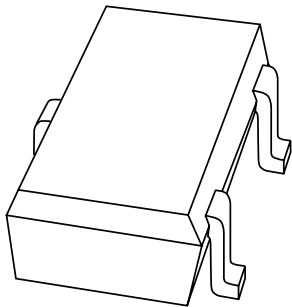


DATA SHEET



PMST4403 PNP switching transistor

Product data sheet
Supersedes data of 1997 May 29

1999 Apr 22

PNP switching transistor

PMST4403

FEATURES

- High current (max. 600 mA)
- Low voltage (max. 40 V).

APPLICATIONS

- Switching and linear amplification.

DESCRIPTION

PNP switching transistor in a SOT323 plastic package.
NPN complement: PMST4401.

MARKING

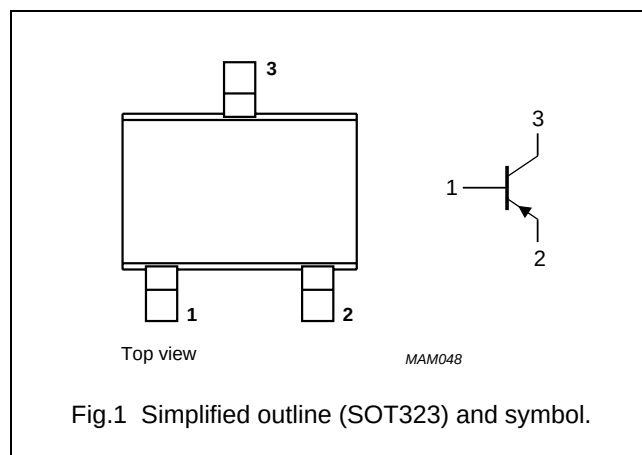
TYPE NUMBER	MARKING CODE ⁽¹⁾
PMST4403	*2T

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



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	–	–40	V
V_{CEO}	collector-emitter voltage	open base	–	–40	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–600	mA
I_{CM}	peak collector current		–	–800	mA
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; 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.

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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

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -40\text{ V}$	–	–50	nA
		$I_E = 0; V_{CB} = -40\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	–	–10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–50	nA
h_{FE}	DC current gain	$V_{CE} = -1\text{ V}$; (see Fig.2)	–	–	
		$I_C = -0.1\text{ mA}$	30	–	
		$I_C = -1\text{ mA}$	60	–	
		$I_C = -10\text{ mA}$	100	–	
	DC current gain	$I_C = -150\text{ mA}; V_{CE} = -2\text{ V}$; note 1	100	300	
		$I_C = -500\text{ mA}; V_{CE} = -2\text{ V}$; note 1	20	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$; note 1	–	–400	mV
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$; note 1	–	–750	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$; note 1	+750	–950	mV
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$; note 1	–	–1.3	V
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	8.5	pF
C_e	emitter capacitance	$I_C = I_E = 0; V_{EB} = -500\text{ mV}; f = 1\text{ MHz}$	–	35	pF
f_T	transition frequency	$I_C = -20\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	200	–	MHz
Switching times (between 10% and 90% levels); (see Fig.3)					
t_{on}	turn-on time	$I_{Con} = -150\text{ mA}; I_{Bon} = -15\text{ mA};$ $I_{Boff} = 15\text{ mA}$	–	40	ns
t_d	delay time		–	15	ns
t_r	rise time		–	30	ns
t_{off}	turn-off time		–	350	ns
t_s	storage time		–	300	ns
t_f	fall time		–	50	ns

Note

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

PNP switching transistor

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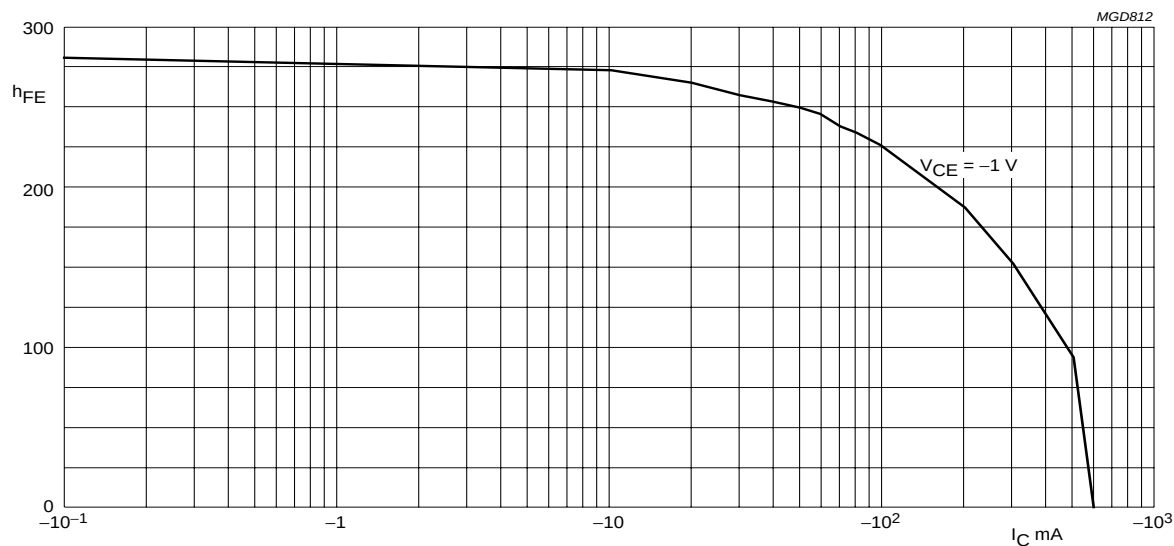
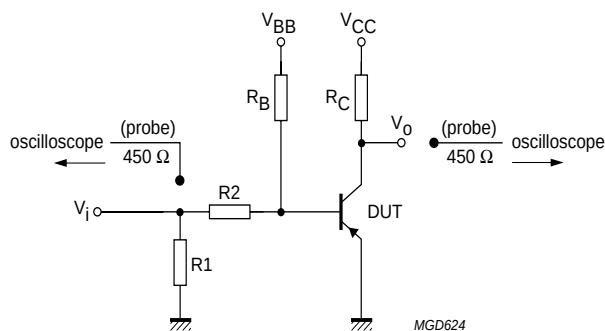


