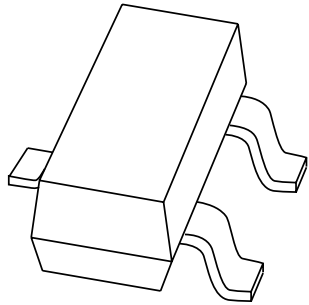


# DATA SHEET



**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 <sup>(1)</sup>
PBSS5130T	*3E

**Note**

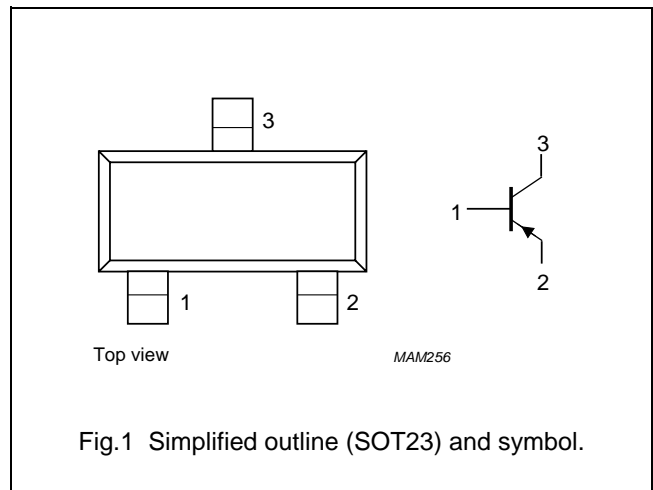
1. \* = p : made in Hong Kong  
 \* = t : made in Malaysia  
 \* = W : made in China.

**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	m $\Omega$

**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 cm<sup>2</sup>.

**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 cm<sup>2</sup>.

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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	$\mu\text{A}$
$I_{EBO}$	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:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

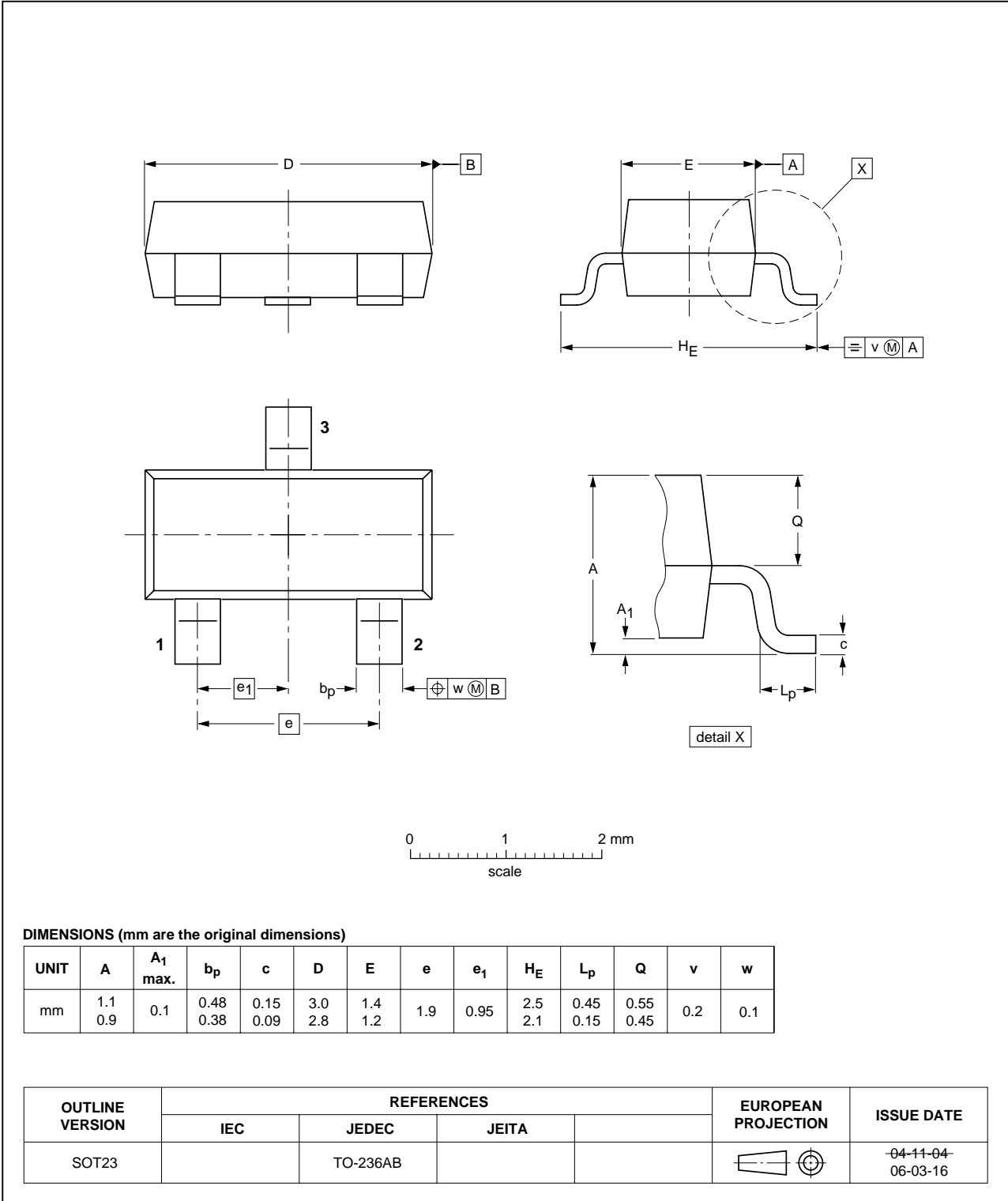
30 V, 1 A  
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PBSS5130T

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 <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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# ***NXP Semiconductors***

## **Customer notification**

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

For additional information please visit: <http://www.nxp.com>

For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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