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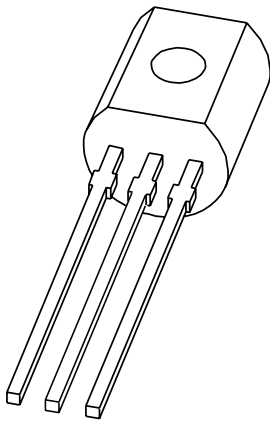
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DATA SHEET



BC556; BC557 PNP general purpose transistors

Product data sheet
Supersedes data of 1999 Apr 15

2004 Oct 11

PNP general purpose transistors

BC556; BC557

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

APPLICATIONS

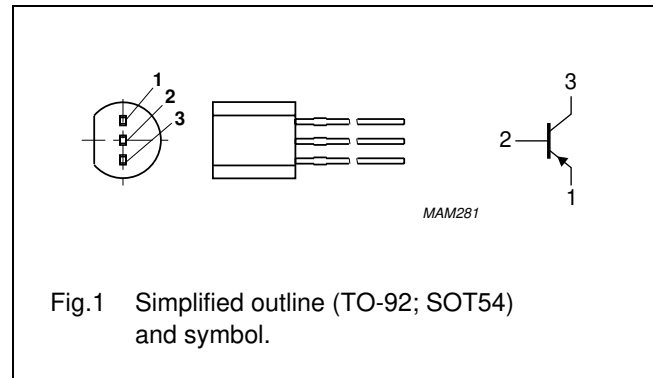
- General purpose switching and amplification.

DESCRIPTION

PNP transistor in a TO-92; SOT54 plastic package.
NPN complements: BC546 and BC547.

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | emitter |
| 2 | base |
| 3 | collector |



ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|---|---------|
| | NAME | DESCRIPTION | VERSION |
| BC556 | SC-43A | plastic single-ended leaded (through hole) package; 3 leads | SOT54 |
| BC557 | | | |

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 | | | |
| | BC556 | | – | –80 | V |
| | BC557 | | – | –50 | V |
| V _{CEO} | collector-emitter voltage | open base | | | |
| | BC556 | | – | –65 | V |
| | BC557 | | – | –45 | V |
| V _{EBO} | emitter-base voltage | open collector | – | –5 | V |
| I _C | collector current (DC) | | – | –100 | mA |
| I _{CM} | peak collector current | | – | –200 | mA |
| I _{BM} | peak base current | | – | –200 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C | – | 500 | mW |
| T _{stg} | storage temperature | | –65 | +150 | °C |
| T _j | junction temperature | | – | 150 | °C |
| T _{amb} | ambient temperature | | –65 | +150 | °C |

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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

$T_{amb} = 25\text{ °C}$ unless otherwise specified.

