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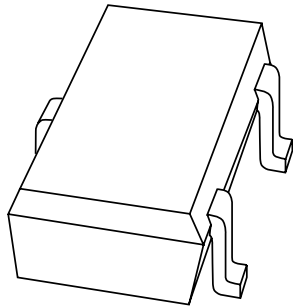
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Kind regards,

Team Nexperia

# DATA SHEET



## **PMST5550; PMST5551** NPN high-voltage transistors

Product data sheet  
Supersedes data of 1997 May 20

1999 Apr 29

# NPN high-voltage transistors

# PMST5550; PMST5551

### FEATURES

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

### APPLICATIONS

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

### DESCRIPTION

NPN high-voltage transistor in a SOT323 plastic package. PNP complement: PMST5401.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PMST5550	*1F
PMST5551	*G3

### Note

- \* = - : Made in Hong Kong.  
\* = t : Made in Malaysia.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

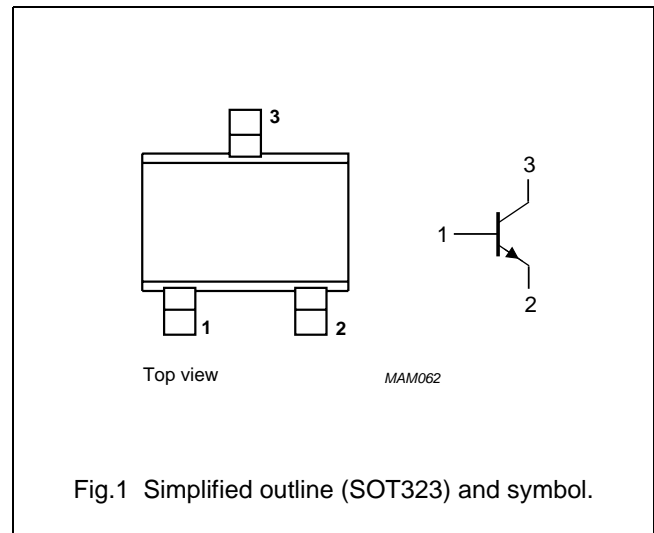


Fig.1 Simplified outline (SOT323) and symbol.

### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	PMST5550		–	160	V
	PMST5551		–	180	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	PMST5550		–	140	V
	PMST5551		–	160	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	6	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	–	200	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.

## NPN high-voltage transistors

## PMST5550; PMST5551

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

## Note

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

## CHARACTERISTICS

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

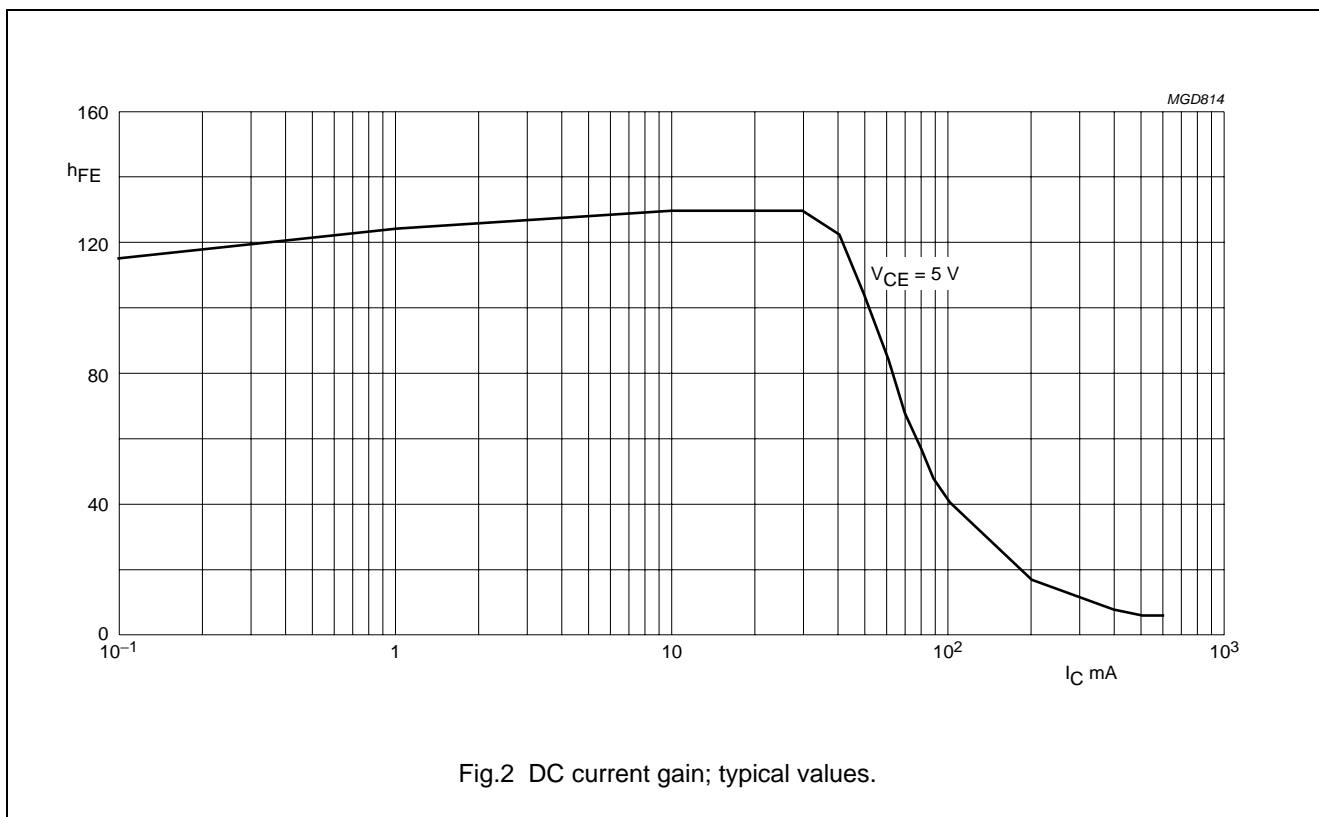
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current PMST5550	$I_E = 0; V_{CB} = 100\text{ V}$	–	100	nA
		$I_E = 0; V_{CB} = 100\text{ V}; T_{amb} = 100\text{ °C}$	–	100	$\mu\text{A}$
	collector cut-off current PMST5551	$I_E = 0; V_{CB} = 120\text{ V}$	–	50	nA
		$I_E = 0; V_{CB} = 120\text{ V}; T_{amb} = 100\text{ °C}$	–	50	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	50	nA
$h_{FE}$	DC current gain PMST5550	$V_{CE} = 5\text{ V}$ ; (see Fig.2)			
		$I_C = 1\text{ mA}$	60	–	
		$I_C = 10\text{ mA}$	60	250	
		$I_C = 50\text{ mA}$ ; note 1	20	–	
DC current gain PMST5551	$V_{CE} = 5\text{ V}$ ; (see Fig.2)				
	$I_C = 1\text{ mA}$	80	–		
	$I_C = 10\text{ mA}$	80	250		
	$I_C = 50\text{ mA}$ ; note 1	30	–		
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	–	150	mV
	collector-emitter saturation voltage PMST5550 PMST5551	$I_C = 50\text{ mA}; I_B = 5\text{ mA}$ ; note 1	–	250	mV
			–	200	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	–	1	V
	base-emitter saturation voltage PMST5550 PMST5551	$I_C = 50\text{ mA}; I_B = 5\text{ mA}$ ; note 1	–	1.2	V
			–	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	$I_C = i_c = 0; V_{EB} = 0.5\text{ V}; f = 1\text{ MHz}$	–	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 PMST5551	$I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 2\text{ k}\Omega$ ; $f = 10\text{ Hz to }15.7\text{ kHz}$	–	8	dB

