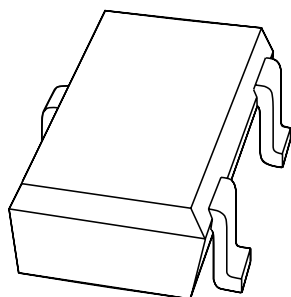


DATA SHEET



BC817W; BC818W NPN general purpose transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Mar 05

NPN general purpose transistors

BC817W; BC818W

FEATURES

- High current (max. 500 mA)
- Low voltage (max. 45 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

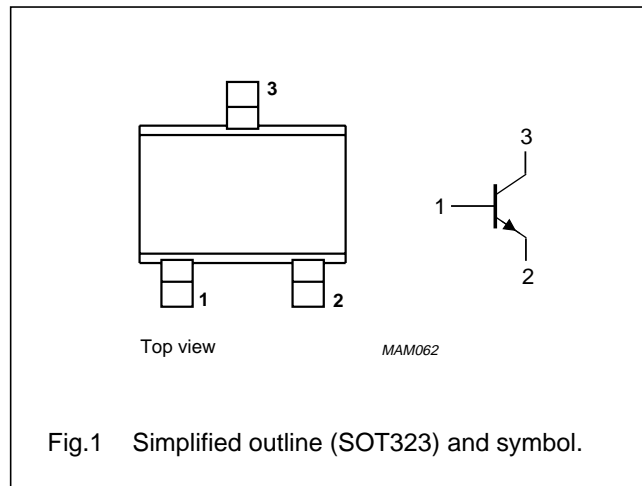
NPN transistor in a SOT323 plastic package.
PNP complements: BC807W and BC808W.

MARKING

| TYPE NUMBER | MARKING CODE | TYPE NUMBER | MARKING CODE |
|-------------|--------------|-------------|--------------|
| BC817W | 6Dt | BC818W | 6Ht |
| BC817-16W | 6At | BC818-16W | 6Et |
| BC817-25W | 6Bt | BC818-25W | 6Ft |
| BC817-40W | 6Ct | BC818-40W | 6Gt |

PINNING

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



QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|---|--|------|------|------|
| V _{CBO} | collector-base voltage BC817W BC818W | open emitter | – | 50 | V |
| | | | – | 30 | V |
| V _{CEO} | collector-emitter voltage BC817W BC818W | open base | – | 45 | V |
| | | | – | 25 | V |
| I _{CM} | peak collector current | | – | 1 | A |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C | – | 200 | mW |
| h _{FE} | DC current gain | I _C = 100 mA; V _{CE} = 1 V | 100 | 600 | |
| | | I _C = 500 mA; V _{CE} = 1 V | 40 | – | |
| f _T | transition frequency | I _C = 10 mA; V _{CE} = 5 V; f = 100 MHz | 100 | – | MHz |

NPN general purpose transistors

BC817W; BC818W

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 | | | |
| | BC817W | | – | 50 | V |
| | BC818W | | – | 30 | V |
| V _{CEO} | collector-emitter voltage | open base; I _C = 10 mA | | | |
| | BC817W | | – | 45 | V |
| | BC818W | | – | 25 | V |
| V _{EBO} | emitter-base voltage | open collector | – | 5 | V |
| I _C | collector current (DC) | | – | 500 | mA |
| I _{CM} | peak collector current | | – | 1 | A |
| I _{BM} | peak base current | | – | 200 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C; note 1 | – | 200 | 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.

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------------|---|------------|-------|------|
| R _{th j-a} | thermal resistance from junction to ambient | note 1 | 625 | K/W |

