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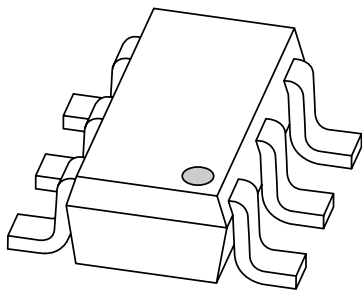
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Kind regards,

Team Nexperia

DATA SHEET



PBSS4350D

50 V low V_{CEsat} NPN transistor

Product data sheet
Supersedes data of 2001 Jan 26

2001 Jul 13

50 V low V_{CEsat} NPN transistor

PBSS4350D

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- Replacement for SOT89/SOT223 standard packaged transistors due to enhanced performance.

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC convertor applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

DESCRIPTION

NPN low V_{CEsat} transistor in a SOT457 (SC-74) plastic package. PNP complement: PBSS5350D.

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PBSS4350D | 43 |

QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|-------------|---------------------------|------|------------|
| V_{CEO} | collector-emitter voltage | 50 | V |
| I_{CM} | peak collector current | 5 | A |
| R_{CEsat} | equivalent on-resistance | <145 | m Ω |

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | collector |
| 2 | collector |
| 3 | base |
| 4 | emitter |
| 5 | collector |
| 6 | collector |

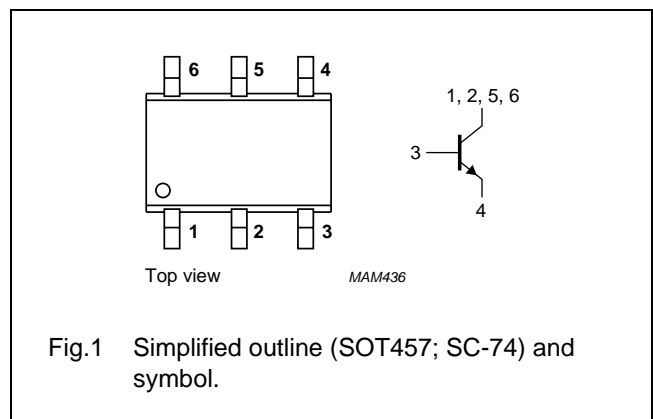


Fig.1 Simplified outline (SOT457; SC-74) and symbol.

50 V low V_{CEsat} NPN transistor

PBSS4350D

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 | – | 60 | V |
| V_{CEO} | collector-emitter voltage | open base | – | 50 | V |
| V_{EBO} | emitter-base voltage | open collector | – | 6 | V |
| I_C | collector current (DC) | | – | 3 | A |
| I_{CM} | peak collector current | | – | 5 | A |
| I_{BM} | peak base current | | – | 1 | A |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$; note 1 | – | 600 | mW |
| | | $T_{amb} \leq 25\text{ °C}$; note 2 | – | 750 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |
| T_{amb} | operating ambient temperature | | –65 | +150 | °C |

Notes

1. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm².
2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 6 cm².

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---------------------------------------------|---------------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | in free air; note 1 | 208 | K/W |
| | | in free air; note 2 | 160 | K/W |

Notes

1. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm².
2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 6 cm².

