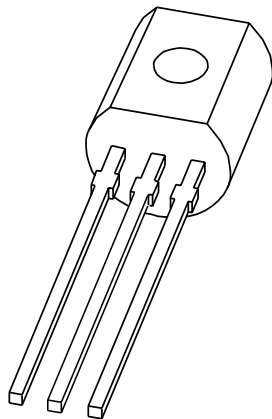


# DATA SHEET



## **BC618** NPN Darlington transistor

Product specification  
Supersedes data of 2003 Oct 16

2004 Nov 05

# NPN Darlington transistor

**BC618**

### FEATURES

- Low current (max. 500 mA)
- Low voltage (max. 55 V)
- High DC current gain.

### APPLICATIONS

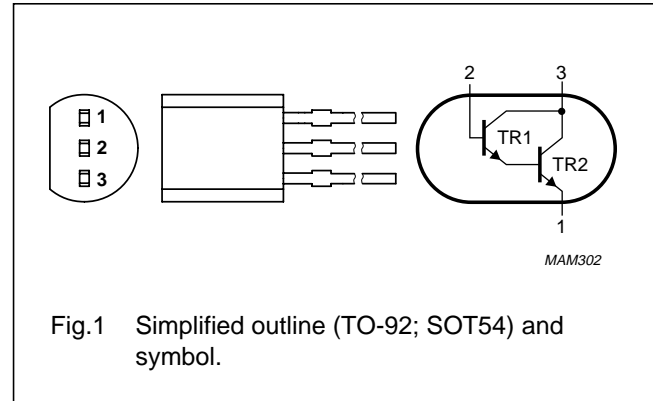
- General purpose low frequency
- Relay drivers.

### DESCRIPTION

NPN Darlington transistor in a TO-92; SOT54 plastic package.

### PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector



### ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC618	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54

## NPN Darlington transistor

BC618

**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	–	80	V
$V_{CES}$	collector-emitter voltage	$V_{BE} = 0$ V	–	55	V
$V_{EBO}$	emitter-base voltage	open collector	–	12	V
$I_C$	collector current (DC)		–	500	mA
$I_{CM}$	peak collector current		–	800	mA
$I_B$	base current (DC)		–	200	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.

