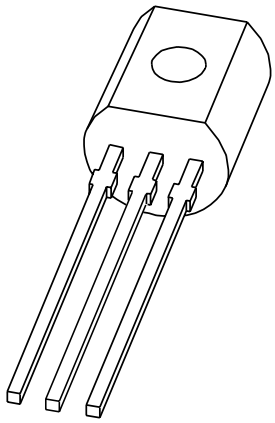
DATA SHEET



BC517
NPN Darlington transistor

Product specification
Supersedes data of 2003 Oct 16

2004 Nov 05

Philips
Semiconductors

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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

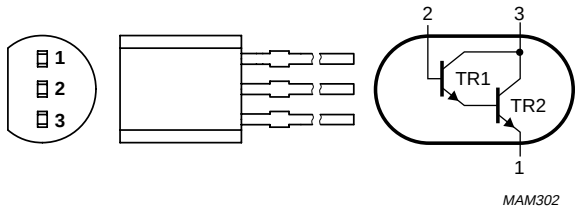


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	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_{CBO}	collector-base voltage	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	$T_{amb} \leq 25$ °C; note 1	–	625	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	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	200	K/W

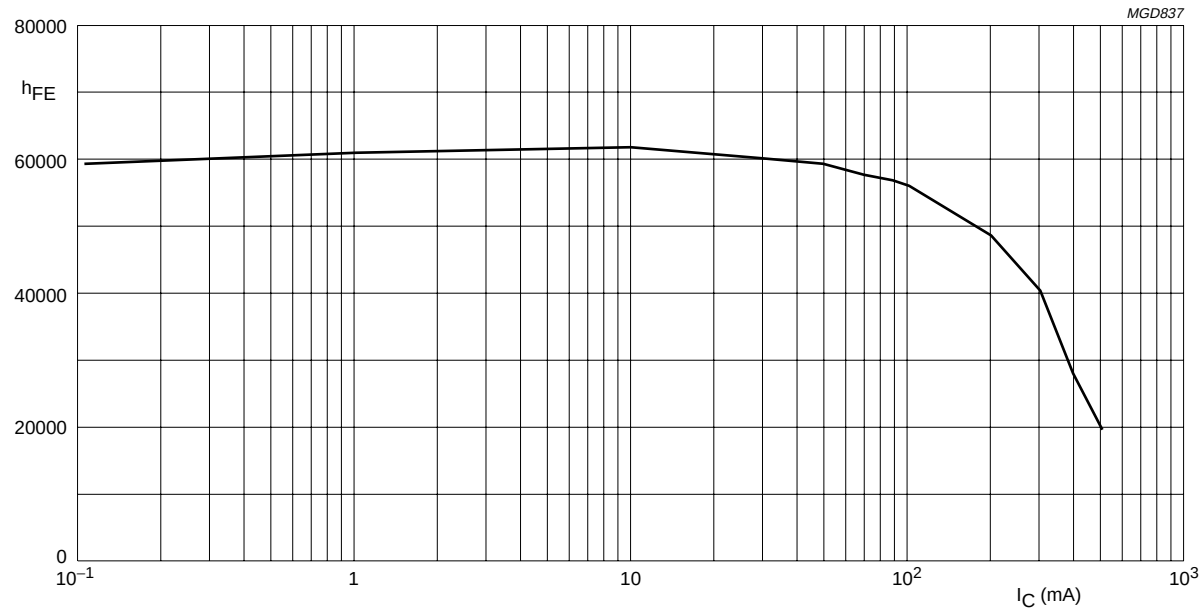
Note

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-base cut-off current	V_{CB} = 30 V; I_E = 0 A	–	–	100	nA
I_{EBO}	emitter-base cut-off current	V_{EB} = 10 V; I_C = 0 A	–	–	100	nA
h_{FE}	DC current gain	V_{CE} = 2 V; I_C = 20 mA; see Fig.2	30000	–	–	
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	V_{CE} = 5 V; I_C = 10 mA	–	–	1.4	V
f_T	transition frequency	V_{CE} = 5 V; I_C = 30 mA; f = 100 MHz	–	220	–	MHz

