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Kind regards,

Team Nexperia

DATA SHEET



BC856W; BC857W; BC858W PNP general purpose transistors

Product data sheet
Supersedes data of 1999 Apr 12

2002 Feb 04

PNP general purpose transistors

BC856W; BC857W; BC858W

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

PNP transistor in a SOT323 plastic package.
NPN complements: BC846W, BC847W and BC848W.

MARKING

| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BC856W | 3D* |
| BC856AW | 3A* |
| BC856BW | 3B* |
| BC857W | 3H* |
| BC857AW | 3E* |
| BC857BW | 3F* |
| BC857CW | 3G* |
| BC858W | 3M* |

Note

1. * = -: made in Hong Kong.
* = t: made in Malaysia.

PINNING

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



PNP general purpose transistors

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LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 60134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------|----------------------------------|------|------|------|
| V _{CBO} | collector-base voltage | open emitter | | | |
| | BC856W | | – | –80 | V |
| | BC857W | | – | –50 | V |
| | BC858W | | – | –30 | V |
| V _{CEO} | collector-emitter voltage | open base | | | |
| | BC856W | | – | –65 | V |
| | BC857W | | – | –45 | V |
| | BC858W | | – | –30 | 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; 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. Refer to SOT323 standard mounting conditions.

THERMAL CHARACTERISTICS

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

Note

1. Refer to SOT323 standard mounting conditions.

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CHARACTERISTICS

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

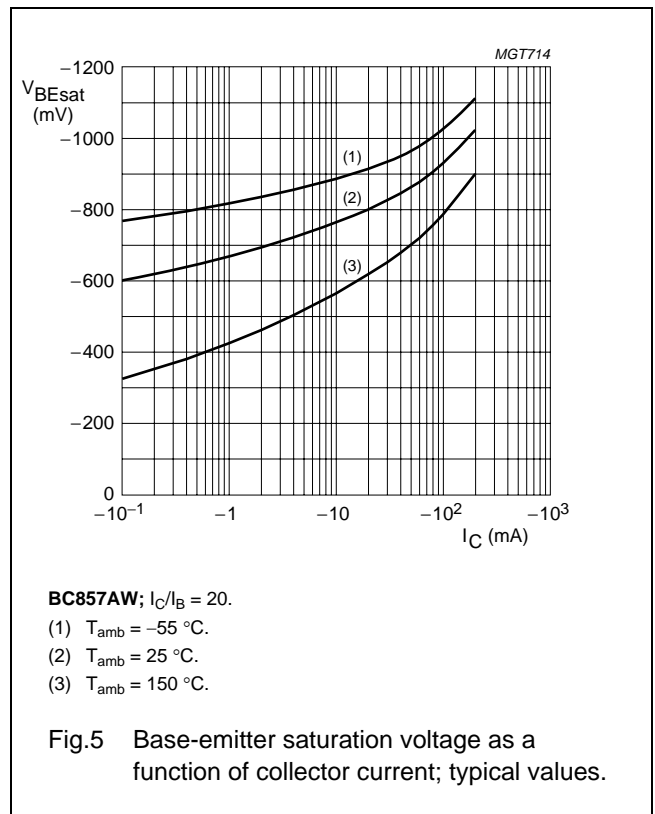
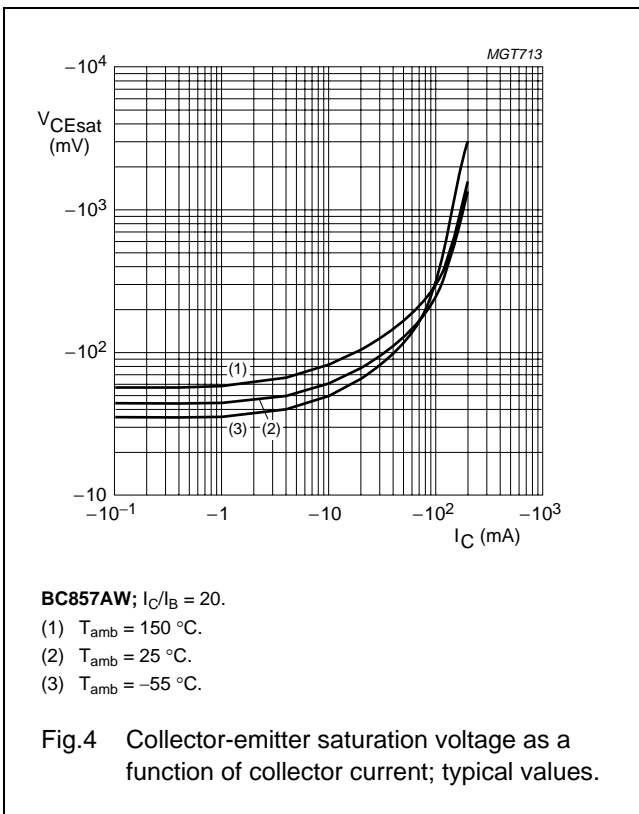
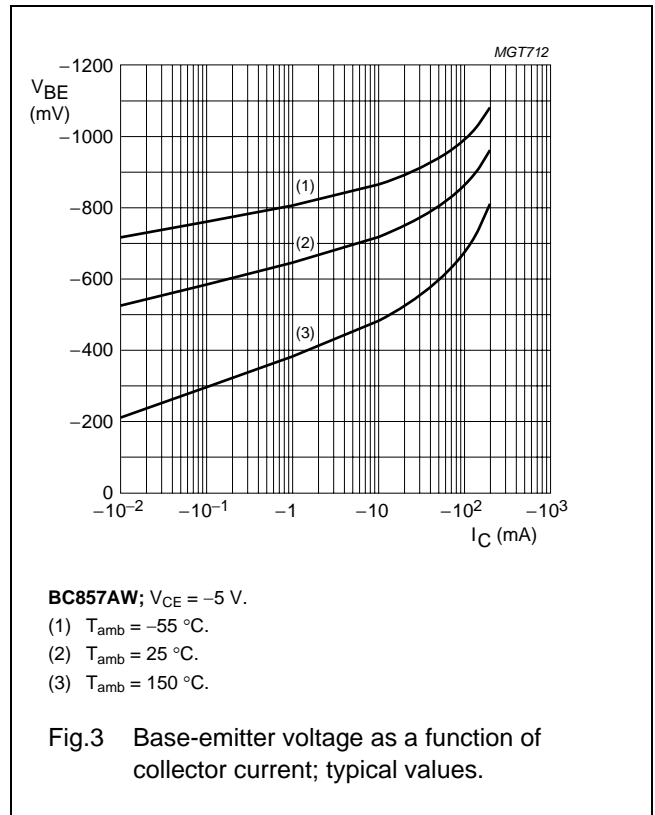
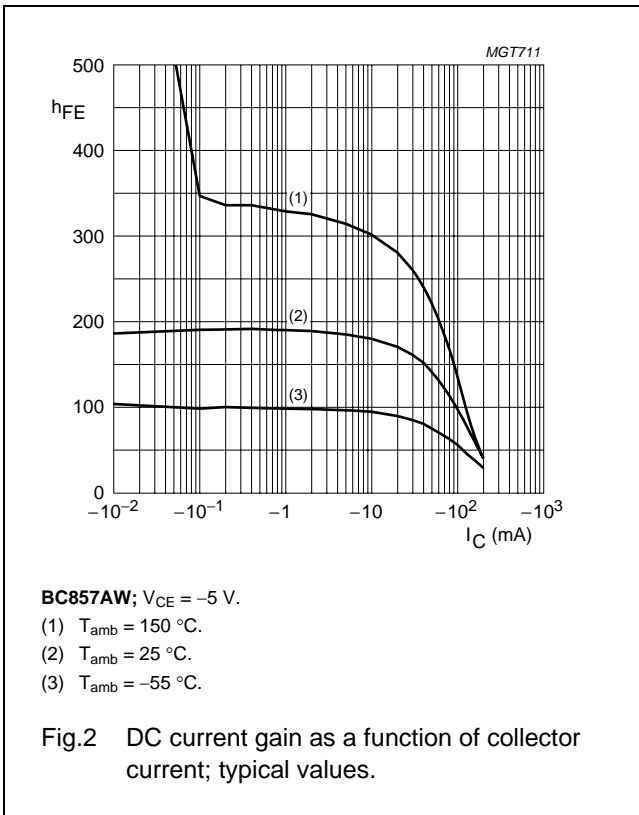
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT | | | | |
