

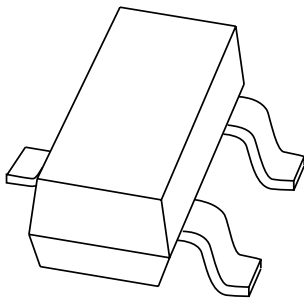
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# DATA SHEET



## **PMBT5401** PNP high-voltage transistor

Product specification  
Supersedes data of 1999 Apr 15

2004 Jan 21

# PNP high-voltage transistor

# PMBT5401

### FEATURES

- Low current (max. 300 mA)
- High voltage (max. 150 V).

### APPLICATIONS

- Switching and amplification in high voltage applications such as telephony.

### DESCRIPTION

PNP high-voltage transistor in a SOT23 plastic package.  
NPN complement: PMBT5550.

### MARKING

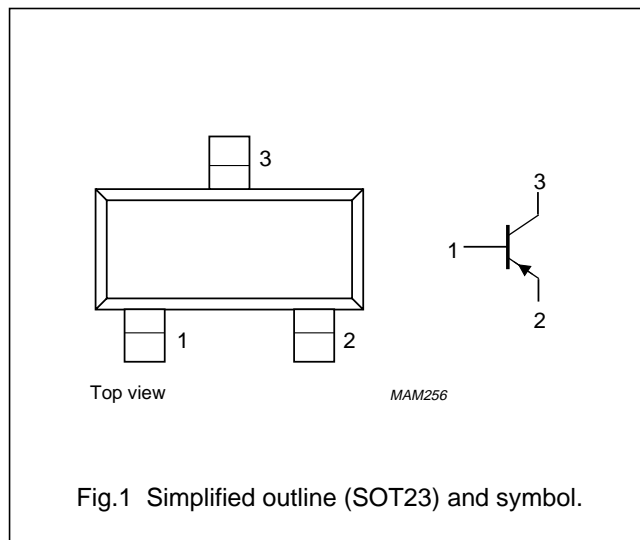
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PMBT5401	*2L

### 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
PMBT5401	-	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 <sub>CBO</sub>	collector-base voltage	open emitter	-	-160	V
V <sub>CEO</sub>	collector-emitter voltage	open base	-	-150	V
V <sub>EBO</sub>	emitter-base voltage	open collector	-	-5	V
I <sub>C</sub>	collector current (DC)		-	-300	mA
I <sub>CM</sub>	peak collector current		-	-600	mA
I <sub>BM</sub>	peak base current		-	-100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	-	250	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
T <sub>j</sub>	junction temperature		-	150	°C
T <sub>amb</sub>	operating ambient temperature		-65	+150	°C

