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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

DATA SHEET



PMBT5551 NPN high-voltage transistor

Product data sheet
Supersedes data of 1999 Apr 15

2004 Jan 21

NPN high-voltage transistor

PMBT5551

FEATURES

- Low current (max. 300 mA)
- High voltage (max. 160 V).

APPLICATIONS

- General purpose
- Telephony.

DESCRIPTION

NPN high-voltage transistor in a SOT23 plastic package.
PNP complement: PMBT5401.

MARKING

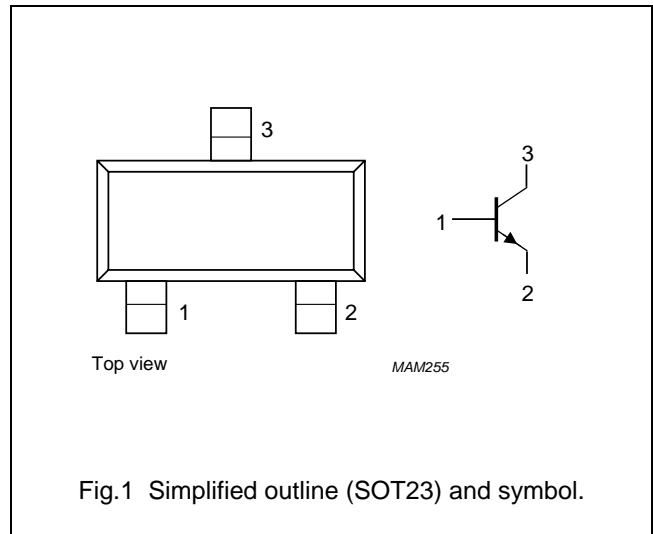
TYPE NUMBER	MARKING CODE ⁽¹⁾
PMBT5551	*G1

Note

- * = p : Made in Hong Kong.
* = t : Made in Malaysia.
* = W : Made in China.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PMBT5551	–	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	–	180	V
V _{CEO}	collector-emitter voltage	open base	–	160	V
V _{EBO}	emitter-base voltage	open collector	–	6	V
I _C	collector current (DC)		–	300	mA
I _{CM}	peak collector current		–	600	mA
I _{BM}	peak base current		–	100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	–	250	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

NPN high-voltage transistor

PMBT5551

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

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

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$I_E = 0; V_{CB} = 120\text{ V}$	–	50	nA
		$I_E = 0; V_{CB} = 120\text{ V}; T_{amb} = 100\text{ }^{\circ}\text{C}$	–	50	μA
I_{EBO}	emitter-base cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	50	nA
h_{FE}	DC current gain	$V_{CE} = 5\text{ V}$; (see Fig.2)			
		$I_C = 1\text{ mA}$	80	–	
		$I_C = 10\text{ mA}$	80	250	
		$I_C = 50\text{ mA}$	30	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	–	150	mV
		$I_C = 50\text{ mA}; I_B = 5\text{ mA}$	–	200	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	–	1	V
		$I_C = 50\text{ mA}; I_B = 5\text{ mA}$	–	1	V
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	6	pF
C_e	emitter capacitance	$I_C = i_c = 0; V_{EB} = 500\text{ mV}; f = 1\text{ MHz}$	–	30	pF
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	100	300	MHz
F	noise figure	$I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 10\text{ Hz to }15.7\text{ kHz}$	–	8	dB