|-------------|--------------------------------------|--|------|------|------|---------------|------------------|-----|---|-----|
| I_{CBO} | collector-base cut-off current | $V_{CB} = -30\text{ V}; I_E = 0$ | – | –1 | –15 | nA | | | | |
| | | $V_{CB} = -30\text{ V}; I_E = 0;$ $T_j = 150\text{ °C}$ | – | – | –4 | μA | | | | |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = -5\text{ V}; I_C = 0$ | – | – | –100 | nA | | | | |
| h_{FE} | DC current gain | $I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$ | | | | | | | | |
| | | | | | | | BC856W | 125 | – | 475 |
| | | | | | | | BC857W; BC858W | 125 | – | 800 |
| | | | | | | | BC856AW; BC857AW | 125 | – | 250 |
| | | | | | | | BC856BW; BC857BW | 220 | – | 475 |
| BC857CW | 420 | – | 800 | | | | | | | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$ | – | –75 | –300 | mV | | | | |
| | | $I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1 | – | –250 | –600 | mV | | | | |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$ | – | –700 | – | mV | | | | |
| | | $I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1 | – | –850 | – | mV | | | | |
| V_{BE} | base-emitter voltage | $I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$ | –600 | –650 | –750 | mV | | | | |
| | | $I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$ | – | – | –820 | mV | | | | |
| C_c | collector capacitance | $V_{CB} = -10\text{ V}; I_E = I_e = 0;$ $f = 1\text{ MHz}$ | – | – | 3 | pF | | | | |
| C_e | emitter capacitance | $V_{EB} = -0.5\text{ V}; I_C = I_c = 0;$ $f = 1\text{ MHz}$ | – | – | 12 | pF | | | | |
| f_T | transition frequency | $V_{CE} = -5\text{ V}; I_C = -10\text{ mA};$ $f = 100\text{ MHz}$ | 100 | – | – | MHz | | | | |
| F | noise figure | $I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V};$ $R_S = 2\text{ k}\Omega; f = 1\text{ kHz};$ $B = 200\text{ Hz}$ | – | – | 10 | dB | | | | |

