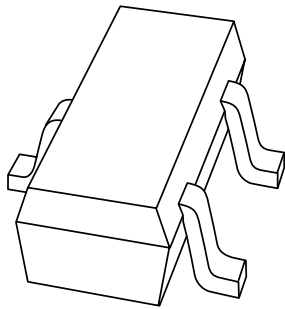


DATA SHEET



BC856T; BC857T PNP general purpose transistors

Product specification
Supersedes data of 1997 Jul 07

1999 Apr 26

PNP general purpose transistors

BC856T; BC857T

FEATURES

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

APPLICATIONS

- General purpose switching and amplification especially in portable equipment.

DESCRIPTION

PNP transistor in an SC-75 plastic package.
NPN complements: BC846T and BC847T.

MARKING

| TYPE NUMBER | MARKING CODE | TYPE NUMBER | MARKING CODE |
|-------------|--------------|-------------|--------------|
| BC856AT | 3A | BC857BT | 3F |
| BC856BT | 3B | BC857CT | 3G |
| BC857AT | 3E | | |

PINNING

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

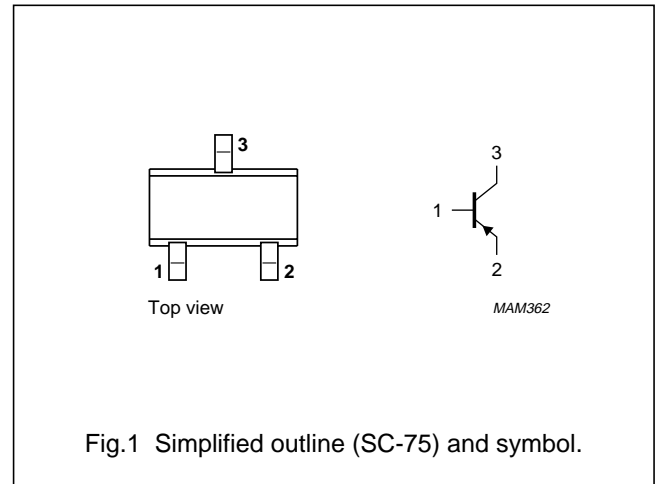


Fig.1 Simplified outline (SC-75) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|---|----------------------------------|------|------|------|
| V _{CBO} | collector-base voltage | open emitter | – | –80 | V |
| | BC856AT; BC856BT BC857AT; BC857BT; BC857CT | | – | –50 | V |
| V _{CEO} | collector-emitter voltage | open base | – | –65 | V |
| | BC856AT; BC856BT BC857AT; BC857BT; BC857CT | | – | –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 | | – | –100 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C; note 1 | – | 150 | mW |
| T _{stg} | storage temperature | | –65 | +150 | °C |
| T _j | junction temperature | | – | 150 | °C |
| T _{amb} | operating ambient temperature | | –65 | +150 | °C |