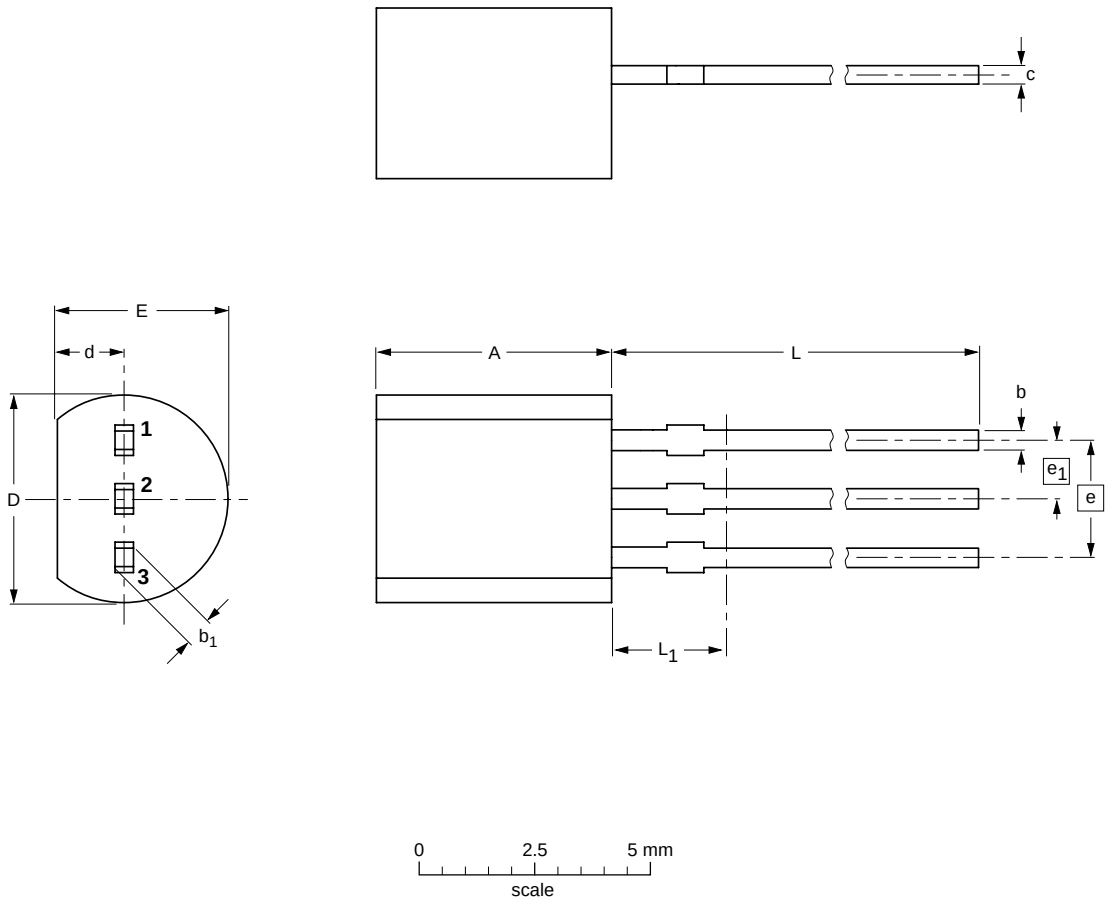


V_{CE} = 2 V.

Fig.2 DC current gain; typical values.

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads **SOT54**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b_1	c	D	d	E	e	e_1	L	L_1 (1) 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 VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT54		TO-92	SC-43A			~~97-02-28~~ 04-06-28

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS(1)	PRODUCT STATUS(2)(3)	DEFINITION
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