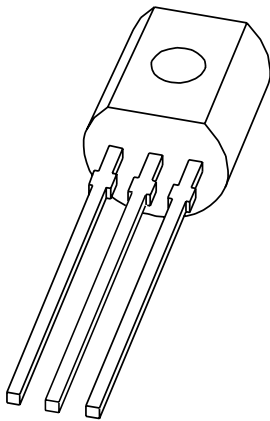


# DATA SHEET



## **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

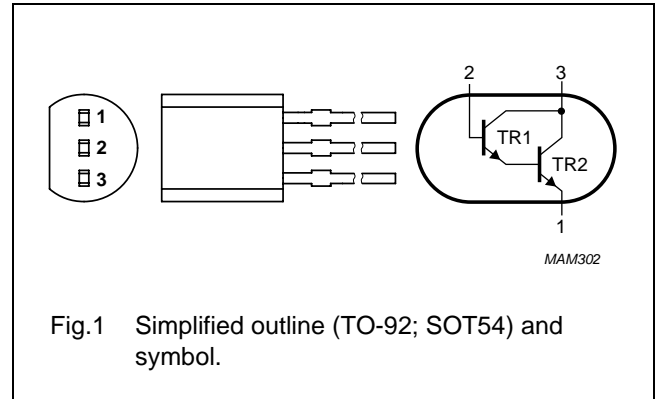
- General purpose low frequency
- Relay drivers.

