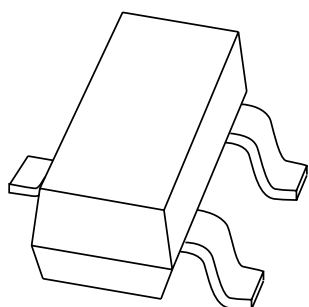


DATA SHEET



PMBT2907; PMBT2907A PNP switching transistors

Product specification
Supersedes data of 1997 Sep 04

1999 Apr 27

PNP switching transistors

PMBT2907; PMBT2907A

FEATURES

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

APPLICATIONS

- Switching and linear amplification.

DESCRIPTION

PNP switching transistor in a SOT23 plastic package.
NPN complements: PMBT2222 and PMBT2222A.

MARKING

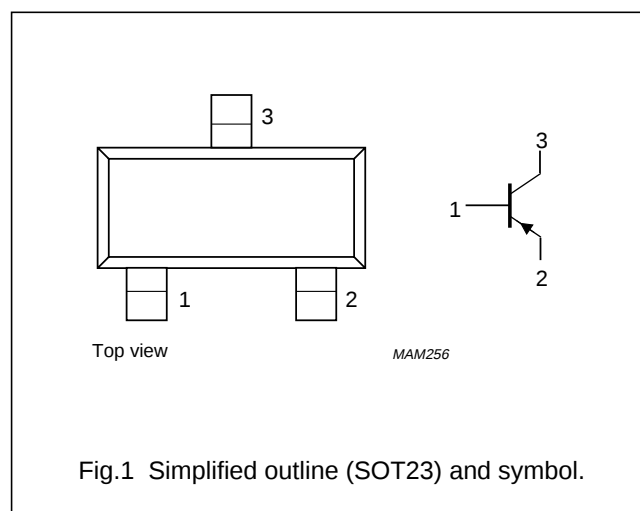
TYPE NUMBER	MARKING CODE ⁽¹⁾
PMBT2907	*2B
PMBT2907A	*2F

Note

1. * = p : 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	–	–60	V
V_{CEO}	collector-emitter voltage PMBT2907 PMBT2907A	open base	–	–40	V
			–	–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	$T_{amb} \leq 25\text{ °C}$	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