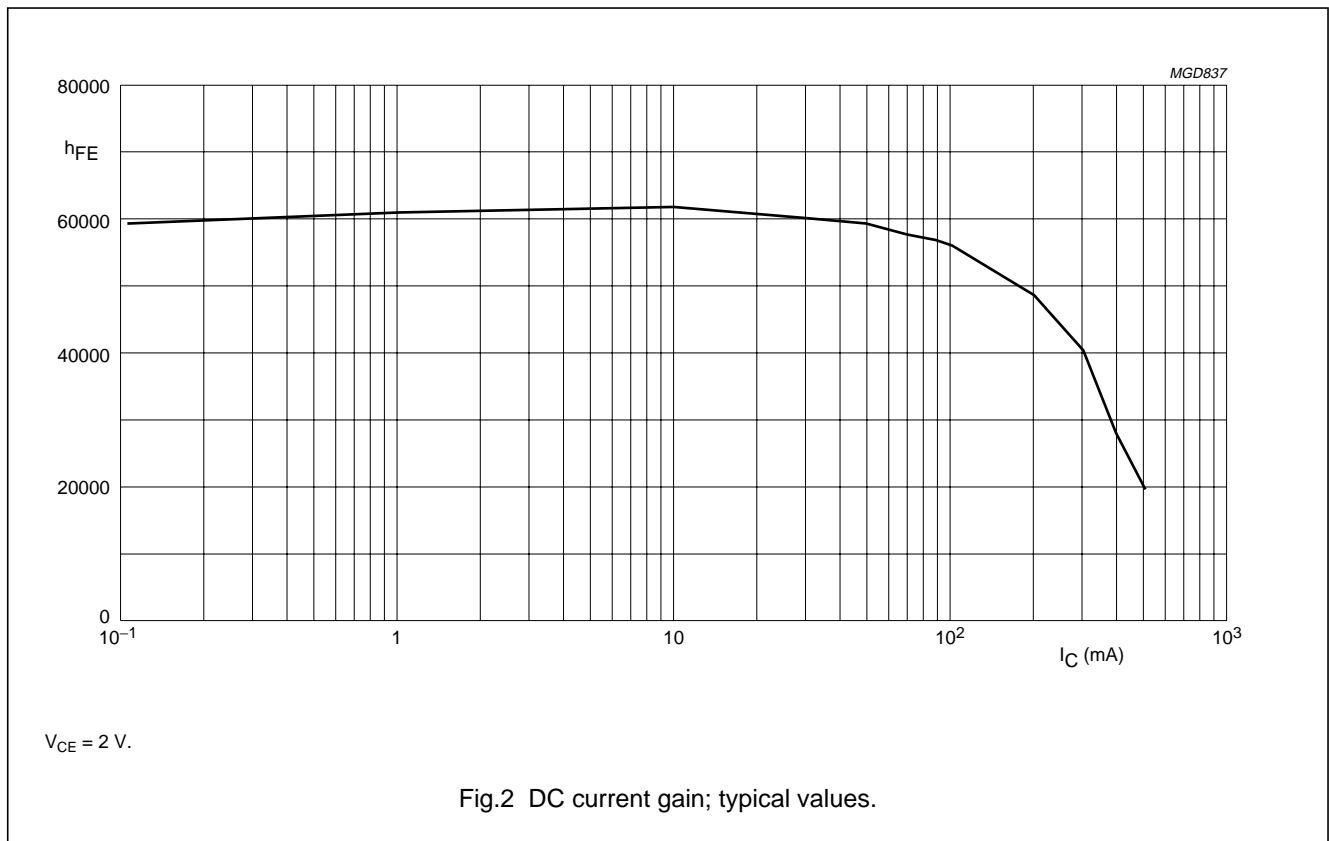
NPN Darlington transistor

BC618

**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = 60 V; I <sub>E</sub> = 0 A	–	–	50	nA
I <sub>CES</sub>	collector-emitter cut-off current	V <sub>BE</sub> = 0 V; V <sub>CE</sub> = 60 V	–	–	50	μA
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = 10 V; I <sub>C</sub> = 0 A	–	–	50	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 5 V; see Fig.2 I <sub>C</sub> = 1 mA I <sub>C</sub> = 10 mA I <sub>C</sub> = 200 mA	2000 4000 10000	– – –	– – 70000	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 200 mA; I <sub>B</sub> = 0.2 mA	–	–	1.1	V
V <sub>BEsat</sub>	base-emitter saturation voltage	I <sub>C</sub> = 200 mA; I <sub>B</sub> = 0.2 mA	–	–	1.6	V
C <sub>c</sub>	collector capacitance	V <sub>CB</sub> = 30 V; I <sub>E</sub> = 0 A	–	3.5	–	pF
f <sub>T</sub>	transition frequency	V <sub>CE</sub> = 5 V; I <sub>C</sub> = 500 mA; f = 100 MHz	155	–	–	MHz



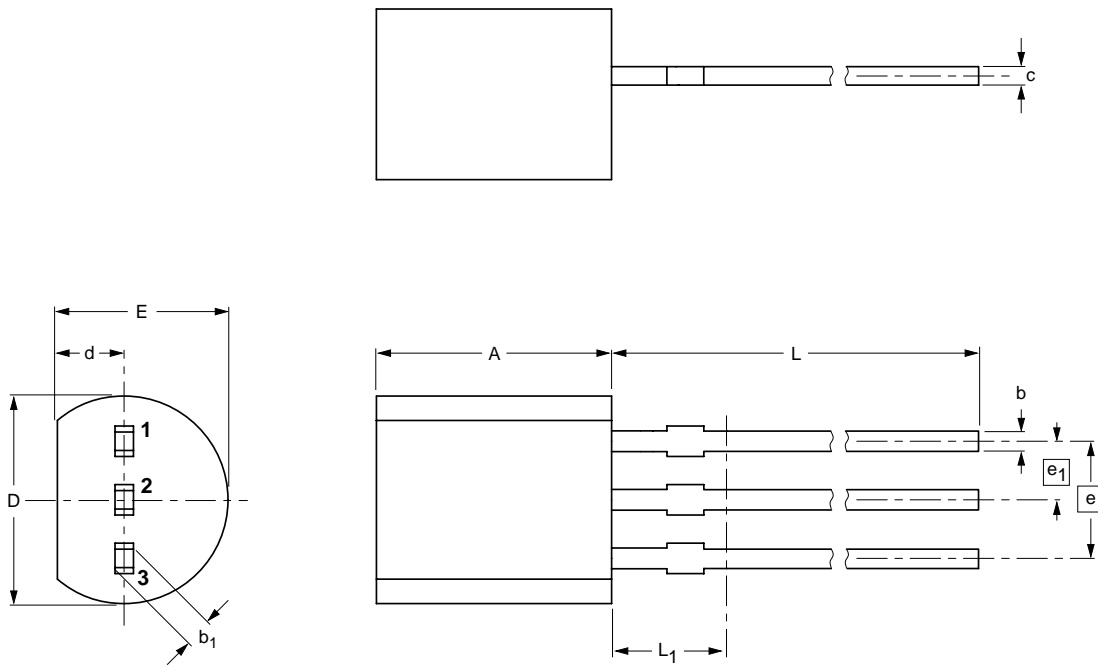
NPN Darlington transistor

BC618

PACKAGE OUTLINE

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

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	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 VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT54		TO-92	SC-43A		-97-02-28 04-06-28

## NPN Darlington transistor

BC618

## 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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