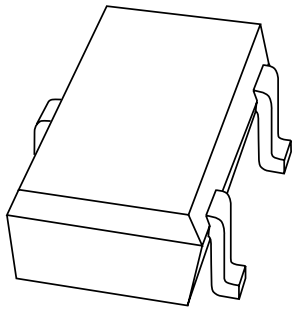
DATA SHEET



PMST2907A
PNP switching transistor

Product specification
Supersedes data of 1999 Apr 22

2001 Nov 19

Philips
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PNP switching transistor PMST2907A

FEATURES

- Low current (max. 600 mA)
- Low voltage (max. 60 V).

APPLICATIONS

- Medium power switching
- General purpose amplification.

DESCRIPTION

PNP switching transistor in an SC-70; SOT323 plastic package. NPN complement: PMST2222A.

MARKING

TYPE NUMBER	MARKING CODE(1)
PMST2907A	∗2F

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

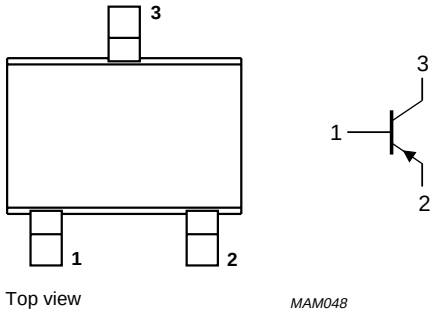


Fig.1 Simplified outline (SC-70; SOT323) and symbol.

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	–	–60	V
V_{CEO}	collector-emitter voltage	open base	–	–60	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	$T_{amb} \leq 25$ °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.

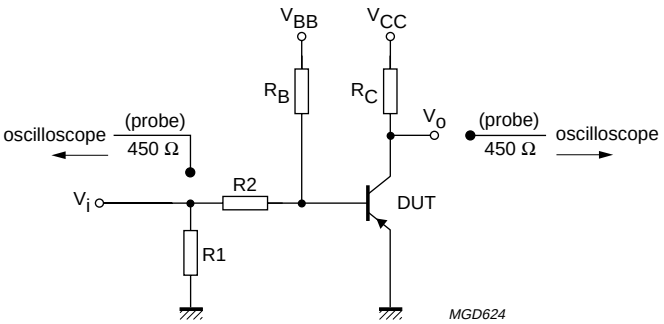
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = –50 V	–	–10	nA
		I_E = 0; V_{CB} = –50 V; T_j = 150 °C	–	–10	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = –3 V	–	–50	nA
h_{FE}	DC current gain	V_{CE} = –10 V			
		I_C = –0.1 mA	75	–	
		I_C = –1 mA	100	–	
		I_C = –10 mA; note 1	100	–	
		I_C = –150 mA; note 1	100	300	
		I_C = –500 mA; note 1	50	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = –150 mA; I_B = –15 mA; note 1	–	–400	mV
		I_C = –500 mA; I_B = –50 mA; note 1	–	–1.6	V
V_{BEsat}	base-emitter saturation voltage	I_C = –150 mA; I_B = –15 mA; note 1	–	–1.3	V
		I_C = –500 mA; I_B = –50 mA; note 1	–	–2.6	V
C_c	collector capacitance	$I_E = i_e$ = 0; V_{CB} = –10 V; f = 1 MHz	–	8	pF
C_e	emitter capacitance	$I_C = i_c$ = 0; V_{EB} = –2 V; f = 1 MHz	–	30	pF
f_T	transition frequency	I_C = –50 mA; V_{CE} = –20 V; f = 100 MHz; note 1	200	–	MHz
Switching times (between 10% and 90% levels); (see Fig.2)					
t_{on}	turn-on time	I_{Con} = –150 mA; I_{Bon} = –15 mA; I_{Boff} = 15 mA	–	45	ns
t_d	delay time		–	15	ns
t_r	rise time		–	35	ns
t_{off}	turn-off time		–	300	ns
t_s	storage time		–	250	ns
t_f	fall time		–	50	ns

Note

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

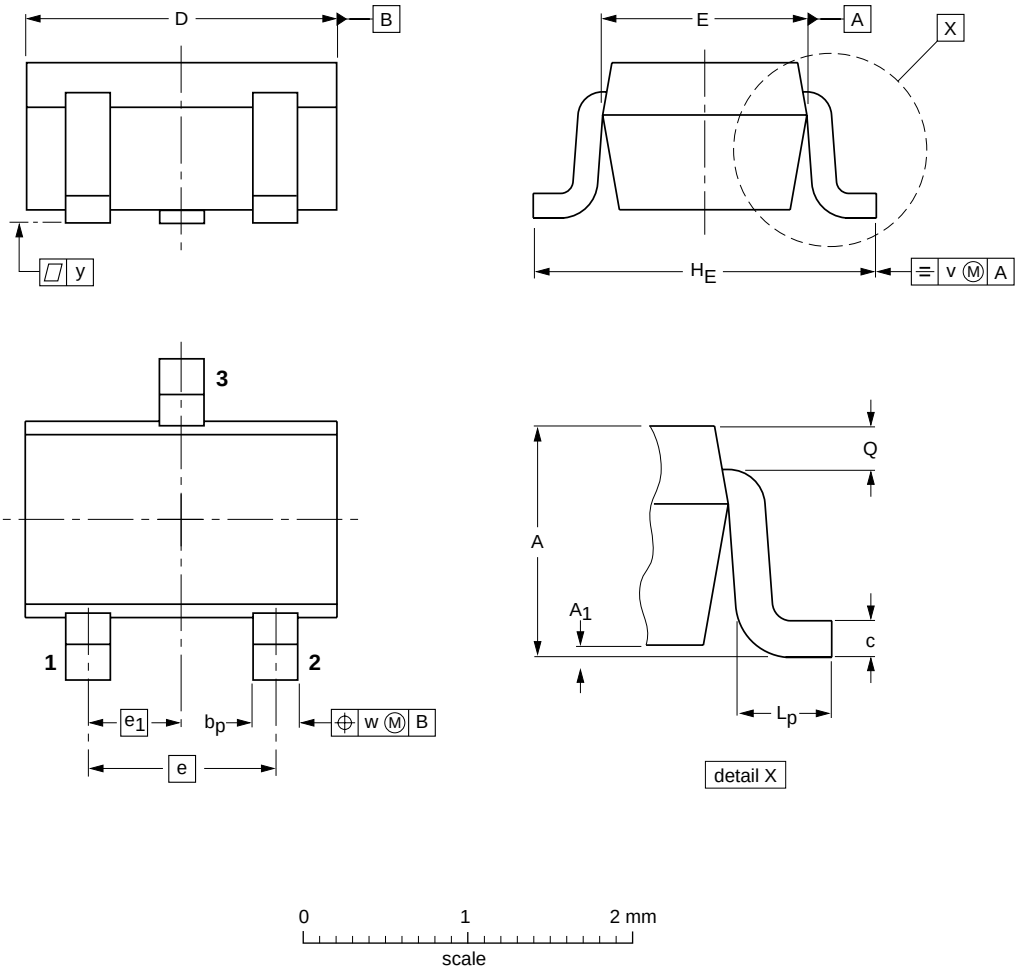


V_i = –9.5 V; T = 500 µs; t_p = 10 µs; $t_r = t_f \leq 3$ ns.
R1 = 68 Ω; R2 = 325 Ω; R_B = 325 Ω; R_C = 160 Ω.
V_{BB} = 3.5 V; V_{CC} = –29.5 V.
Oscilloscope input impedance Z_i = 50 Ω.

Fig.2 Test circuit for switching times.

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

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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