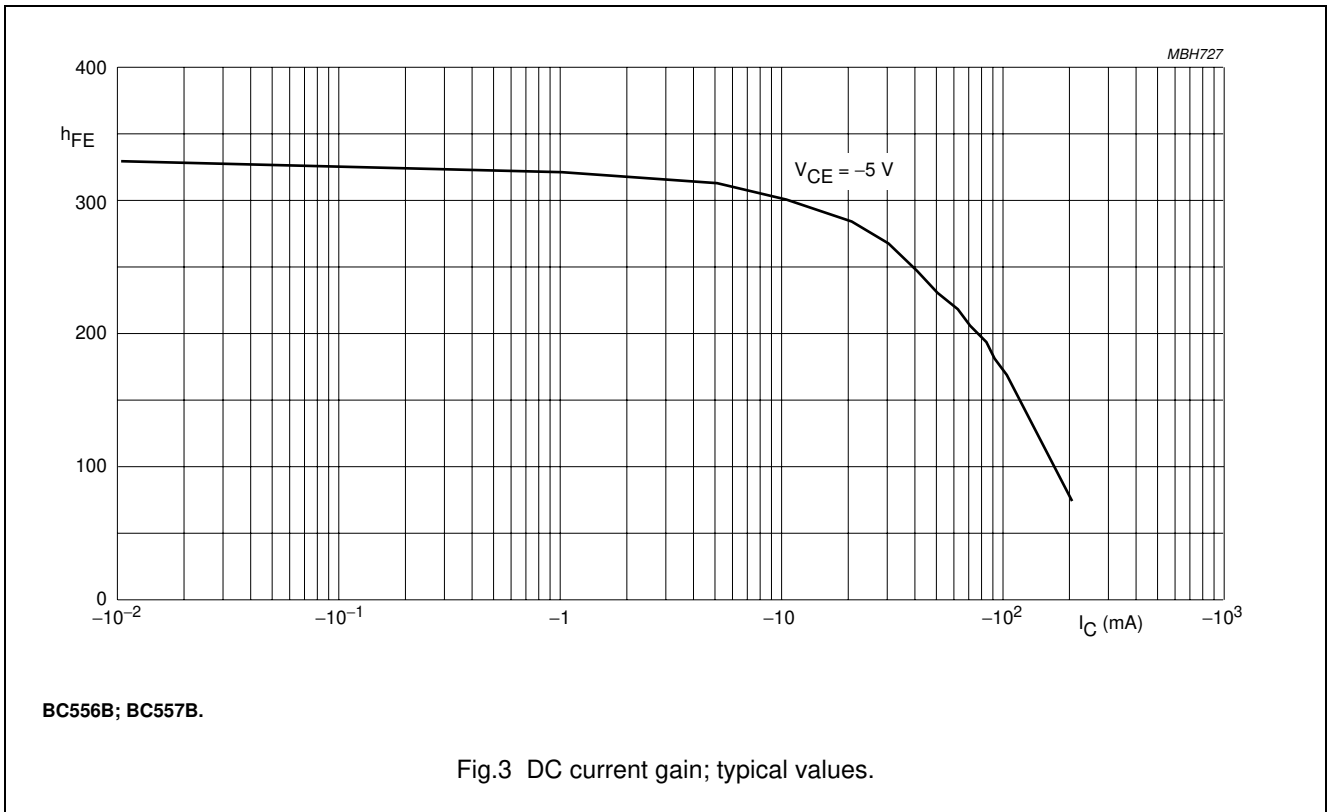
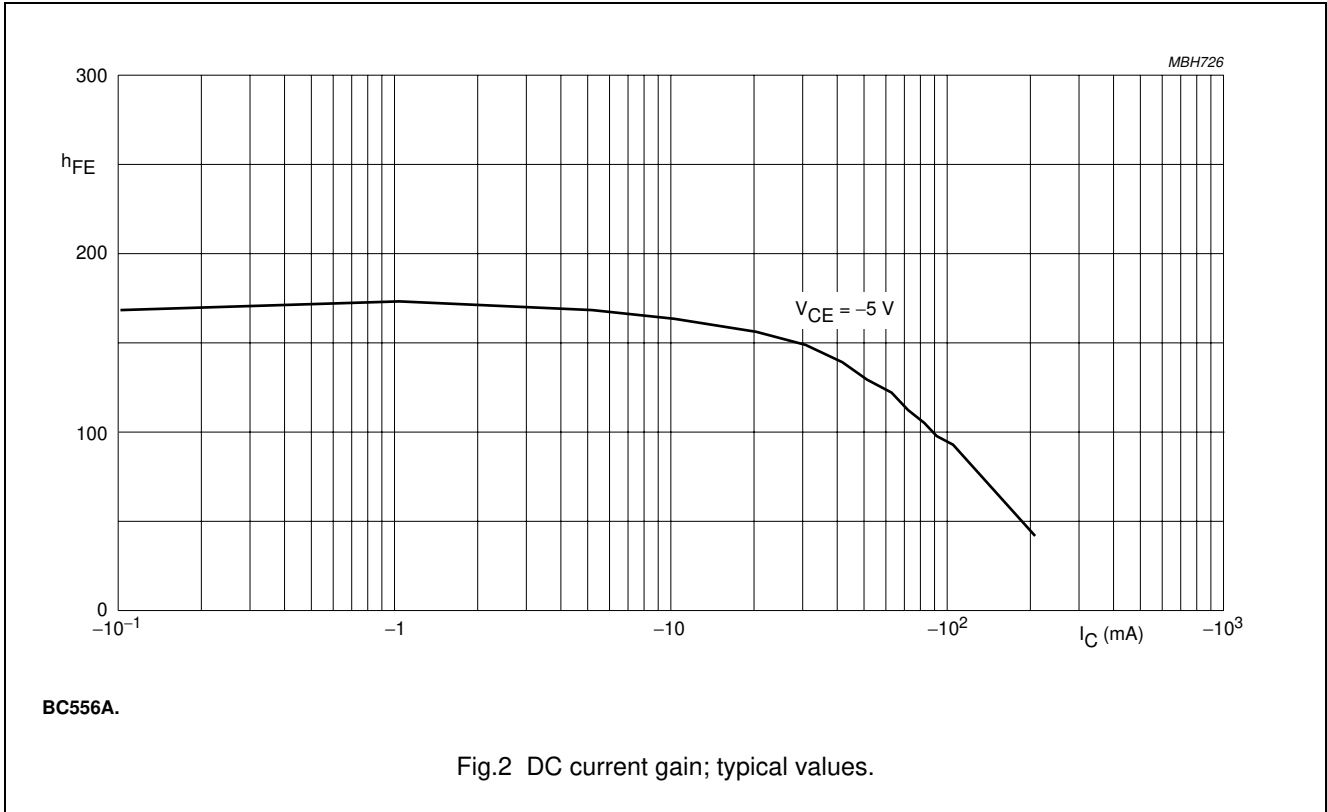
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------|---|---|------|------|------|---------------|
| I_{CBO} | collector-base cut-off current | $V_{CB} = -30\text{ V}; I_E = 0\text{ A}$ | – | –1 | –15 | nA |
| | | $V_{CB} = -30\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ °C}$ | – | – | –4 | μA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = -5\text{ V}; I_C = 0\text{ V}$ | – | – | –100 | nA |
| h_{FE} | DC current gain BC556 BC557 BC556A BC556B; BC557B BC557C | $I_C = -2\text{ mA}; V_{CE} = -5\text{ V};$ see Figs 2, 3 and 4 | 125 | – | 475 | |
| | | | 125 | – | 800 | |
| | | | 125 | – | 250 | |
| | | | 220 | – | 475 | |
| | | | 420 | – | 800 | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$ | – | –60 | –300 | mV |
| | | $I_C = -100\text{ mA}; I_B = -5\text{ mA}$ | – | –180 | –650 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA};$ note 1 | – | –750 | – | mV |
| | | $I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1 | – | –930 | – | mV |
| V_{BE} | base-emitter voltage | $V_{CE} = -5\text{ V}; I_C = -2\text{ mA};$ note 2 | –600 | –650 | –750 | mV |
| | | $V_{CE} = -5\text{ V}; I_C = -10\text{ mA};$ note 2 | – | – | –820 | mV |
| C_c | collector capacitance | $V_{CB} = -10\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$ | – | 3 | – | pF |
| C_e | emitter capacitance | $V_{EB} = -0.5\text{ V}; I_C = i_c = 0\text{ A}; f = 1\text{ MHz}$ | – | 10 | – | pF |
| f_T | transition frequency | $V_{CE} = -5\text{ V}; I_C = -10\text{ mA}; f = 100\text{ MHz}$ | 100 | – | – | MHz |
| F | noise figure | $V_{CE} = -5\text{ V}; I_C = -200\text{ }\mu\text{A}; R_S = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 200\text{ Hz}$ | – | 2 | 10 | dB |