Fig.2 DC current gain; typical values.



$V_i = -9.5 \text{ V}$; $T = 500 \text{ } \mu\text{s}$; $t_p = 10 \text{ } \mu\text{s}$; $t_r = t_f \leq 3 \text{ ns}$.
 $R_1 = 68 \text{ } \Omega$; $R_2 = 325 \text{ } \Omega$; $R_B = 325 \text{ } \Omega$; $R_C = 160 \text{ } \Omega$.
 $V_{BB} = 3.5 \text{ V}$; $V_{CC} = -29.5 \text{ V}$.
 Oscilloscope input impedance $Z_i = 50 \text{ } \Omega$.

Fig.3 Test circuit for switching times.

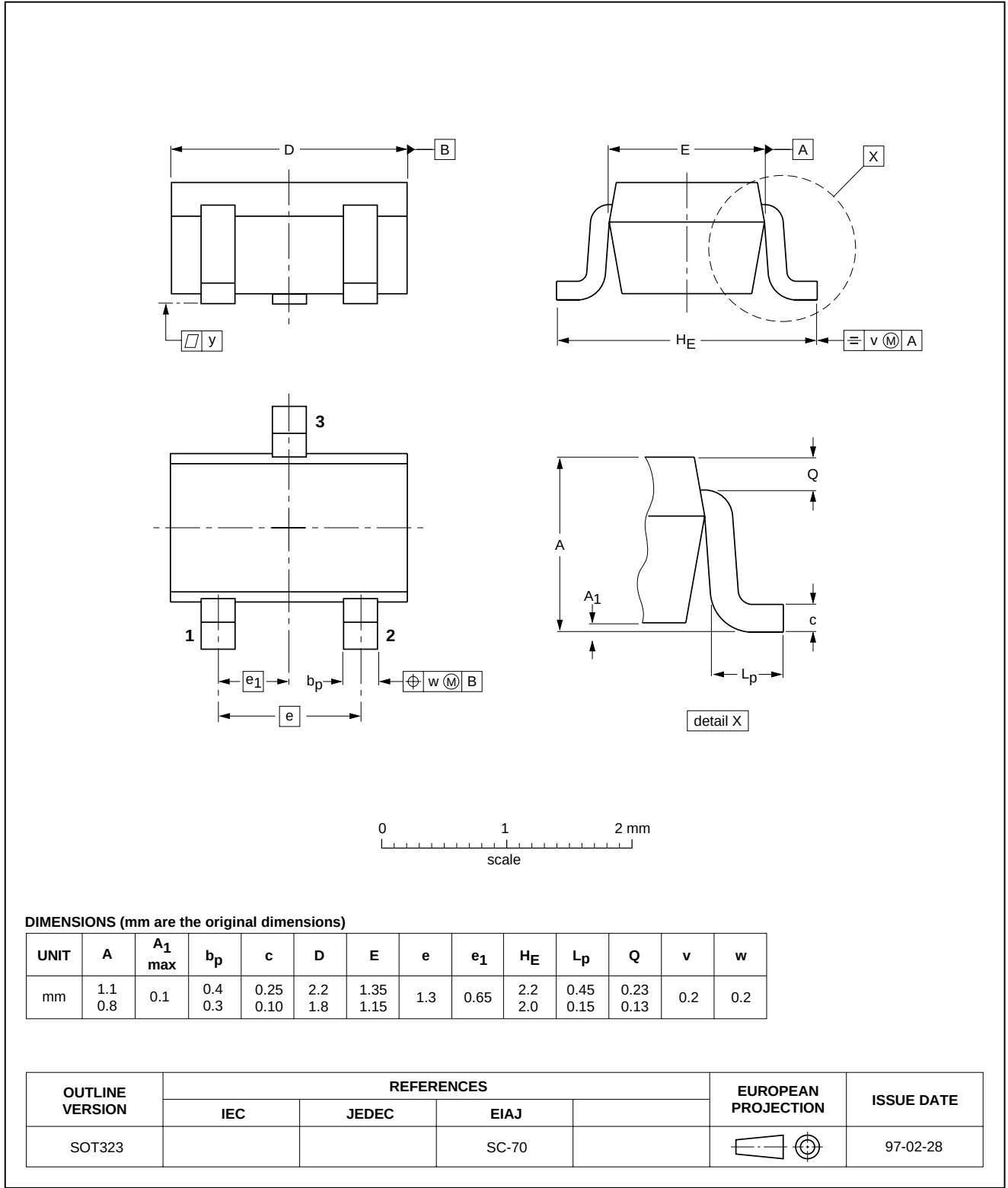
PNP switching transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



PNP switching transistor

PMST4403

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

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