 Apr 23 2004 Nov 05



FEATURES

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

APPLICATIONS

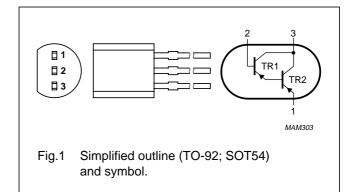
• Where very high amplification is required.

DESCRIPTION

PNP Darlington transistor in a TO-92; SOT54 plastic package. NPN complement: BC517.

PINNING

PIN	DESCRIPTION	
1	emitter	
2	base	
3	collector	



ORDERING INFORMATION

TYPE NUMBER		PACKAGE		
	NAME DESCRIPTION		VERSION	
BC516	SC-43A	3A plastic single-ended (through hole) package; 3 leads		

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)	open emitter	-	-40	V
V _{CES}	collector-emitter voltage	V _{BE} = 0 V	-	-30	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 (DC)		-	-100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	-	500	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-	150	°C
T _{amb}	ambient temperature		-65	+150	°C

Note

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

BC516

BC516

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th(j-a)}	thermal resistance from junction to ambient	note 1	250	K/W

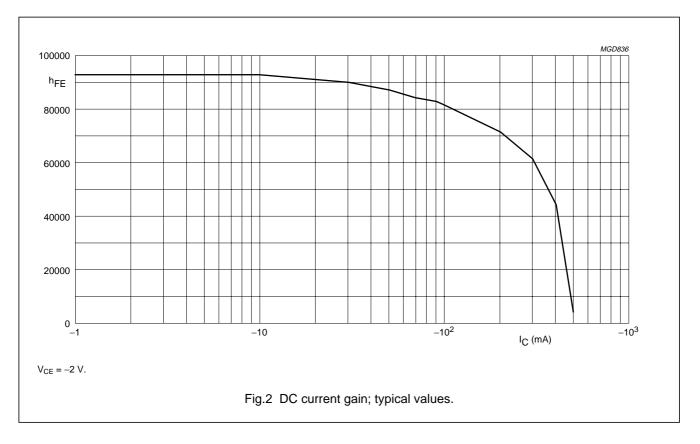
Note

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

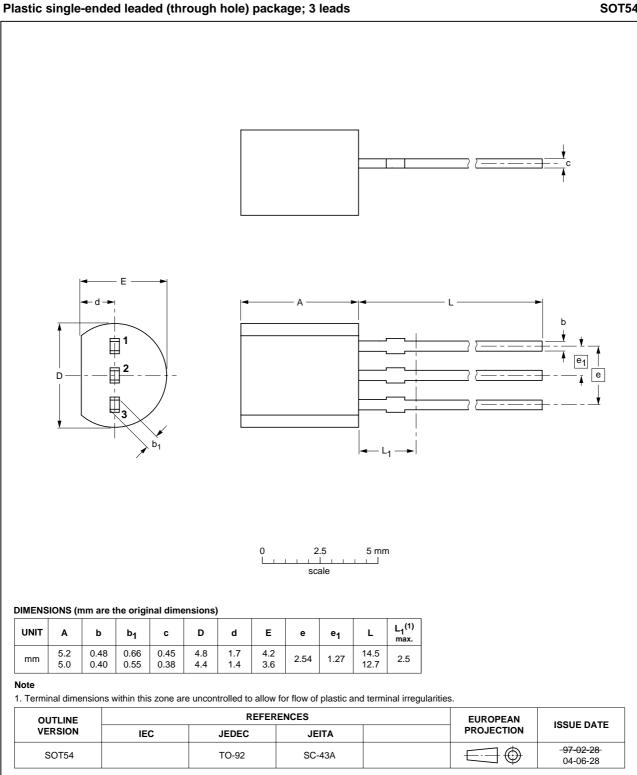
CHARACTERISTICS

 T_{amb} = 25 $^\circ C$ unless otherwise specified.

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



PACKAGE OUTLINE



BC516

SOT54

BC516

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
1	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.
11	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

- 1. Please consult the most recently issued data sheet before initiating or completing a design.
- 2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.
- 3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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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