Notes

1. V_{BEsat} decreases by about -1.7 mV/K with increasing temperature.
2. V_{BE} decreases by about -2 mV/K with increasing temperature.

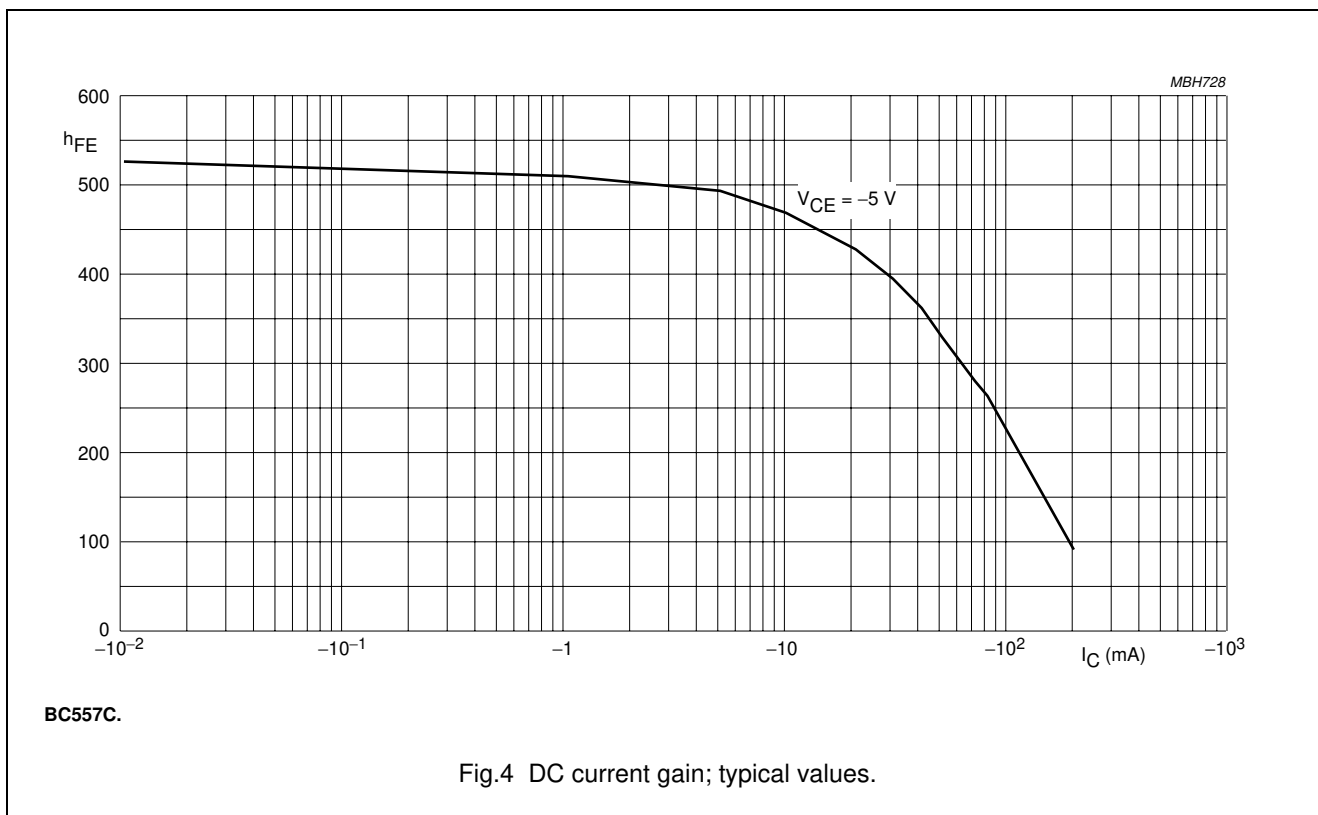
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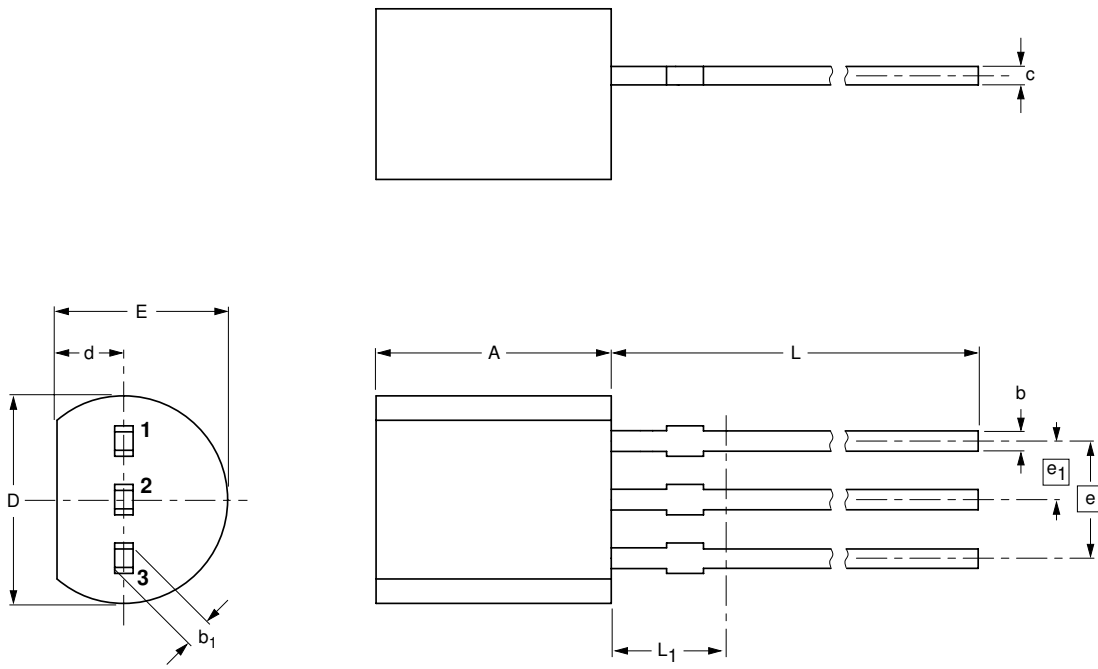
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PACKAGE OUTLINE

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 | | 04-06-28 04-11-16 |

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DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | 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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Contact information

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