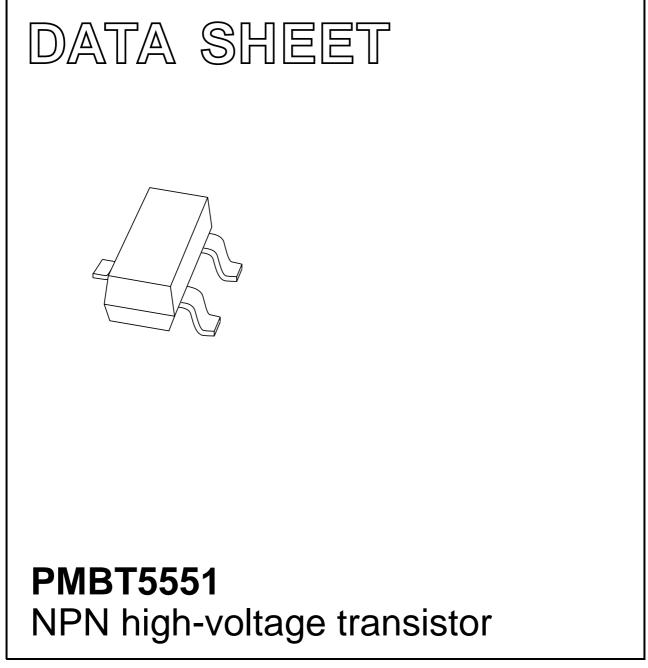
DISCRETE SEMICONDUCTORS



Product data sheet Supersedes data of 1999 Apr 15 2004 Jan 21



Product data sheet

NPN high-voltage transistor

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

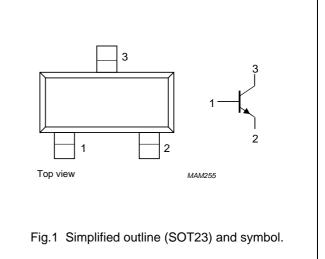
- 1. * = p : Made in Hong Kong.
 - * = t : Made in Malaysia.

* = W : Made in China.

ORDERING INFORMATION

PINNING

PIN	DESCRIPTION	
1	base	
2	emitter	
3	collector	



TYPE	PACKAGE		
NUMBER	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	$T_{amb} \le 25 \ ^{\circ}C$	-	250	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-	150	°C
T _{amb}	operating ambient temperature		-65	+150	°C

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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.

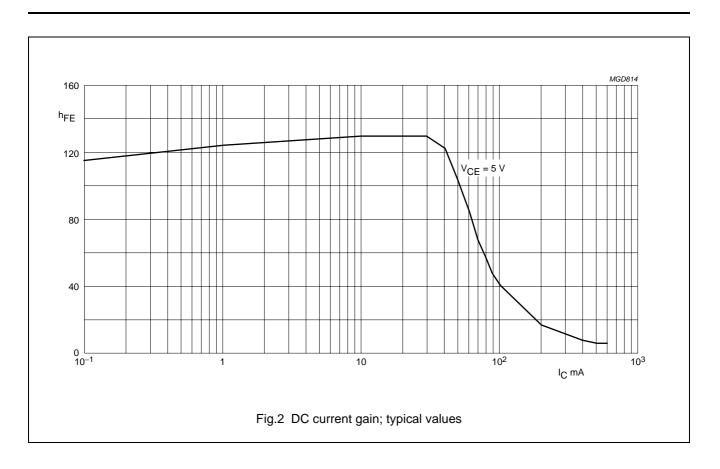
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	I _E = 0; V _{CB} = 120 V	-	50	nA
		$I_E = 0; V_{CB} = 120 \text{ V}; T_{amb} = 100 ^{\circ}\text{C}$	_	50	μA
I _{EBO}	emitter-base cut-off current	$I_{C} = 0; V_{EB} = 4 V$	_	50	nA
h _{FE}	DC current gain	V _{CE} = 5 V; (see Fig.2)			
		$I_{\rm C} = 1 \rm{mA}$	80	-	
		I _C = 10 mA	80	250	
		I _C = 50 mA	30	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = 10 mA; I _B = 1 mA	-	150	mV
		$I_{C} = 50 \text{ mA}; I_{B} = 5 \text{ mA}$	-	200	mV
V _{BEsat}	base-emitter saturation voltage	I _C = 10 mA; I _B = 1 mA	-	1	V
		I _C = 50 mA; I _B = 5 mA	-	1	V
Cc	collector capacitance	I _E = i _e = 0; V _{CB} = 10 V; f = 1 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 mA; V _{CE} = 10 V; f = 100 MHz	100	300	MHz
F	noise figure	$\label{eq:lc} \begin{array}{l} I_C = 200 \ \mu\text{A}; \ V_{CE} = 5 \ \text{V}; \ \text{R}_S = 2 \ \text{k}\Omega; \\ f = 10 \ \text{Hz} \ \text{to} \ 15.7 \ \text{kHz} \end{array}$	-	8	dB

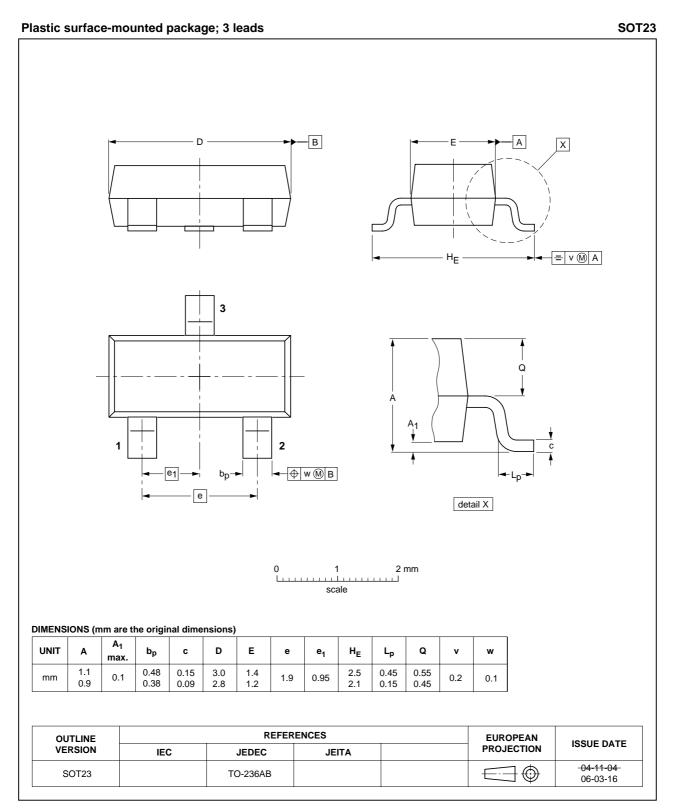
PMBT5551

NPN high-voltage transistor



NPN high-voltage transistor

PACKAGE OUTLINE



PMBT5551

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

- 1. Please consult the most recently issued document before initiating or completing a design.
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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

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