Note

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

NPN general purpose transistors

BC817W; BC818W

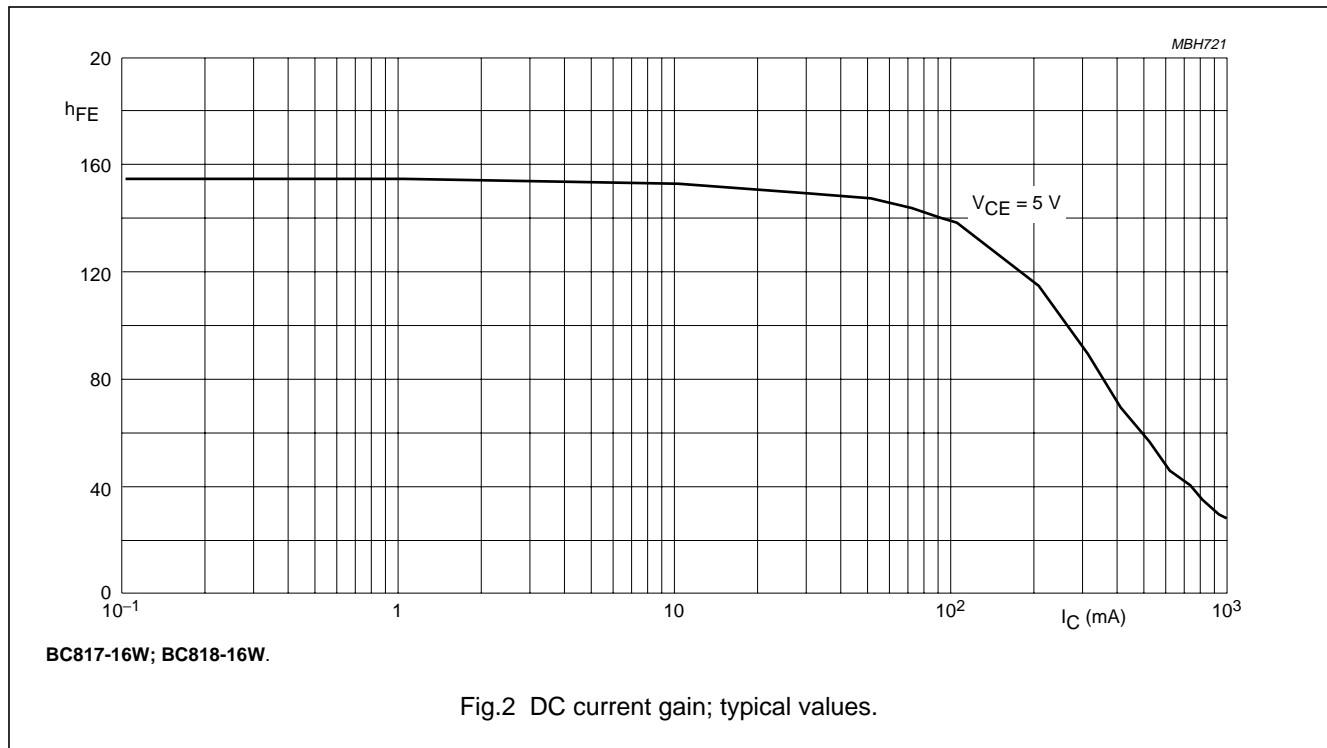
CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-------------|---|--|------|------|---------------|
| I_{CBO} | collector cut-off current | $I_E = 0; V_{CB} = 20\text{ V}$ | – | 100 | nA |
| | | $I_E = 0; V_{CB} = 20\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ | – | 5 | μA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = 5\text{ V}$ | – | 100 | nA |
| h_{FE} | DC current gain BC817W; BC818W BC817-16W; BC818-16W BC817-25W; BC818-25W BC817-40W; BC818-40W | $I_C = 100\text{ mA}; V_{CE} = 1\text{ V};$ note 1; see Figs 2, 3 and 4 | 100 | 600 | |
| | | | 100 | 250 | |
| | | | 160 | 400 | |
| | | | 250 | 600 | |
| h_{FE} | DC current gain | $I_C = 500\text{ mA}; V_{CE} = 1\text{ V};$ note 1 | 40 | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 500\text{ mA}; I_B = 50\text{ mA};$ note 1 | – | 700 | mV |
| V_{BE} | base-emitter voltage | $I_C = 500\text{ mA}; V_{CE} = 1\text{ V};$ note 1 | – | 1.2 | mV |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$ | – | 5 | pF |
| f_T | transition frequency | $I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$ | 100 | – | MHz |