### 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.

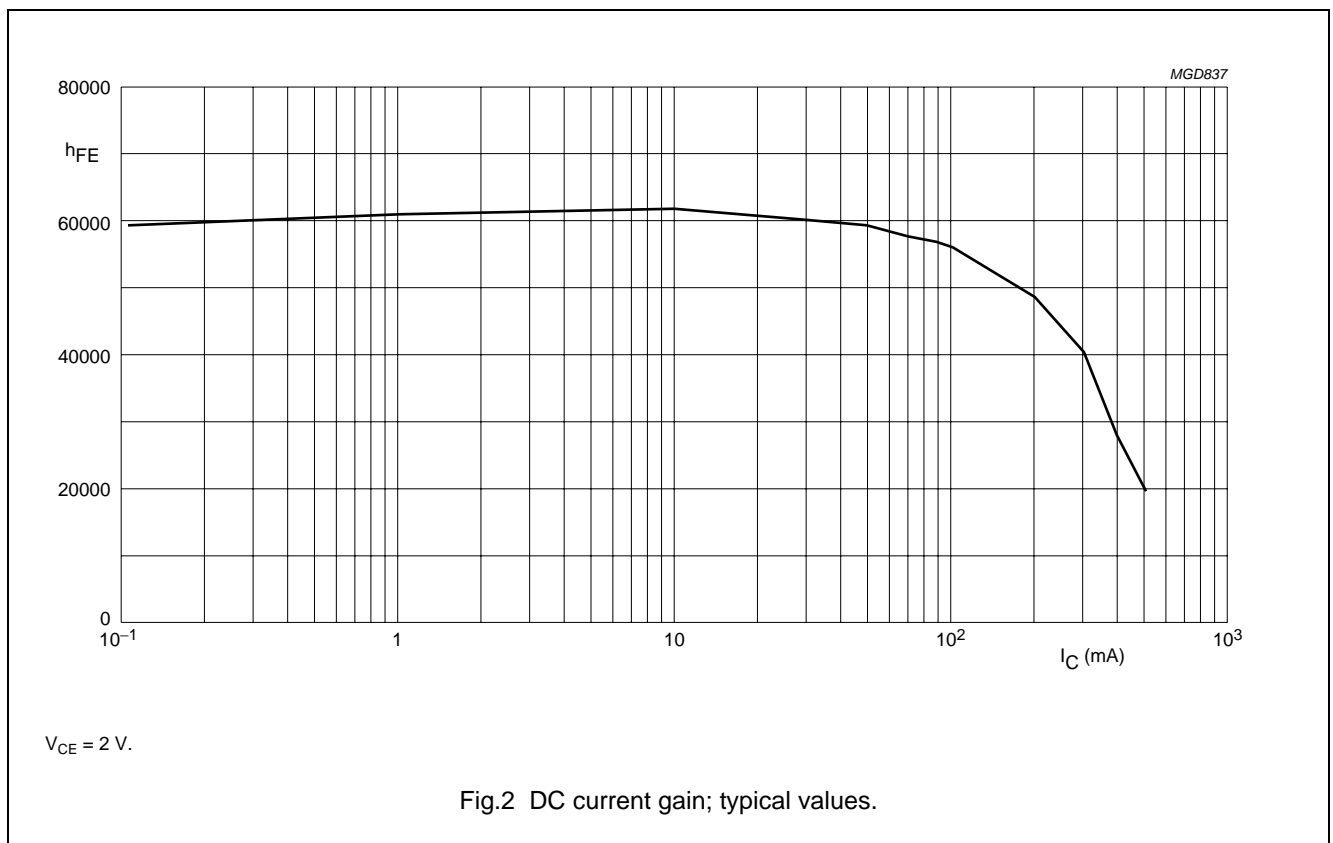
NPN Darlington transistor

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<br>I <sub>C</sub> = 1 mA<br>I <sub>C</sub> = 10 mA<br>I <sub>C</sub> = 200 mA | 2000<br>4000<br>10000 | –<br>–<br>– | –<br>–<br>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  |



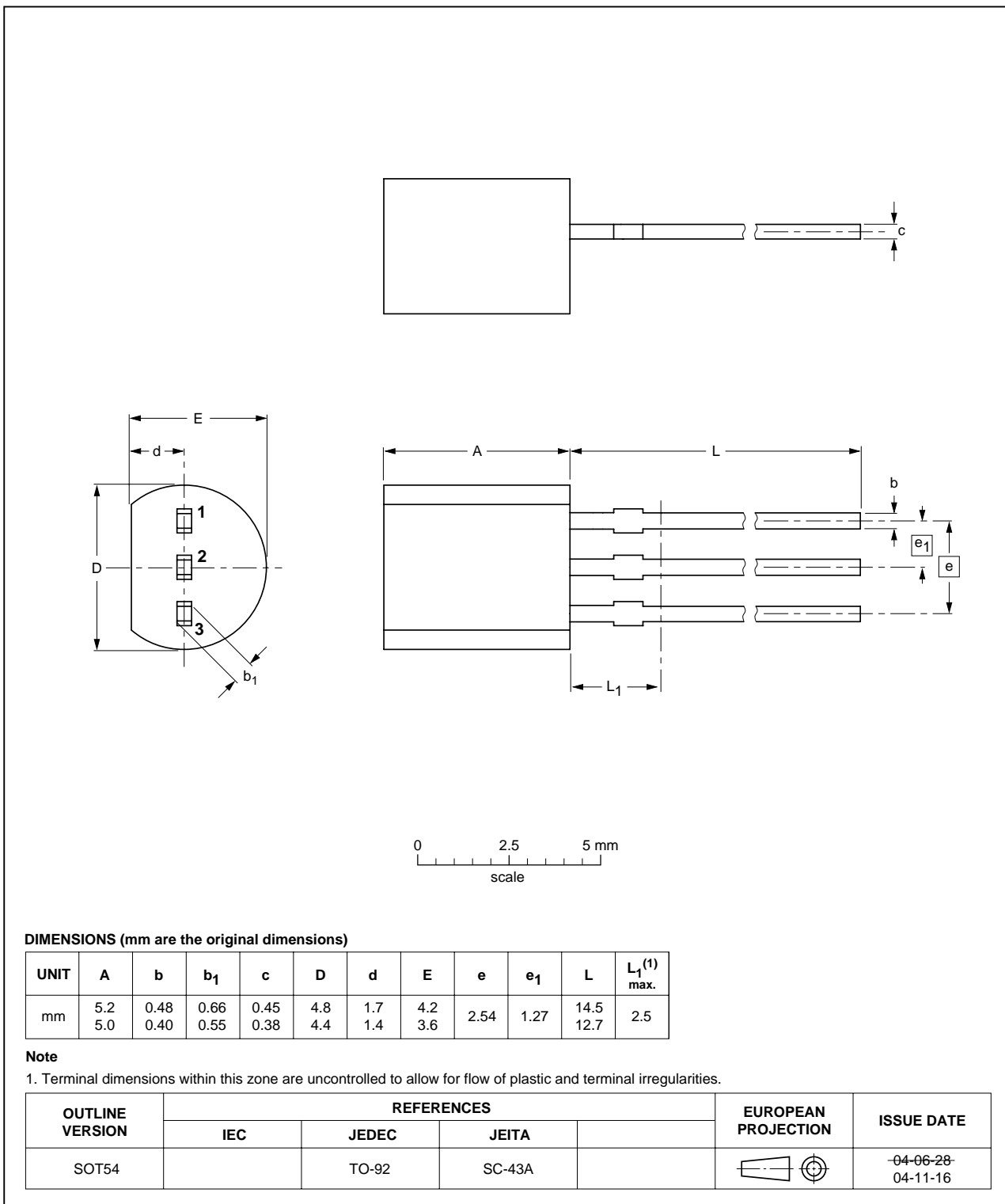
# NPN Darlington transistor

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.                                     |

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## **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**

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