Note

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

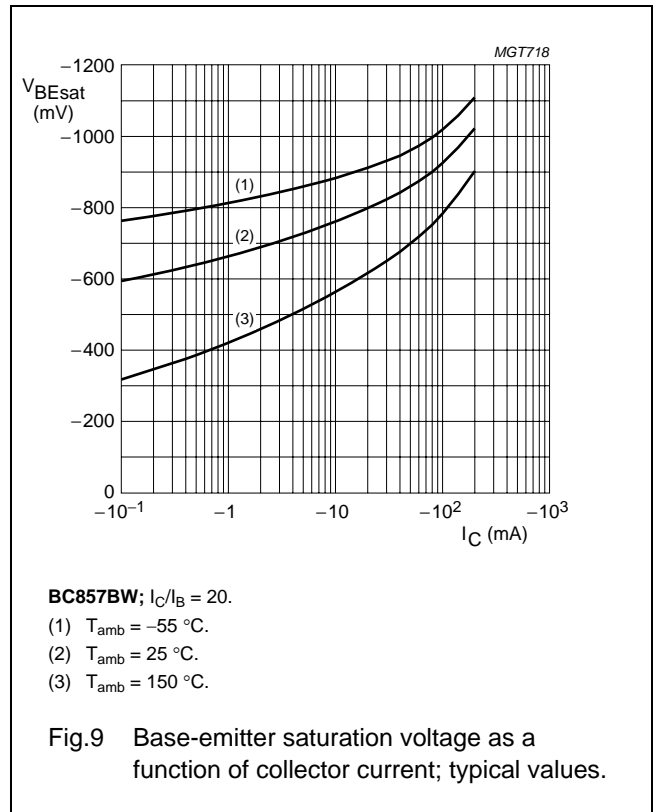
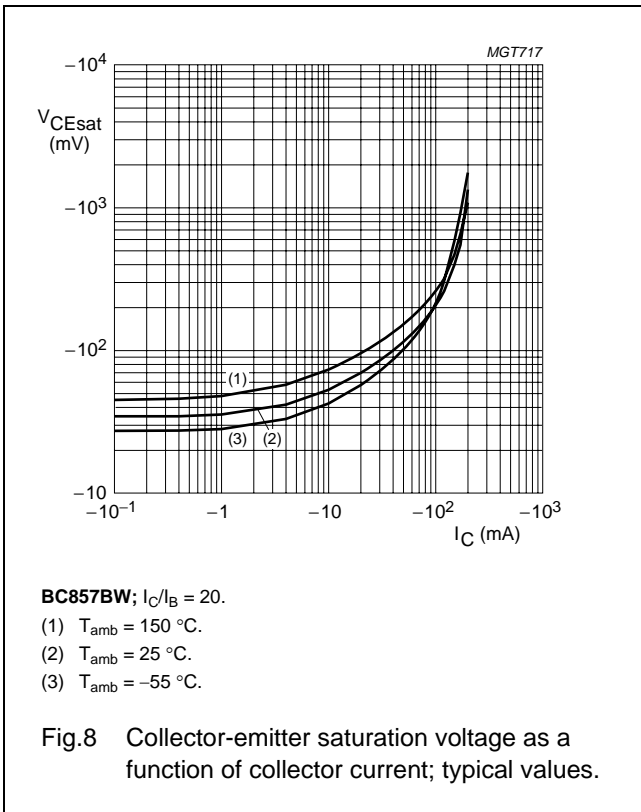
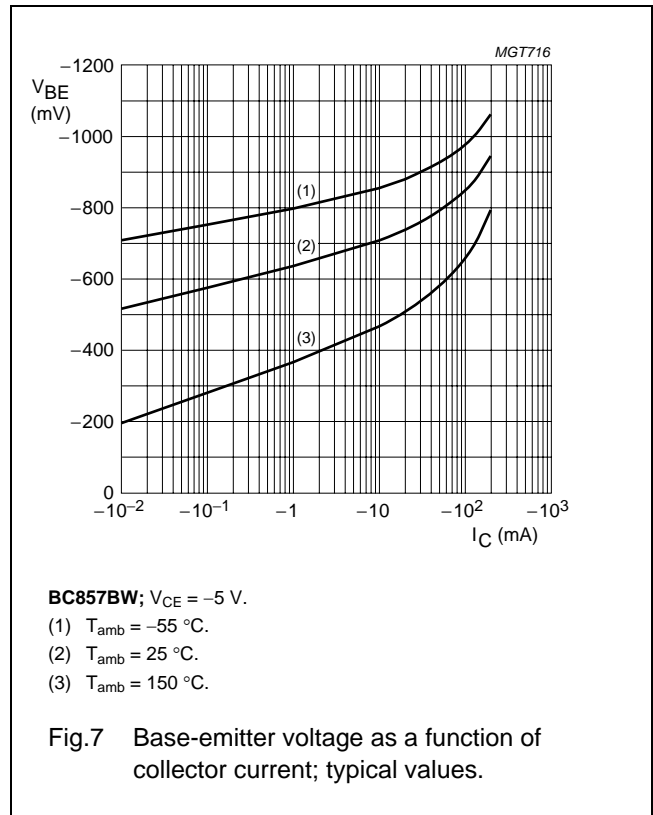