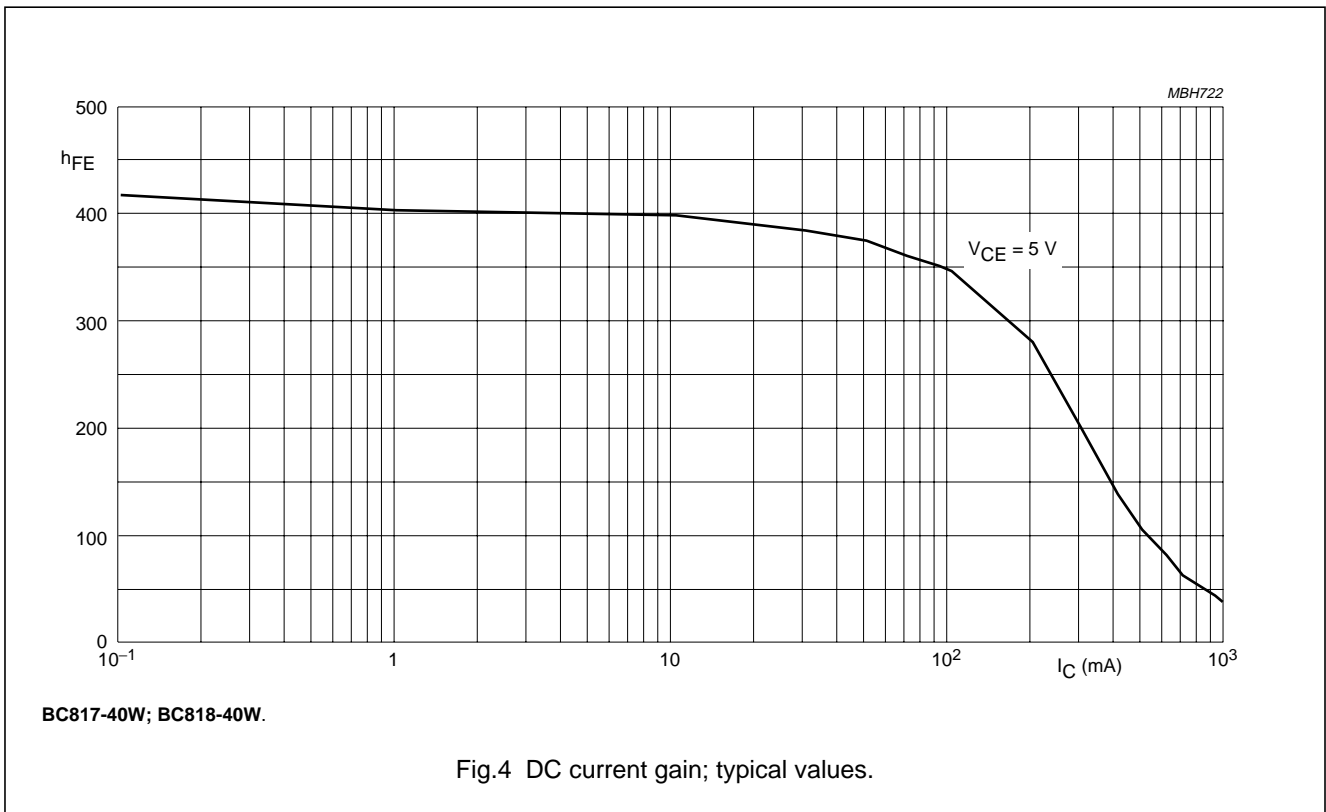
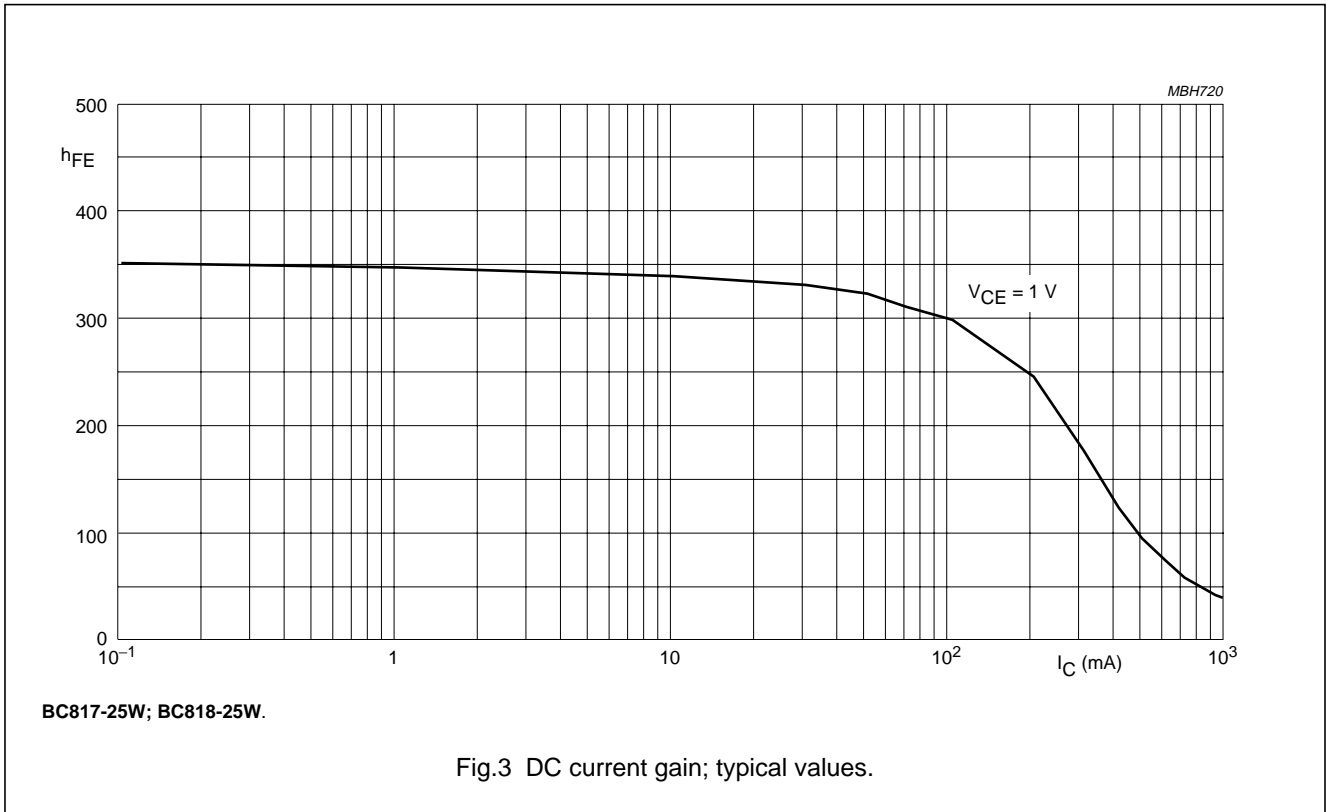
Note