NPN high-voltage transistor

PMBT5551

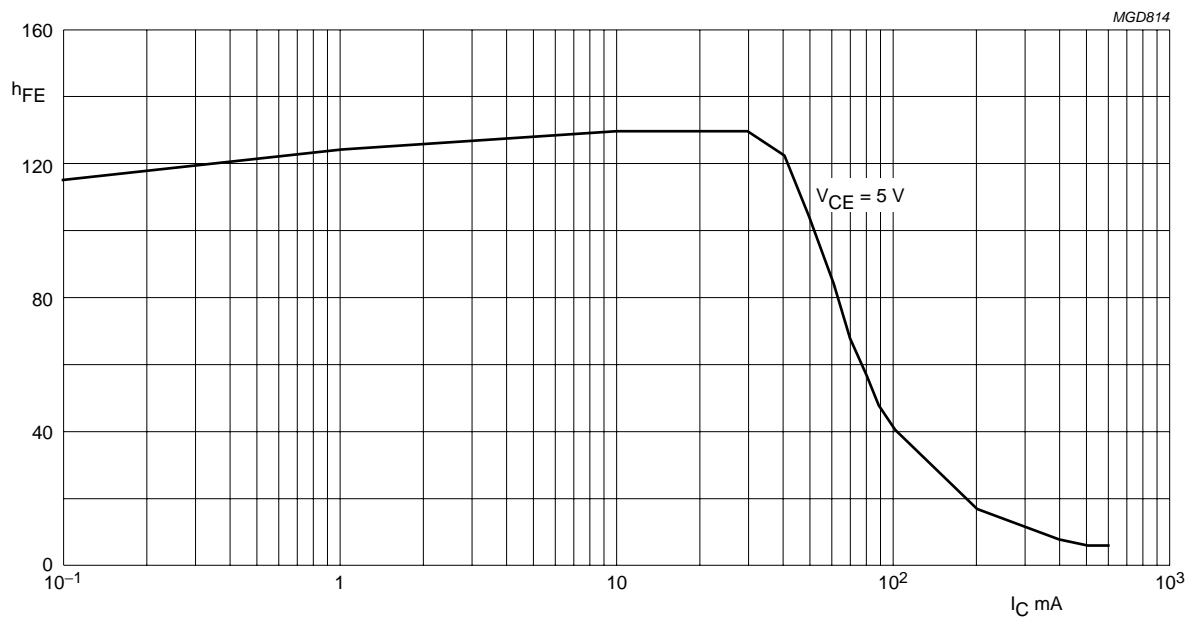


Fig.2 DC current gain; typical values

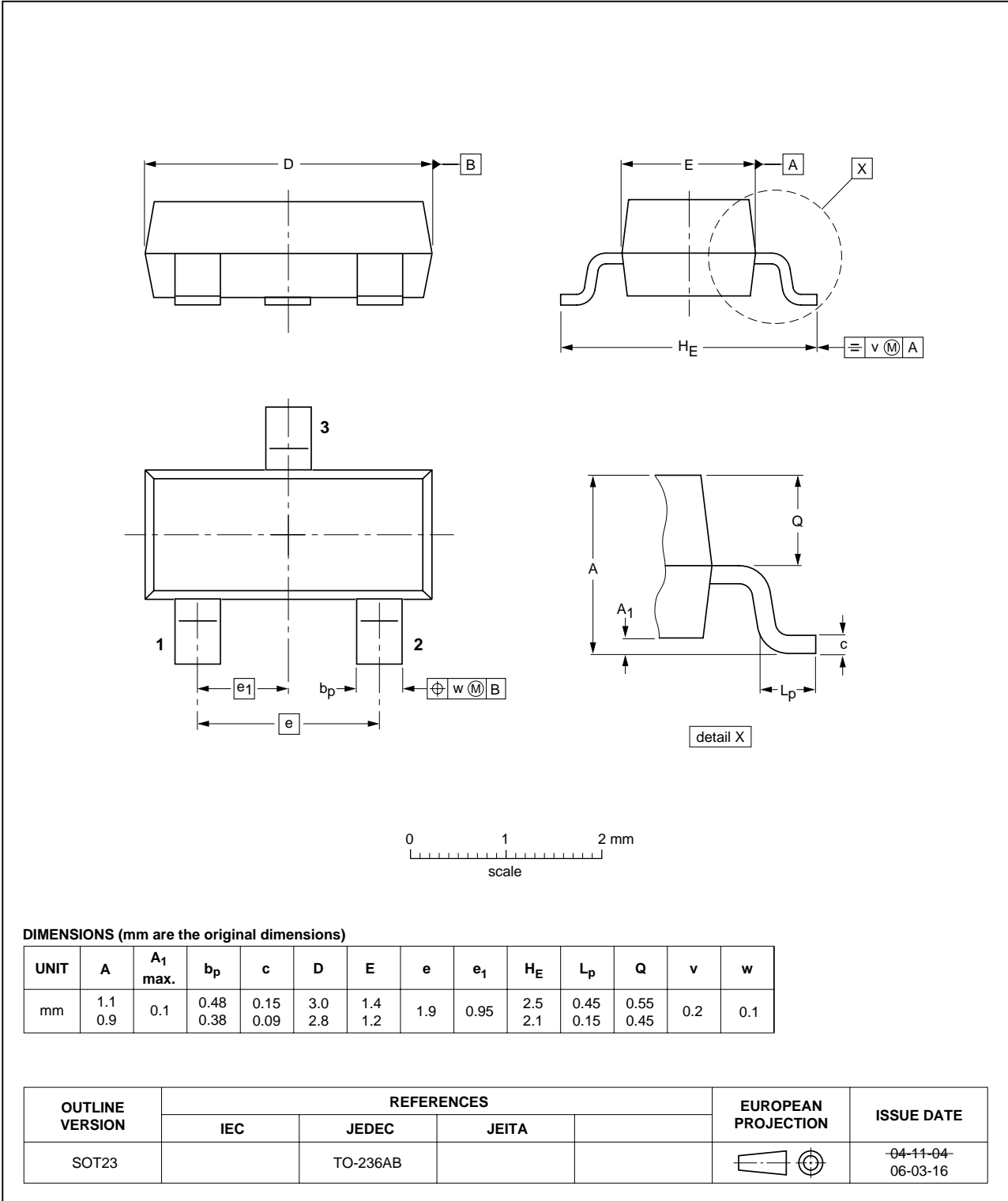
NPN high-voltage transistor

PMBT5551

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



NPN high-voltage transistor

PMBT5551

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.

Notes

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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

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