Note

1. Transistor mounted on an FR4 printed-circuit board.

PNP general purpose transistors

BC856T; BC857T

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 833 | K/W |

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

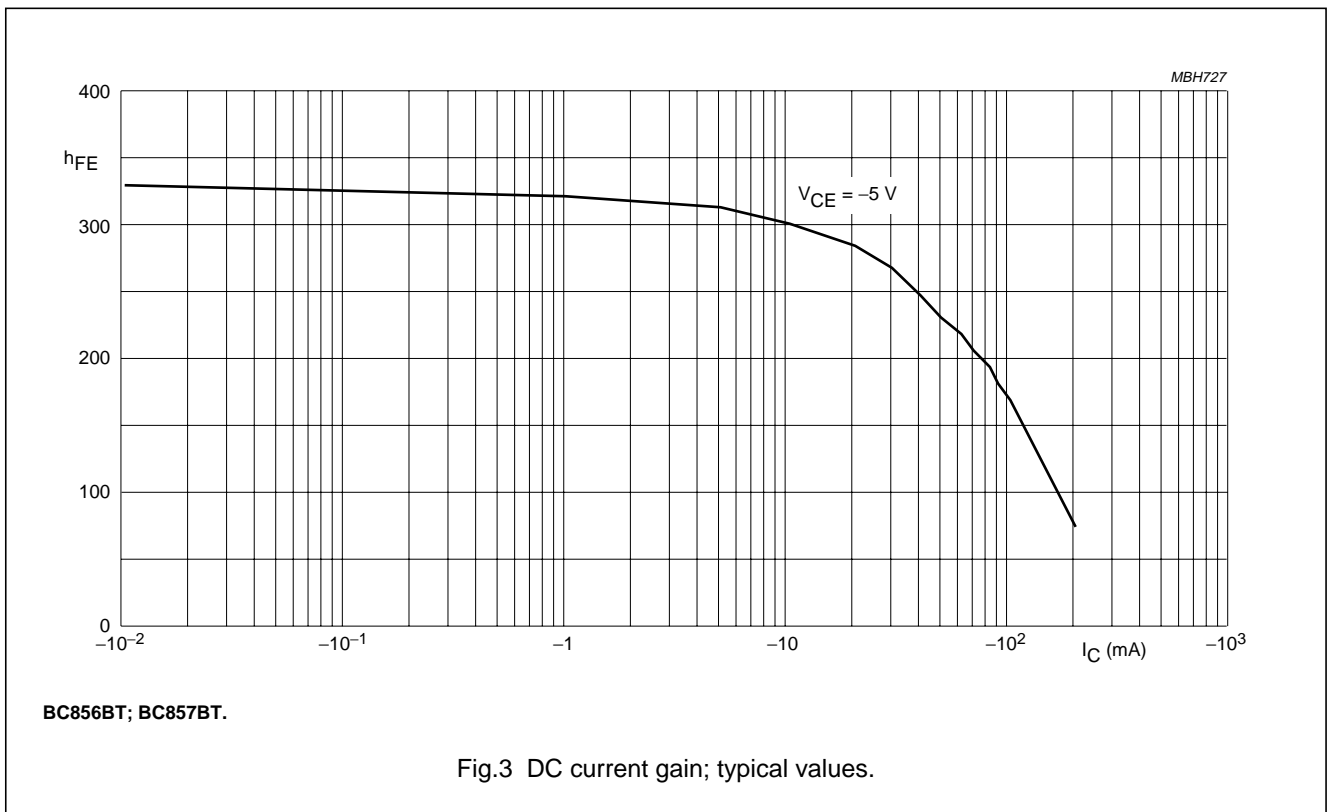
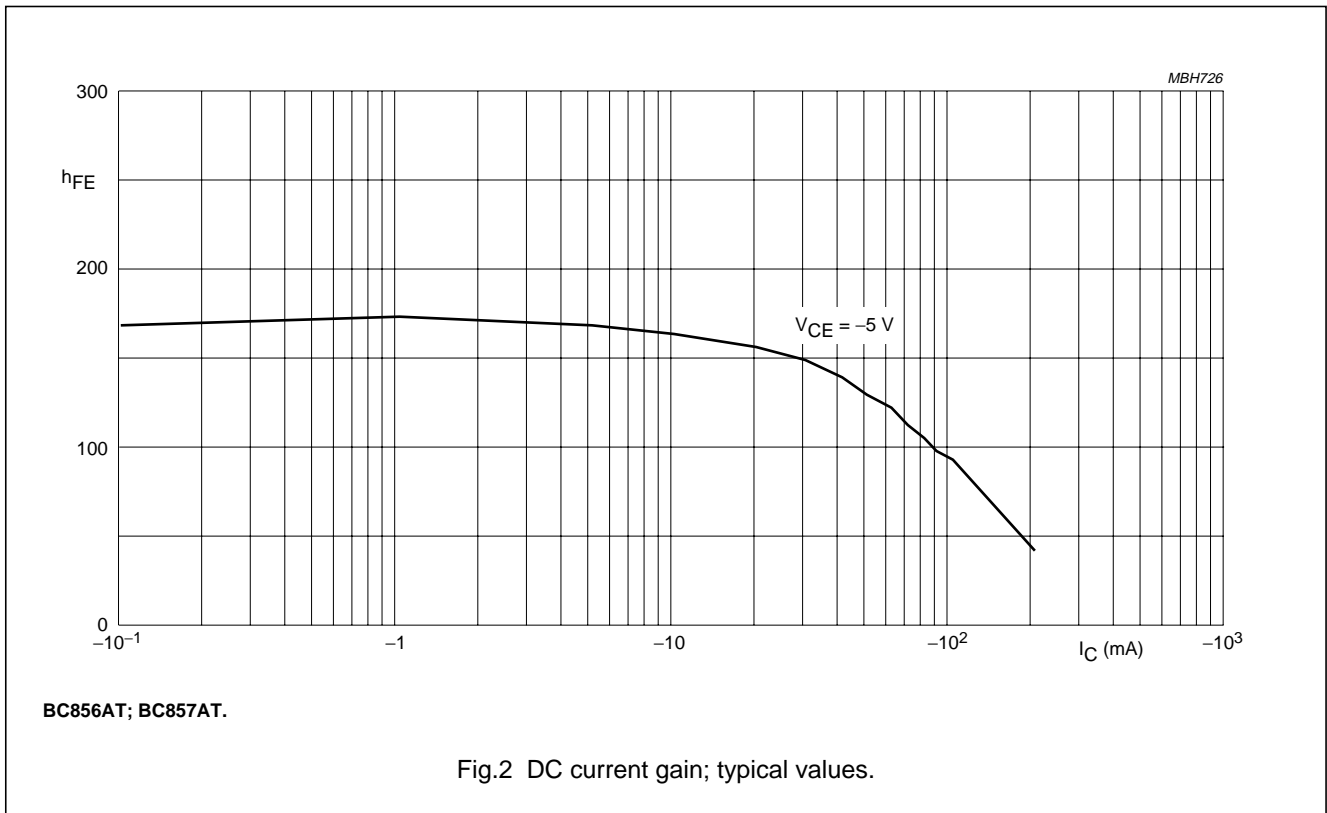
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------|--|--|------|------|------|---------------|
| I_{CBO} | collector cut-off current | $I_E = 0; V_{CB} = -30\text{ V}$ | – | – | –15 | nA |
| | | $I_E = 0; V_{CB} = -30\text{ V}; T_j = 150\text{ °C}$ | – | – | –5 | μA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = -5\text{ V}$ | – | – | –100 | nA |
| h_{FE} | DC current gain BC856AT; BC857AT BC856BT; BC857BT BC857CT | $I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$ | 125 | – | 250 | |
| | | | 220 | – | 475 | |
| | | | 420 | – | 800 | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$ | – | – | –200 | mV |
| | | $I_C = -100\text{ mA}; I_B = -5\text{ mA}; \text{note 1}$ | – | – | –400 | mV |
| V_{BE} | base-emitter voltage | $I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$ | –600 | – | –750 | mV |
| | | $I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$ | – | – | –820 | mV |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$ | – | – | 2.5 | pF |
| C_e | emitter capacitance | $I_C = i_c = 0; V_{EB} = -500\text{ mV}; f = 1\text{ MHz}$ | – | 10 | – | pF |
| f_T | transition frequency | $I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$ | 100 | – | – | MHz |
| F | noise figure | $I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega; f = 1\text{ kHz}; B = 220\text{ Hz}$ | – | – | 10 | dB |