50 V low V_{CEsat} NPN transistor

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CHARACTERISTICS

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

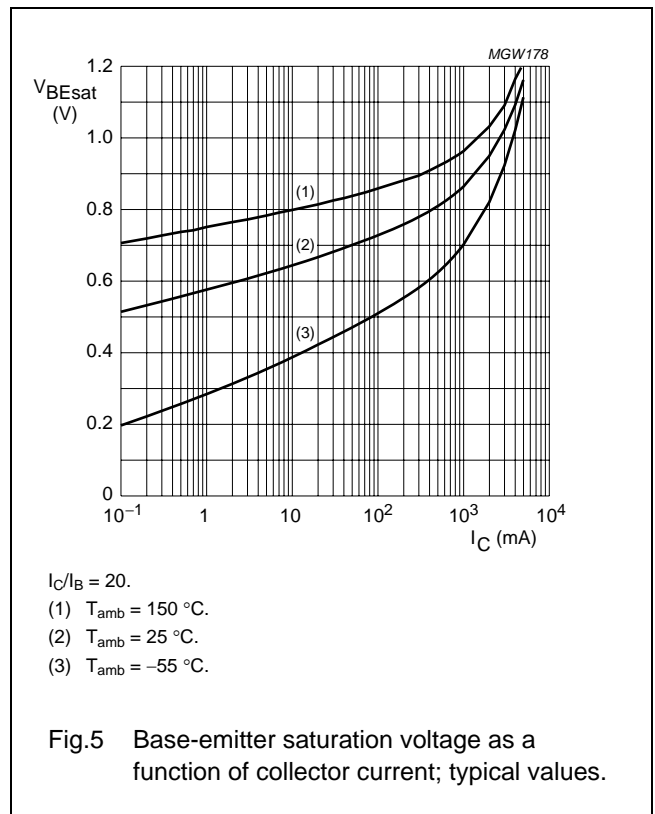
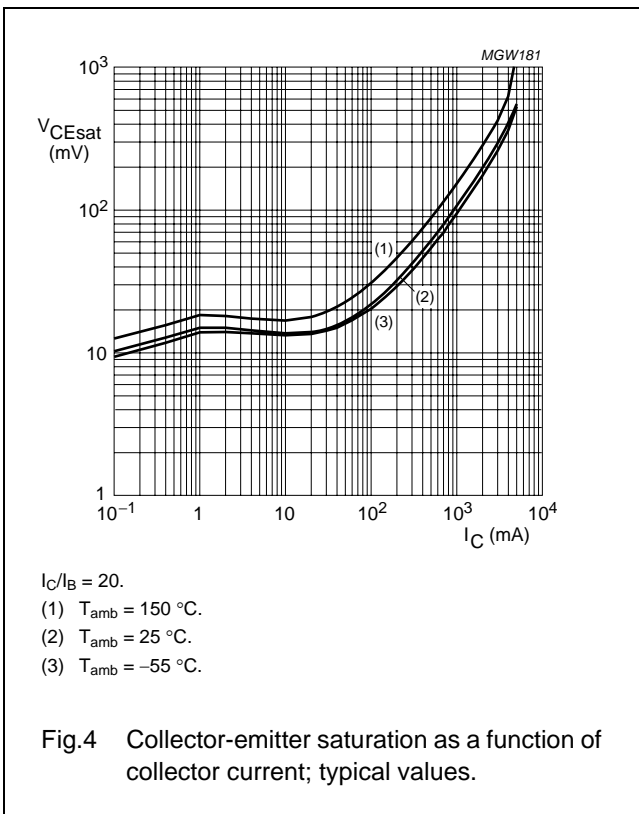
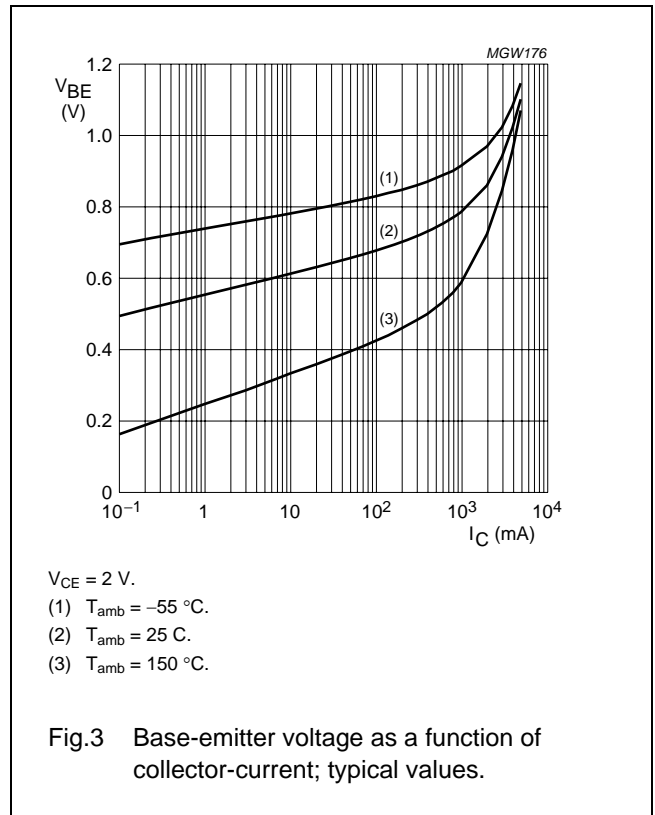
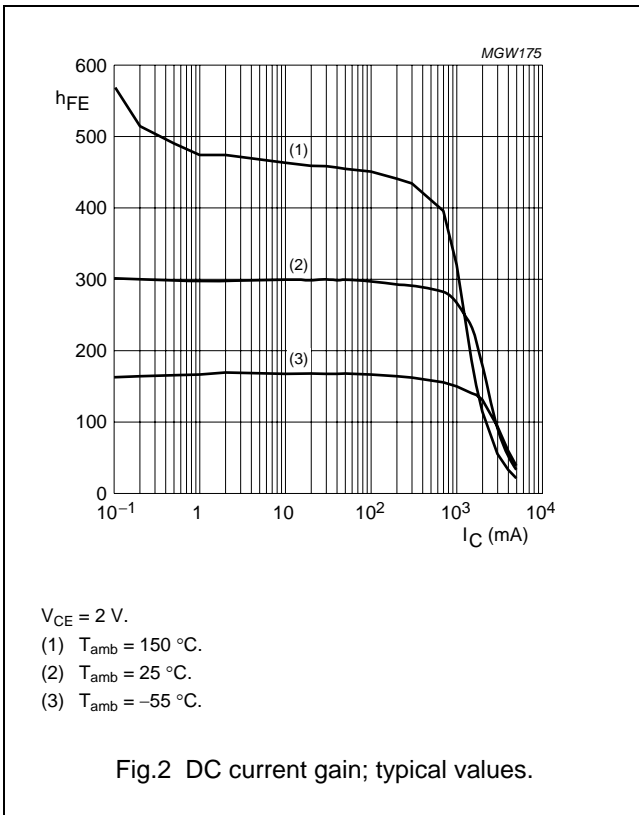
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------|---------------------------------------|----------------------------------------------------------------|------|------|------|------------------|
| I_{CBO} | collector-base cut-off current | $V_{CB} = 50\text{ V}; I_E = 0$ | – | – | 100 | nA |
| | | $V_{CB} = 50\text{ V}; I_E = 0; T_j = 150\text{ °C}$ | – | – | 50 | μA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = 5\text{ V}; I_C = 0$ | – | – | 100 | nA |
| h_{FE} | DC current gain | $V_{CE} = 2\text{ V}; I_C = 500\text{ mA}$ | 200 | – | – | |
| | | $V_{CE} = 2\text{ V}; I_C = 1\text{ A}; \text{note 1}$ | 200 | – | – | |
| | | $V_{CE} = 2\text{ V}; I_C = 2\text{ A}; \text{note 1}$ | 100 | – | – | |
| V_{CEsat} | collector -emitter saturation voltage | $I_C = 500\text{ mA}; I_B = 50\text{ mA}$ | – | – | 90 | mV |
| | | $I_C = 1\text{ A}; I_B = 50\text{ mA}$ | – | – | 170 | mV |
| | | $I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$ | – | – | 290 | mV |
| R_{CEsat} | equivalent on-resistance | $I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$ | – | 110 | <145 | $\text{m}\Omega$ |
| V_{BEsat} | base-emitter saturation voltage | $I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$ | – | – | 1.2 | V |
| V_{BEon} | base-emitter turn-on voltage | $V_{CE} = 2\text{ V}; I_C = 1\text{ A}; \text{note 1}$ | – | – | 1.1 | V |
| f_T | transition frequency | $I_C = 100\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$ | 100 | – | – | MHz |
| C_c | collector capacitance | $V_{CB} = 10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$ | – | – | 30 | pF |

