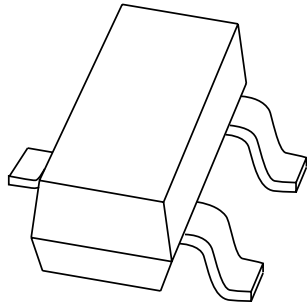


DATA SHEET



PBSS5130T

30 V, 1 A

PNP low V_{CEsat} (BISS) transistor

30 V, 1 A PNP low V_{CEsat} (BISS) transistor

PBSS5130T

FEATURES

- Low collector-emitter saturation voltage V_{CEsat}
- High collector current capability: I_C and I_{CM}
- Higher efficiency leading to less heat generation
- Reduced printed-circuit board requirements
- Cost effective alternative to MOSFETS in specific applications.

APPLICATIONS

- Power management
 - DC/DC converters
 - Supply line switching
 - Battery charger
 - LCD backlighting.
- Peripheral drivers
 - Driver in low supply voltage applications (e.g. lamps and LEDs)
 - Inductive load driver (e.g. relays, buzzers and motors).

DESCRIPTION

PNP low V_{CEsat} transistor in a SOT23 plastic package.

MARKING

| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| PBSS5130T | *3E |

Note

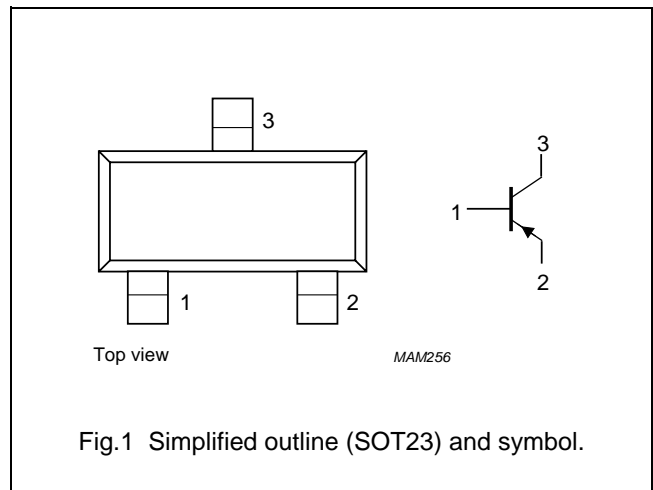
1. * = p : made in Hong Kong
 * = t : made in Malaysia
 * = W : made in China.

QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|-------------|-----------------------------------|------|------|
| V_{CEO} | collector-emitter voltage | -30 | V |
| I_C | collector current (DC) | -1 | A |
| I_{CRP} | repetitive peak collector current | -1.5 | A |
| R_{CEsat} | equivalent on-resistance | 220 | mΩ |

PINNING

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



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PBSS5130T

ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| PBSS5130T | – | plastic surface mounted package; 3 leads | SOT23 |

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 | – | –30 | V |
| V_{CEO} | collector-emitter voltage | open base | – | –30 | V |
| V_{EBO} | emitter-base voltage | open collector | – | –5 | V |
| I_C | collector current (DC) | | – | –1 | A |
| I_{CM} | peak collector current | | – | –3 | A |
| I_{BM} | peak base current | | – | –300 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$ note 1 note 2 | – – | 300 480 | mW mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |
| T_{amb} | operating ambient temperature | | –65 | +150 | °C |

Notes

- Device mounted on an FR4 printed-circuit board, single-sided copper, tinplated, standard footprint.
- Device mounted on an FR4 printed-circuit board, single sided-copper, tinplated, mounting pad for collector 1 cm².

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|---------------------------------|------------|------------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | in free air note 1 note 2 | 417 260 | K/W K/W |

Notes

- Device mounted on an FR4 printed-circuit board, single-sided copper, tinplated and standard footprint.
- Device mounted on an FR4 printed-circuit board, single-sided copper, tinplated and mounting pad for collector 1 cm².

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PBSS5130T

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------|--------------------------------------|---|------|------|-------|------------------|
| I_{CBO} | collector-base cut-off current | $V_{CB} = -30\text{ V}; I_E = 0$ | – | – | –100 | nA |
| | | $V_{CB} = -30\text{ V}; I_E = 0; T_j = 150\text{ °C}$ | – | – | –50 | μA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = -4\text{ V}; I_C = 0$ | – | – | –100 | nA |
| h_{FE} | DC current gain | $V_{CE} = -2\text{ V}; I_C = -100\text{ mA}$ | 300 | 450 | – | |
| | | $V_{CE} = -2\text{ V}; I_C = -500\text{ mA}$ | 260 | 350 | – | |
| | | $V_{CE} = -2\text{ V}; I_C = -1\text{ A}$ | 210 | 290 | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -100\text{ mA}; I_B = -1\text{ mA}$ | – | – | –100 | mV |
| | | $I_C = -1\text{ A}; I_B = -50\text{ mA}$ | – | – | –225 | mV |
| R_{CEsat} | equivalent on-resistance | $I_C = -500\text{ mA}; I_B = -50\text{ mA}; \text{note 1}$ | – | – | 220 | $\text{m}\Omega$ |
| V_{BEon} | base-emitter turn-on voltage | $V_{CE} = -2\text{ V}; I_C = -100\text{ mA}$ | – | – | –0.75 | V |
| f_T | transition frequency | $I_C = -100\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$ | 100 | 200 | – | MHz |
| C_c | collector capacitance | $V_{CB} = -10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$ | – | – | 28 | pF |