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

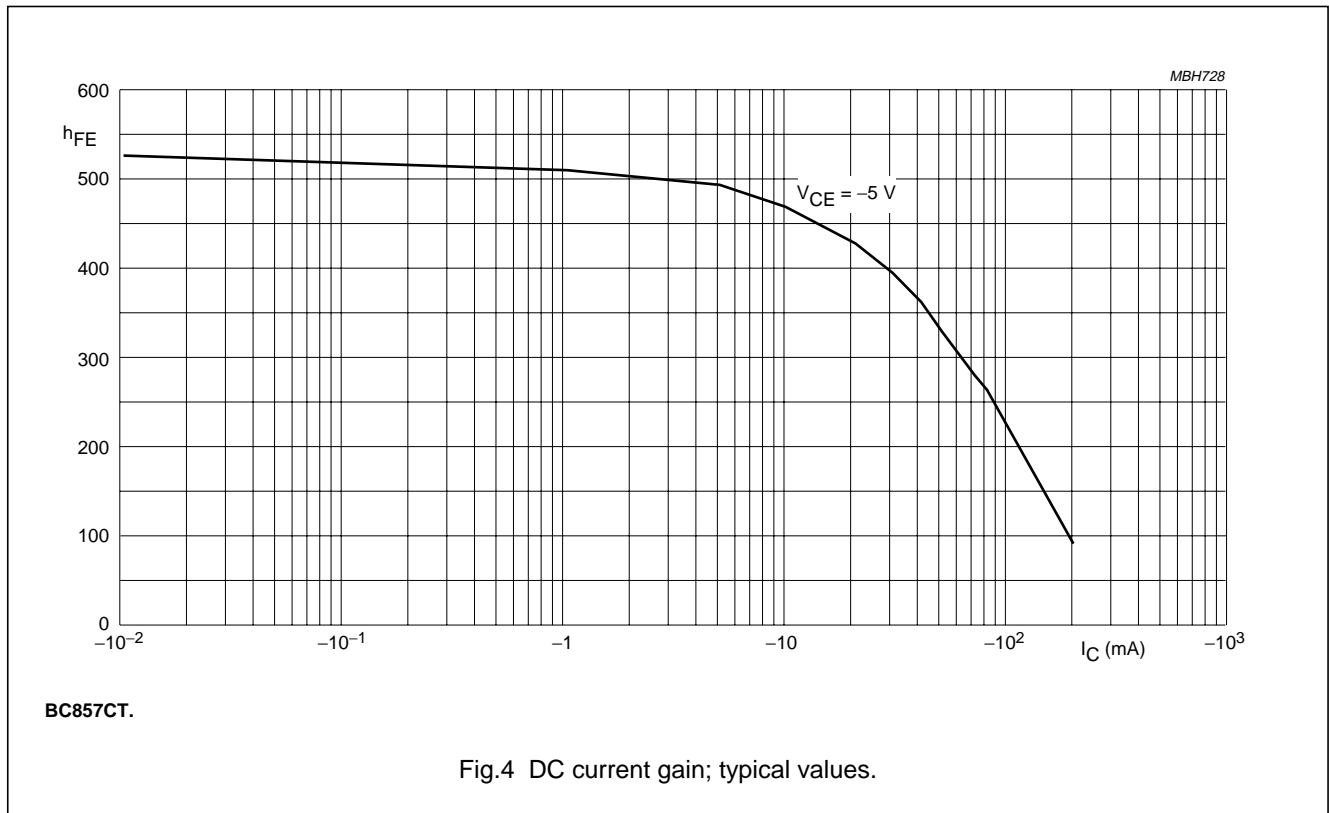
PNP general purpose transistors

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PNP general purpose transistors