Note

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

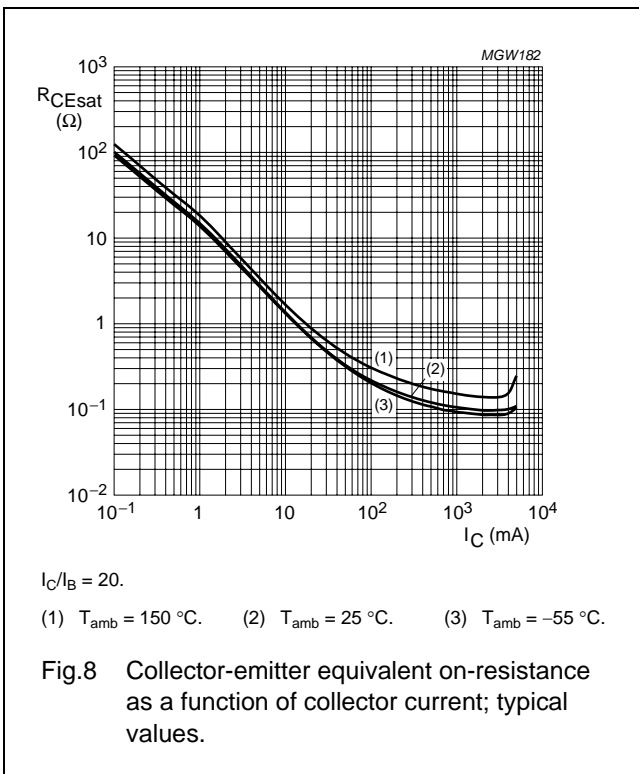
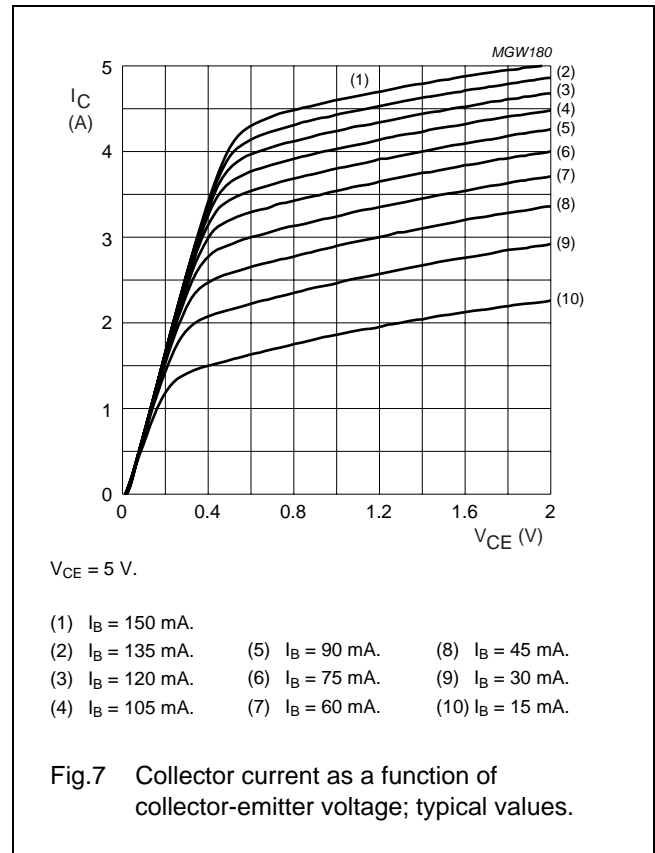
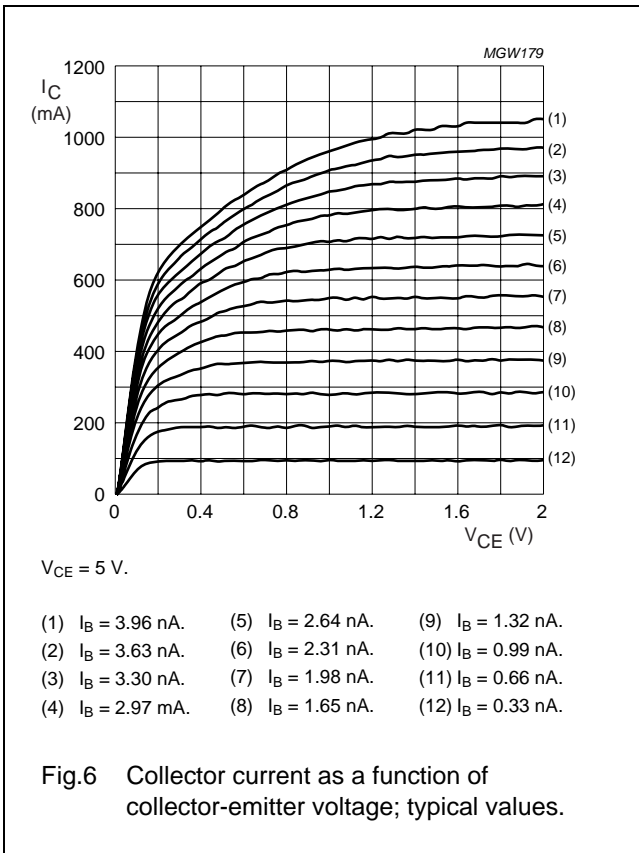
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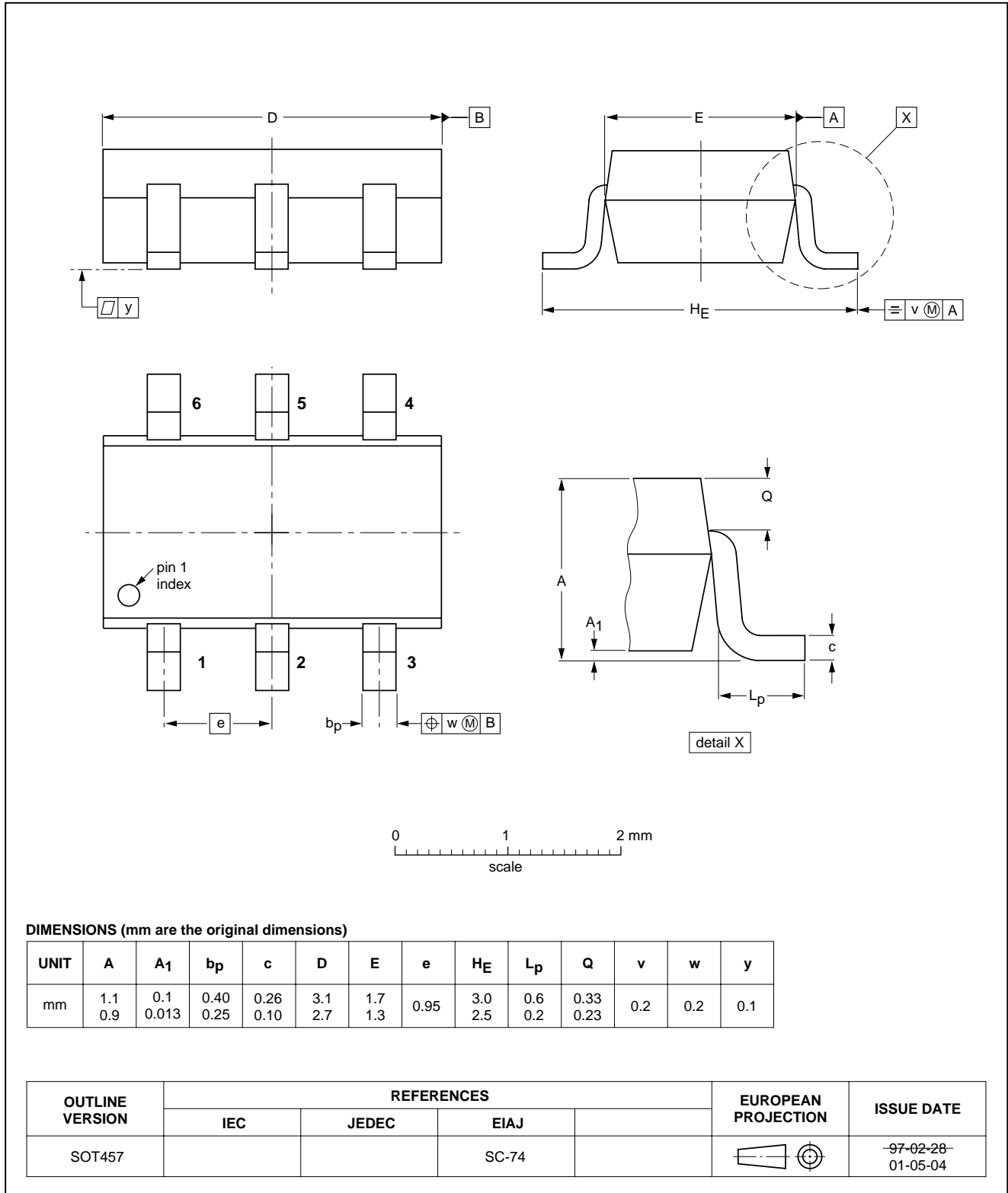
50 V low V_{CEsat} NPN transistor

PBSS4350D

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



50 V low V_{CEsat} NPN transistor

PBSS4350D

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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