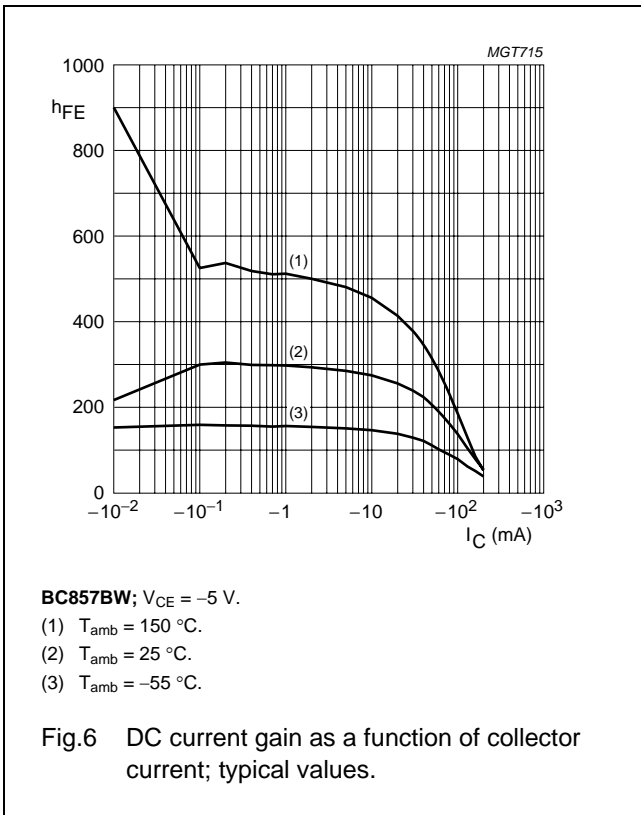
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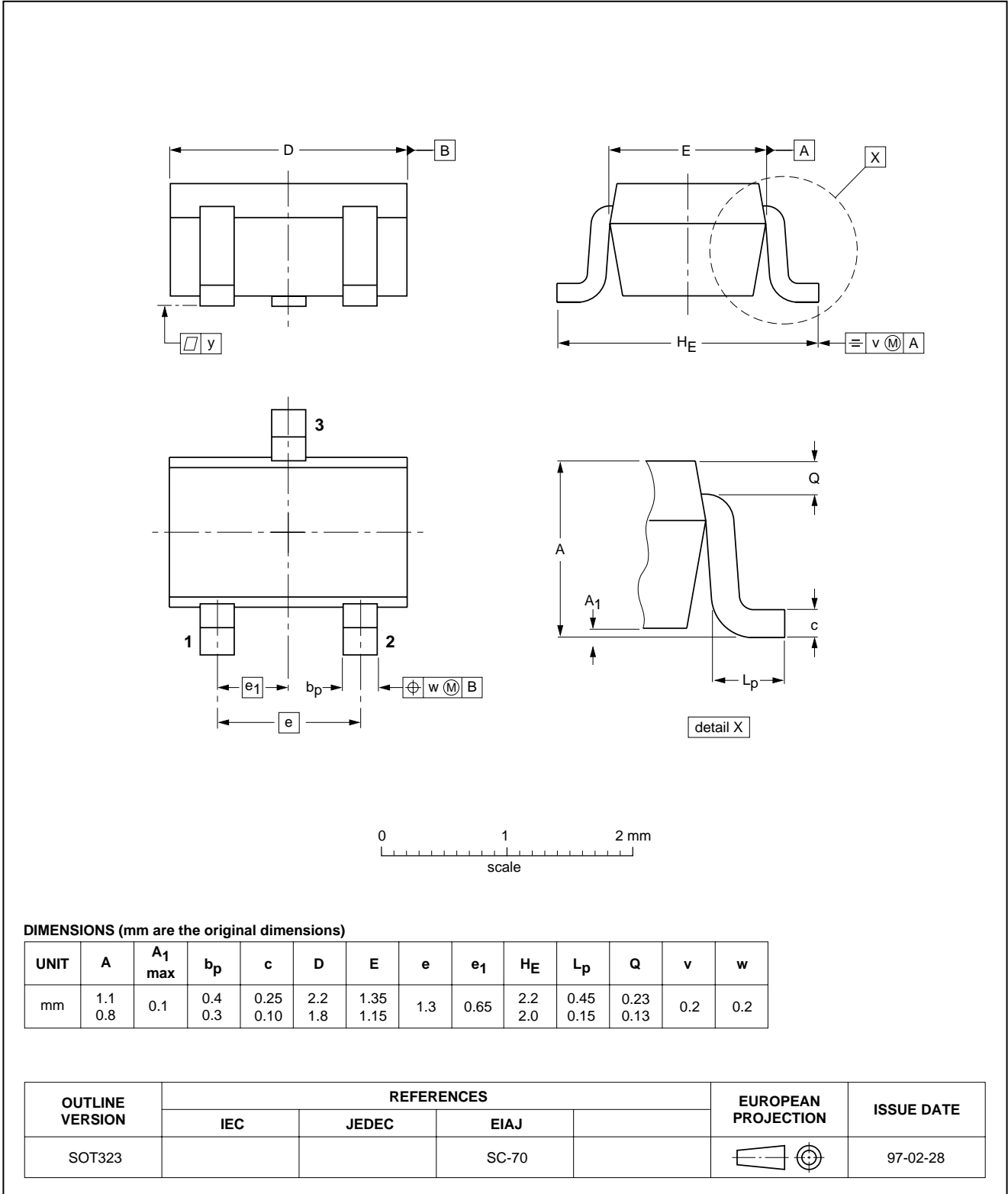
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



PNP general purpose transistors

BC856W; BC857W; BC858W

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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NXP Semiconductors

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