BC856T; BC857T



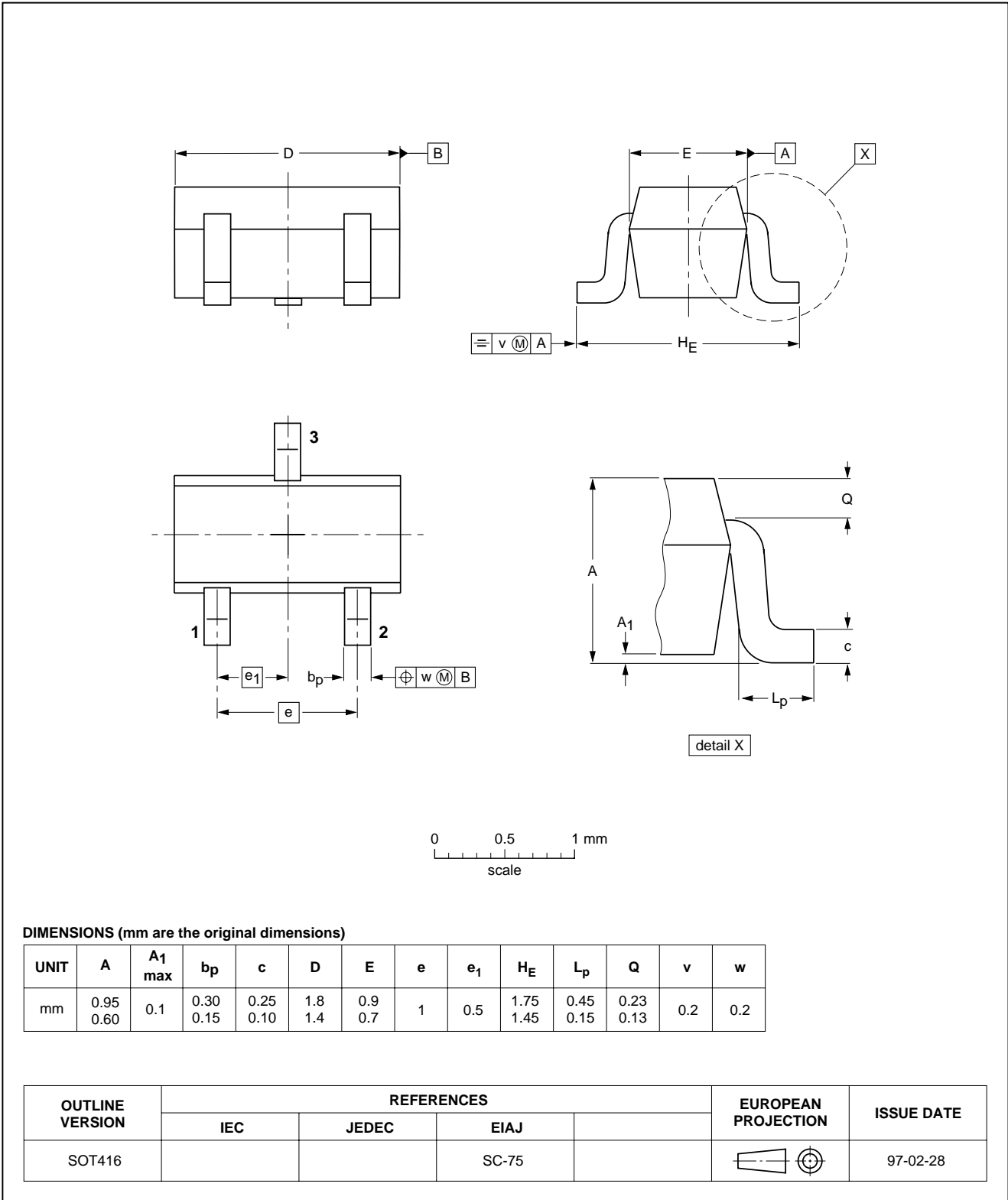
PNP general purpose transistors

BC856T; BC857T

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT416



PNP general purpose transistors

BC856T; BC857T

DEFINITIONS

| | |
|---|---|
| Data sheet status | |
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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