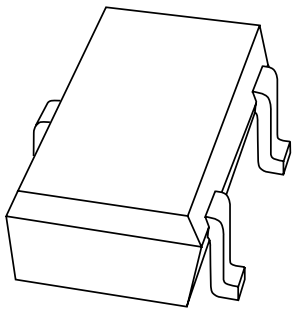
DATA SHEET



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(1)
PMST5550	∗1F
PMST5551	∗G3

Note

1. ∗ = - : Made in Hong Kong.
   ∗ = t : Made in Malaysia.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

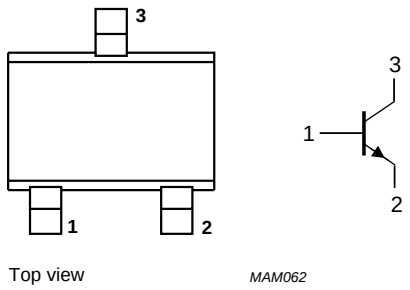


Fig.1 Simplified outline (SOT323) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	PMST5550		–	160	V
	PMST5551		–	180	V
V_{CEO}	collector-emitter voltage	open base			
	PMST5550		–	140	V
	PMST5551		–	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	$T_{amb} \leq 25$ °C; note 1	–	200	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		−65	+150	°C

Note

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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	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 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = 100 V	–	100	nA
	PMST5550	I_E = 0; V_{CB} = 100 V; T_{amb} = 100 °C	–	100	μA
	collector cut-off current	I_E = 0; V_{CB} = 120 V	–	50	nA
	PMST5551	I_E = 0; V_{CB} = 120 V; T_{amb} = 100 °C	–	50	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = 4 V	–	50	nA
h_{FE}	DC current gain	V_{CE} = 5 V; (see Fig.2)			
	PMST5550	I_C = 1 mA	60	–	
		I_C = 10 mA	60	250	
		I_C = 50 mA; note 1	20	–	
	DC current gain	V_{CE} = 5 V; (see Fig.2)			
	PMST5551	I_C = 1 mA	80	–	
		I_C = 10 mA	80	250	
		I_C = 50 mA; note 1	30	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = 10 mA; I_B = 1 mA	–	150	mV
	collector-emitter saturation voltage	I_C = 50 mA; I_B = 5 mA; note 1			
	PMST5550		–	250	mV
	PMST5551		–	200	mV
V_{BEsat}	base-emitter saturation voltage	I_C = 10 mA; I_B = 1 mA	–	1	V
	base-emitter saturation voltage	I_C = 50 mA; I_B = 5 mA; note 1			
	PMST5550		–	1.2	V
	PMST5551		–	1	V
C_c	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} = 0.5 V; f = 1 MHz	–	30	pF
f_T	transition frequency	I_C = 10 mA; V_{CE} = 10 V; f = 100 MHz	100	300	MHz
F	noise figure	I_C = 200 μA; V_{CE} = 5 V; R_S = 2 kΩ;			
	PMST5551	f = 10 Hz to 15.7 kHz	–	8	dB