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



NPN general purpose transistors

BC817W; BC818W



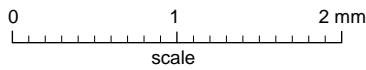
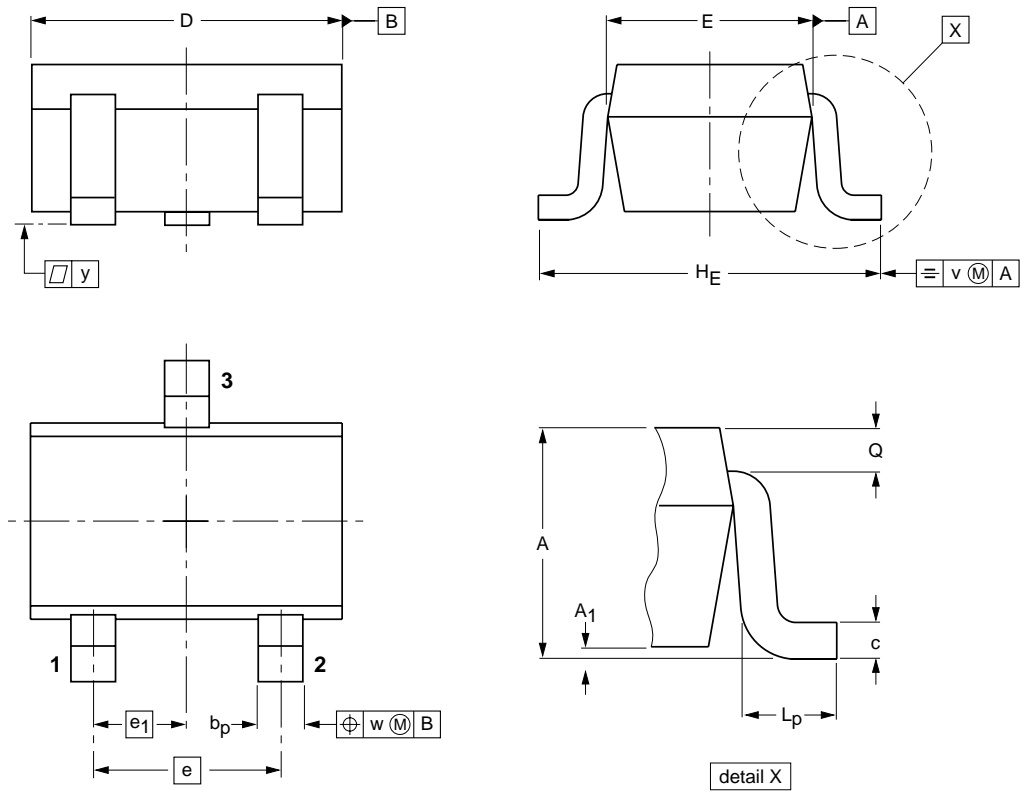
NPN general purpose transistors

BC817W; BC818W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | c | D | E | e | e ₁ | H _E | L _p | Q | v | w |
|------|------------|--------------------|----------------|--------------|------------|--------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm | 1.1 0.8 | 0.1 | 0.4 0.3 | 0.25 0.10 | 2.2 1.8 | 1.35 1.15 | 1.3 | 0.65 | 2.2 2.0 | 0.45 0.15 | 0.23 0.13 | 0.2 | 0.2 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|-------|--|---------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT323 | | | SC-70 | | | 97-02-28 |

NPN general purpose transistors

BC817W; BC818W

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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