## Note

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

NPN high-voltage transistors

PMST5550; PMST5551



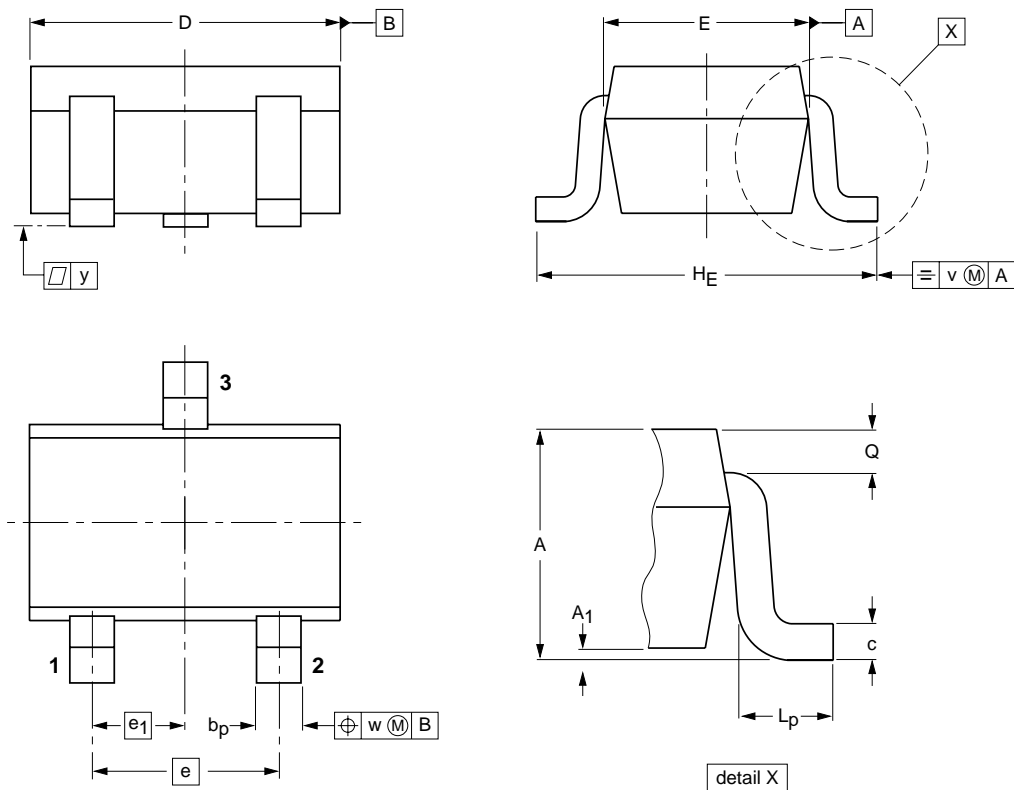
NPN high-voltage transistors

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## NPN high-voltage transistors

## PMST5550; PMST5551

## 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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# ***NXP Semiconductors***

## **Customer notification**

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## **Contact information**

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

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Printed in The Netherlands

115002/00/04/pp7

Date of release: 1999 Apr 29

Document order number: 9397 750 05907





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