Note

1. Pulse test: $t_p \leq 300$ μs; $\delta \leq 0.02$.

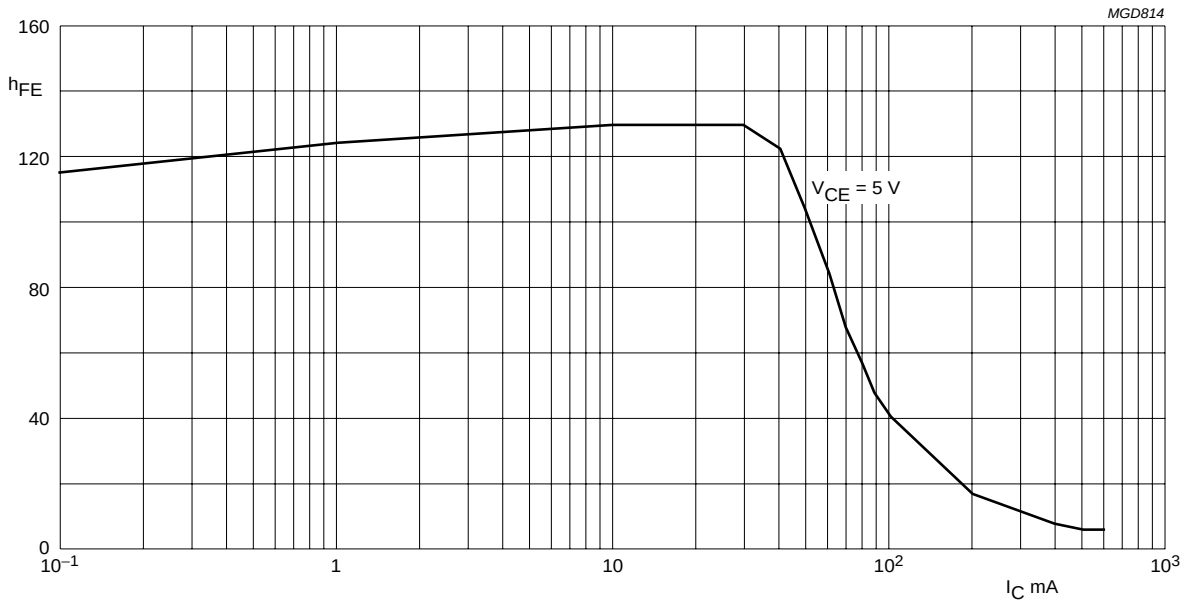
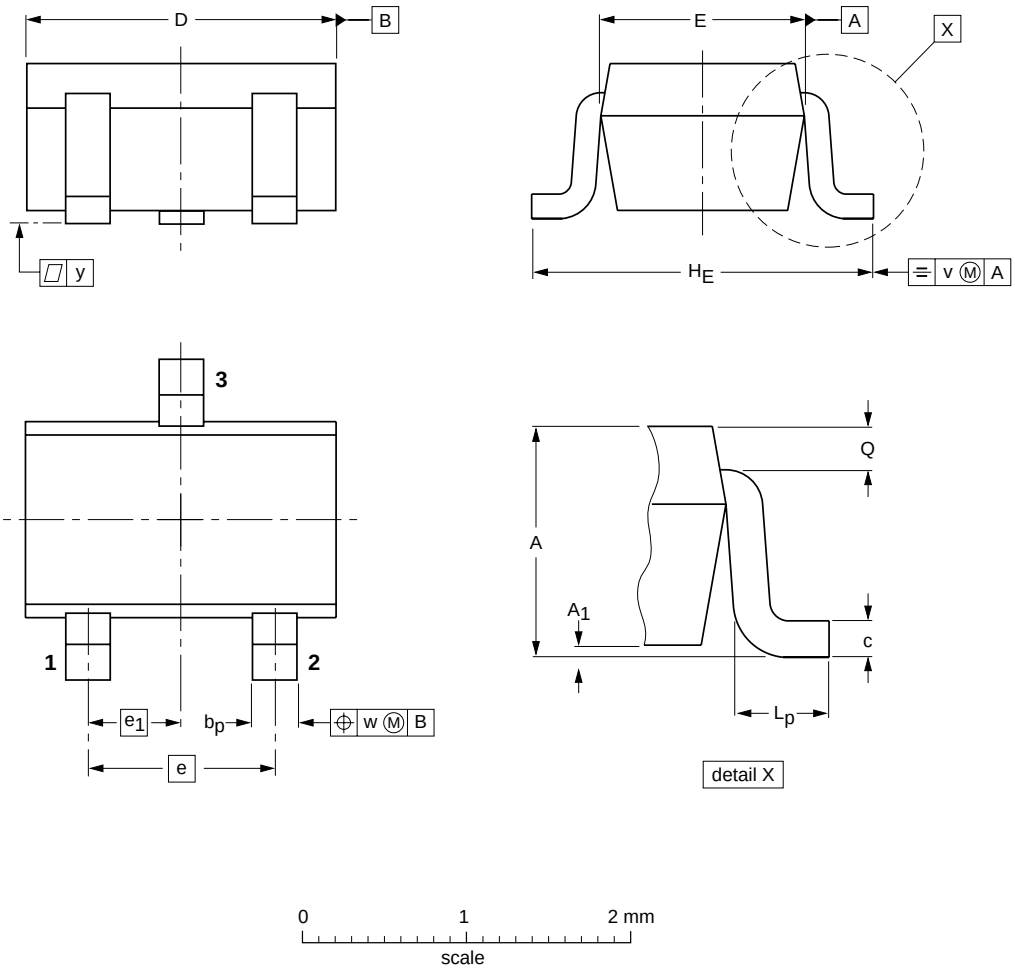


Fig.2 DC current gain; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT323**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	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

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.

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NXP Semiconductors

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors. No changes were made to the content, except for the legal definitions and disclaimers.

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