Note

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

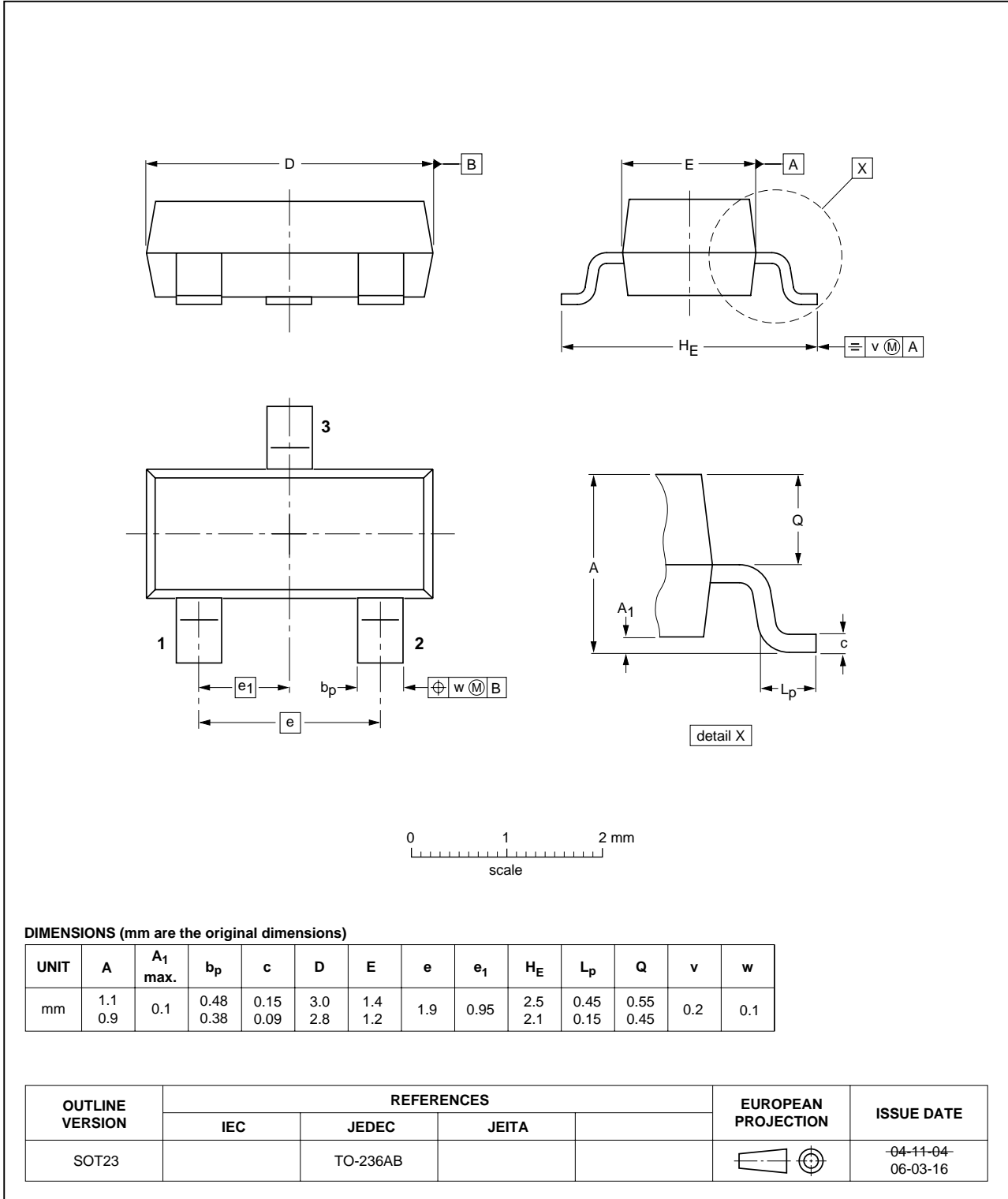
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PBSS5130T

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



30 V, 1 A
PNP low V_{CEsat} (BISS) transistor

PBSS5130T

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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