

# DATA SHEET



## **BC618** NPN Darlington transistor

Product data sheet  
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

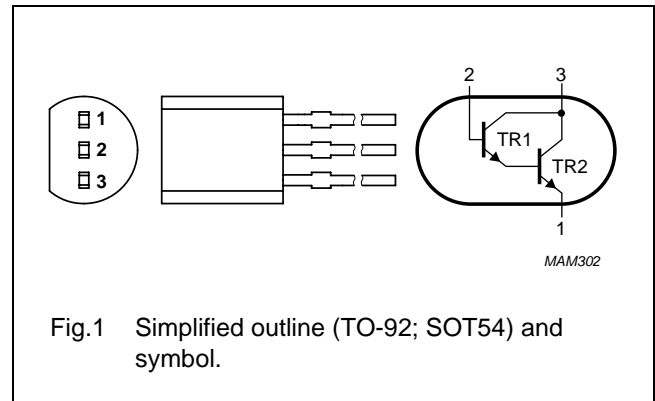
- General purpose low frequency
- Relay drivers.

### 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
$V_{CB0}$	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.

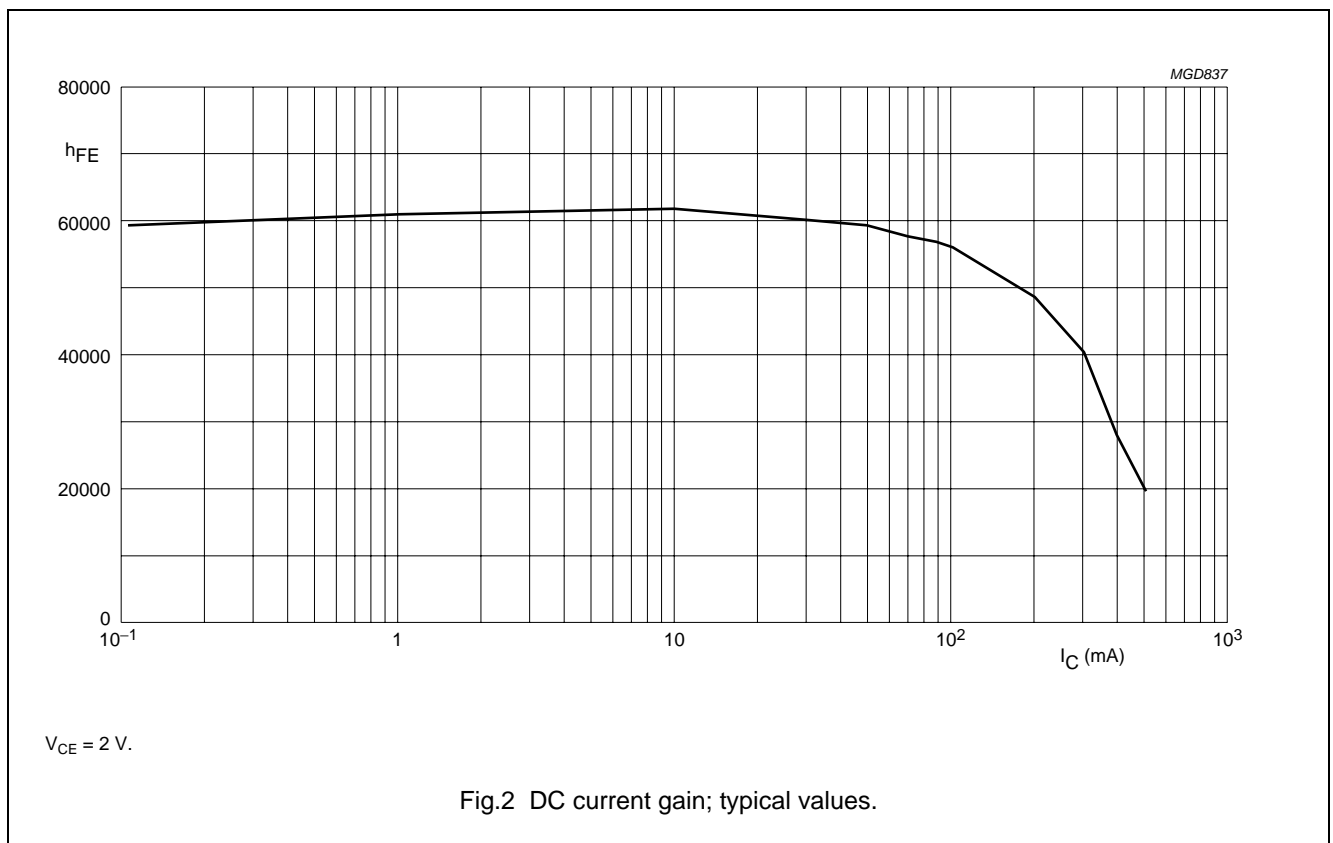
NPN Darlington transistor

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



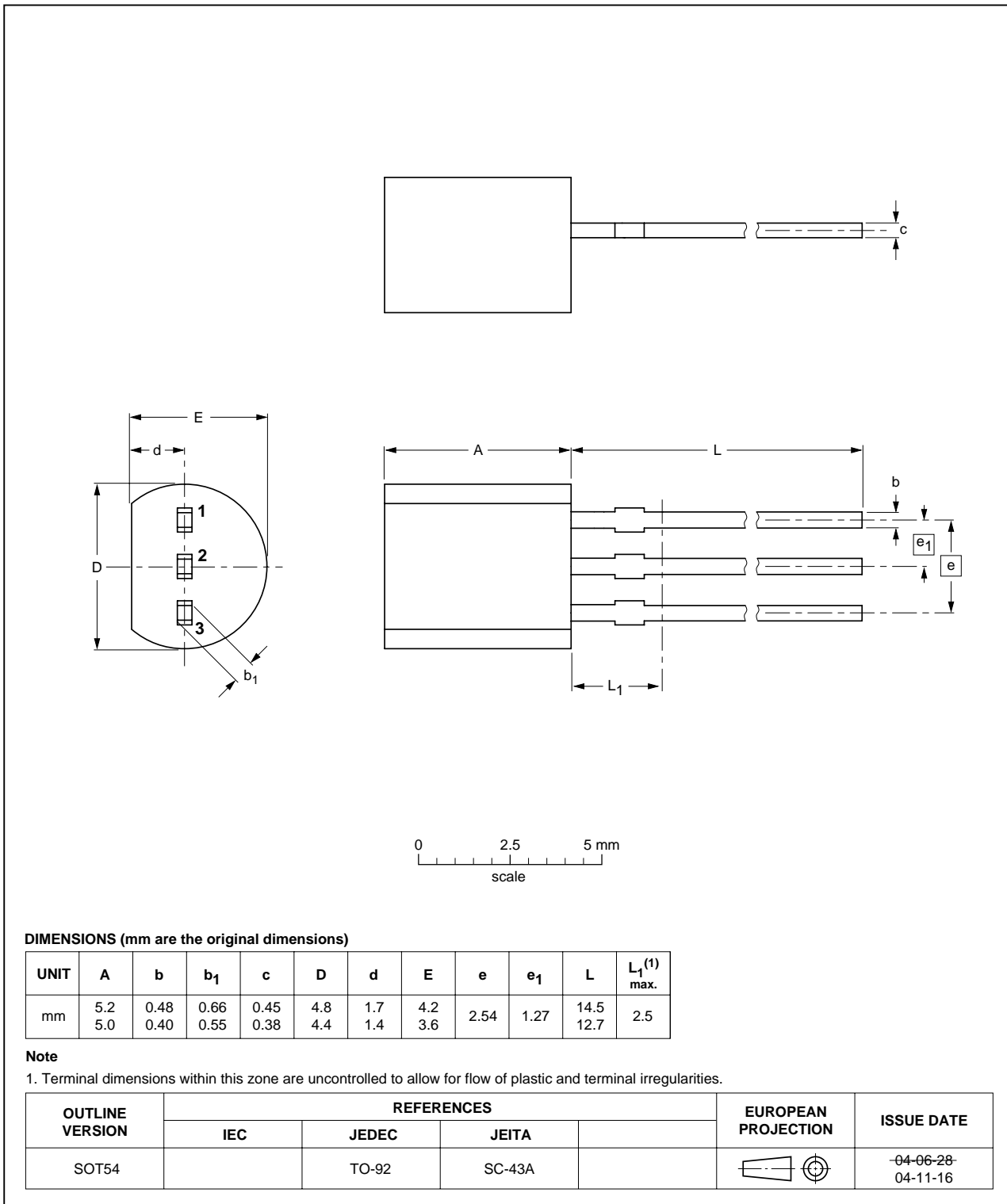
NPN Darlington transistor

BC618

PACKAGE OUTLINE

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

SOT54



NPN Darlington transistor

BC618

DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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.

Notes

1. Please consult the most recently issued document before initiating or completing a design.
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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**

For additional information please visit: <http://www.nxp.com>

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