### Note

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

## PNP high-voltage transistor

## PMBT5401

## 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.

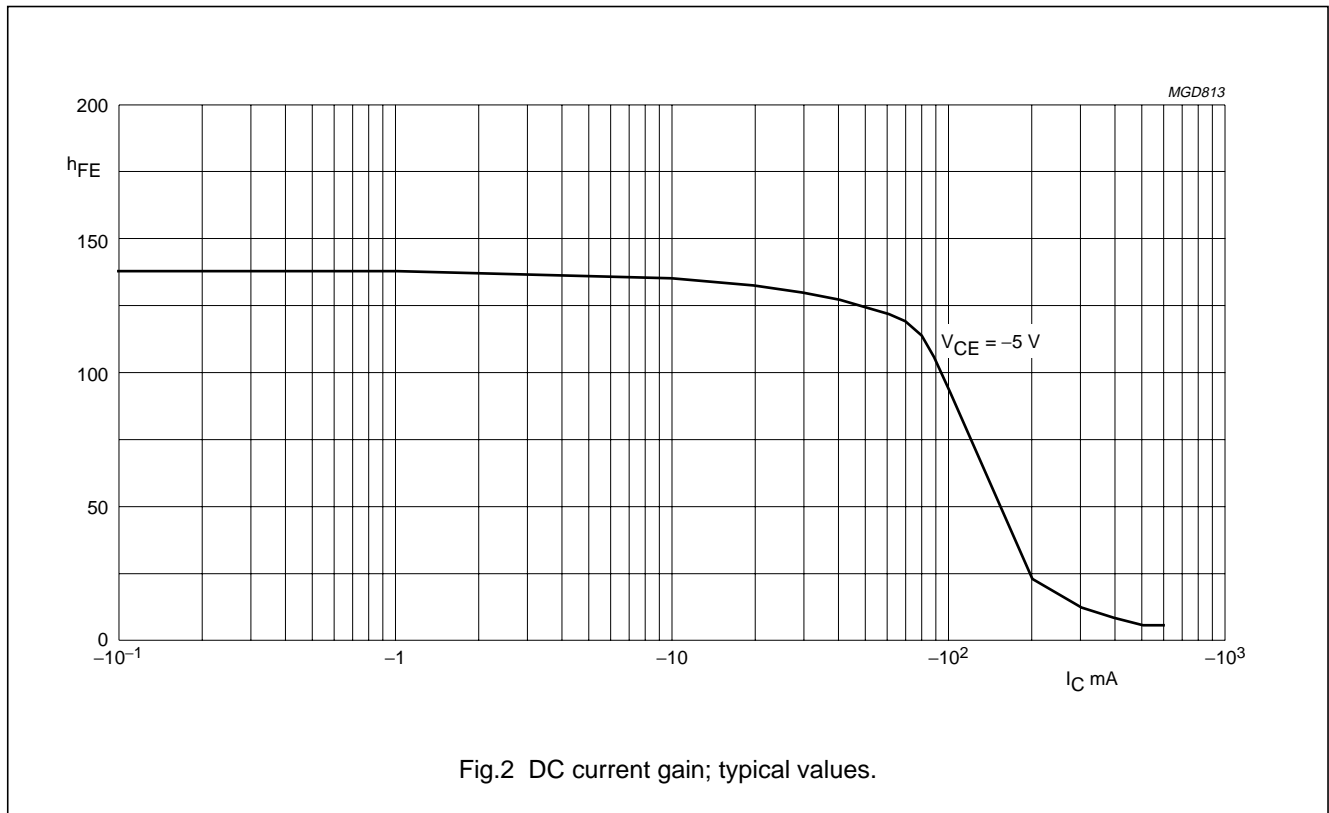
## CHARACTERISTICS

$T_j = 25\text{ °C}$  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
		$I_E = 0; V_{CB} = -120\text{ V}; T_{amb} = 150\text{ °C}$	–	–50	$\mu\text{A}$
$I_{EBO}$	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)			
		$I_C = -1\text{ mA}$	50	–	
		$I_C = -10\text{ mA}$	60	240	
		$I_C = -50\text{ mA}$	50	–	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -1\text{ mA}$	–	–200	mV
		$I_C = -50\text{ mA}; I_B = -5\text{ mA}$	–	–500	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
$f_T$	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V};$ $f = 100\text{ MHz}; T_{amb} = 25\text{ °C}$	100	300	MHz
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 10\text{ Hz to }15.7\text{ kHz}; T_{amb} = 25\text{ °C}$	–	8	dB

PNP high-voltage transistor

PMBT5401



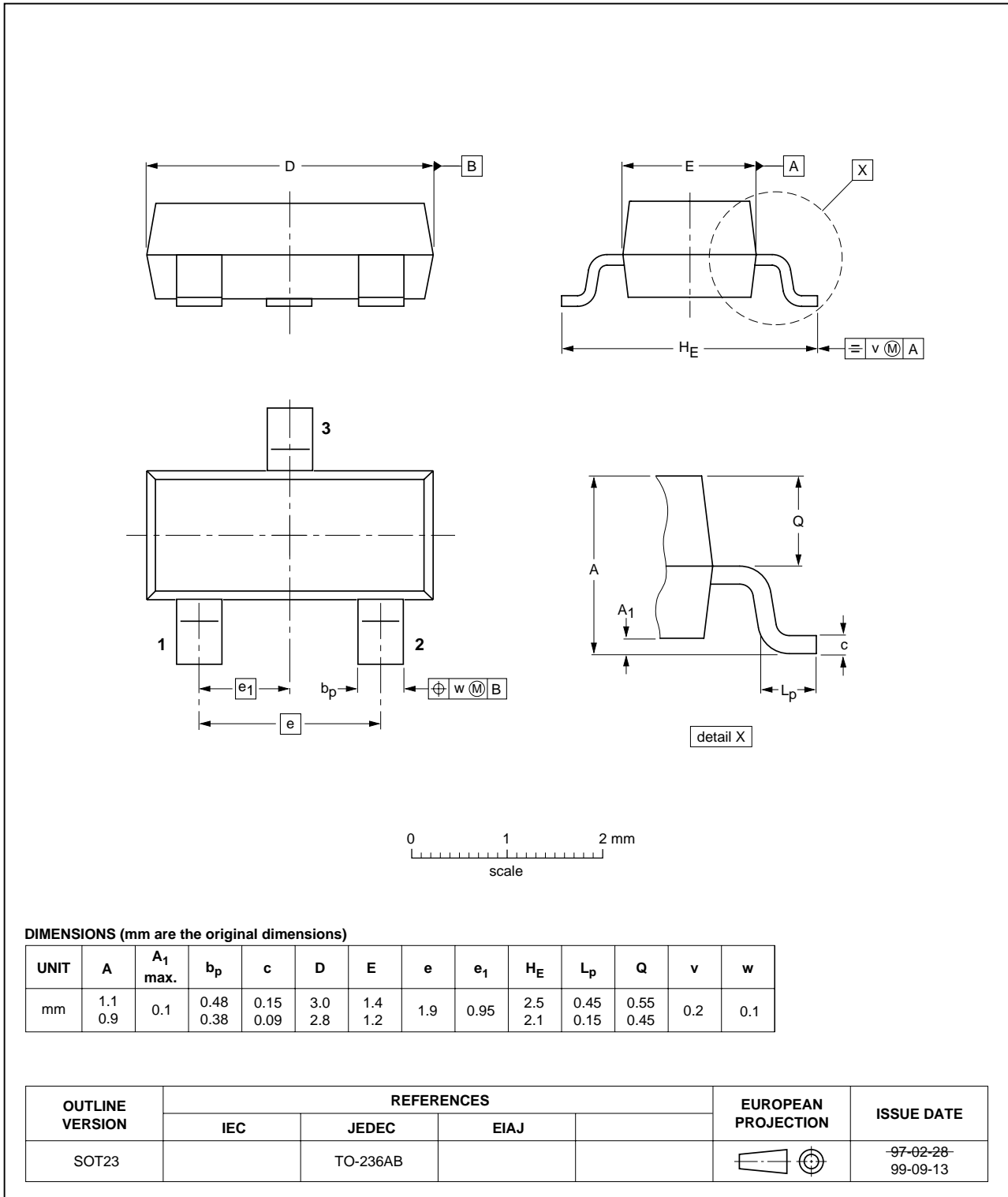
PNP high-voltage transistor

PMBT5401

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



## PNP high-voltage transistor

PMBT5401

## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	DEFINITION
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