PNP switching transistors

PMBT2907; PMBT2907A

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

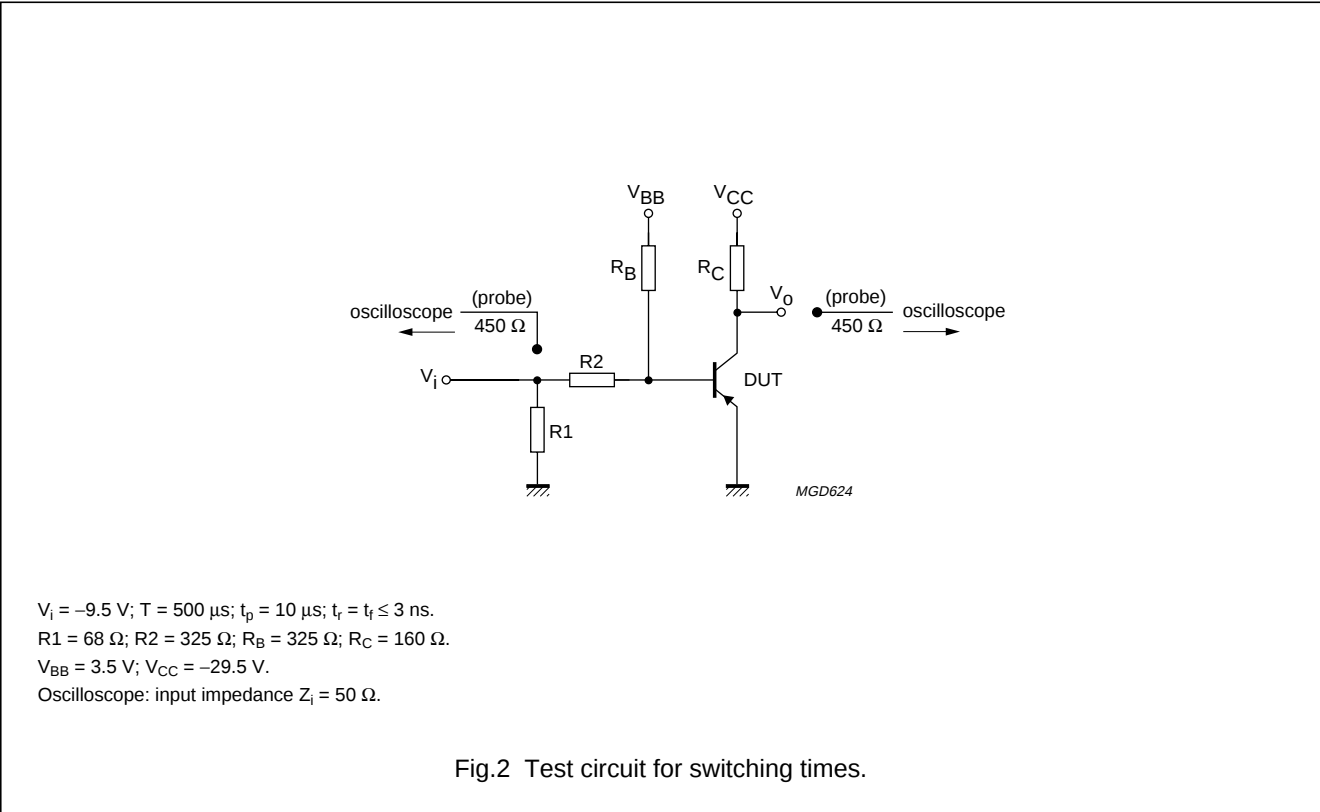
$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = -50\text{ V}$	–	–20	nA
	PMBT2907		–	–10	nA
	PMBT2907A		–	–10	nA
	collector cut-off current	$I_E = 0$; $V_{CB} = -50\text{ V}$; $T_j = 125\text{ °C}$	–	–20	μA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = -5\text{ V}$	–	–50	nA
	PMBT2907		–	–50	nA
h_{FE}	DC current gain	$I_C = -0.1\text{ mA}$; $V_{CE} = -10\text{ V}$	35	–	
	PMBT2907		75	–	
	PMBT2907A		75	–	
	DC current gain	$I_C = -1\text{ mA}$; $V_{CE} = -10\text{ V}$	50	–	
	PMBT2907		100	–	
	PMBT2907A		100	–	
	DC current gain	$I_C = -10\text{ mA}$; $V_{CE} = -10\text{ V}$	75	–	
	PMBT2907		100	–	
	PMBT2907A		100	–	
	DC current gain	$I_C = -150\text{ mA}$; $V_{CE} = -10\text{ V}$	100	300	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -150\text{ mA}$; $I_B = -15\text{ mA}$	–	–400	mV
		$I_C = -500\text{ mA}$; $I_B = -50\text{ mA}$	–	–1.6	V
V_{BEsat}	base-emitter saturation voltage	$I_C = -150\text{ mA}$; $I_B = -15\text{ mA}$	–	–1.3	V
		$I_C = -500\text{ mA}$; $I_B = -50\text{ mA}$	–	–2.6	V
C_c	collector capacitance	$I_E = I_{E0} = 0$; $V_{CB} = -10\text{ V}$; $f = 1\text{ MHz}$	–	8	pF
C_e	emitter capacitance	$I_C = I_{C0} = 0$; $V_{EB} = -2\text{ V}$; $f = 1\text{ MHz}$	–	30	pF
f_T	transition frequency	$I_C = -50\text{ mA}$; $V_{CE} = -20\text{ V}$; $f = 100\text{ MHz}$	200	–	MHz

PNP switching transistors

PMBT2907; PMBT2907A

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Switching times (between 10% and 90% levels); (see Fig.2)					
t _{on}	turn-on time	I _C on = -150 mA; I _B on = -15 mA; I _B off = 15 mA	—	40	ns
t _d	delay time		—	12	ns
t _r	rise time		—	30	ns
t _{off}	turn-off time		—	365	ns
t _s	storage time		—	300	ns
t _f	fall time		—	65	ns



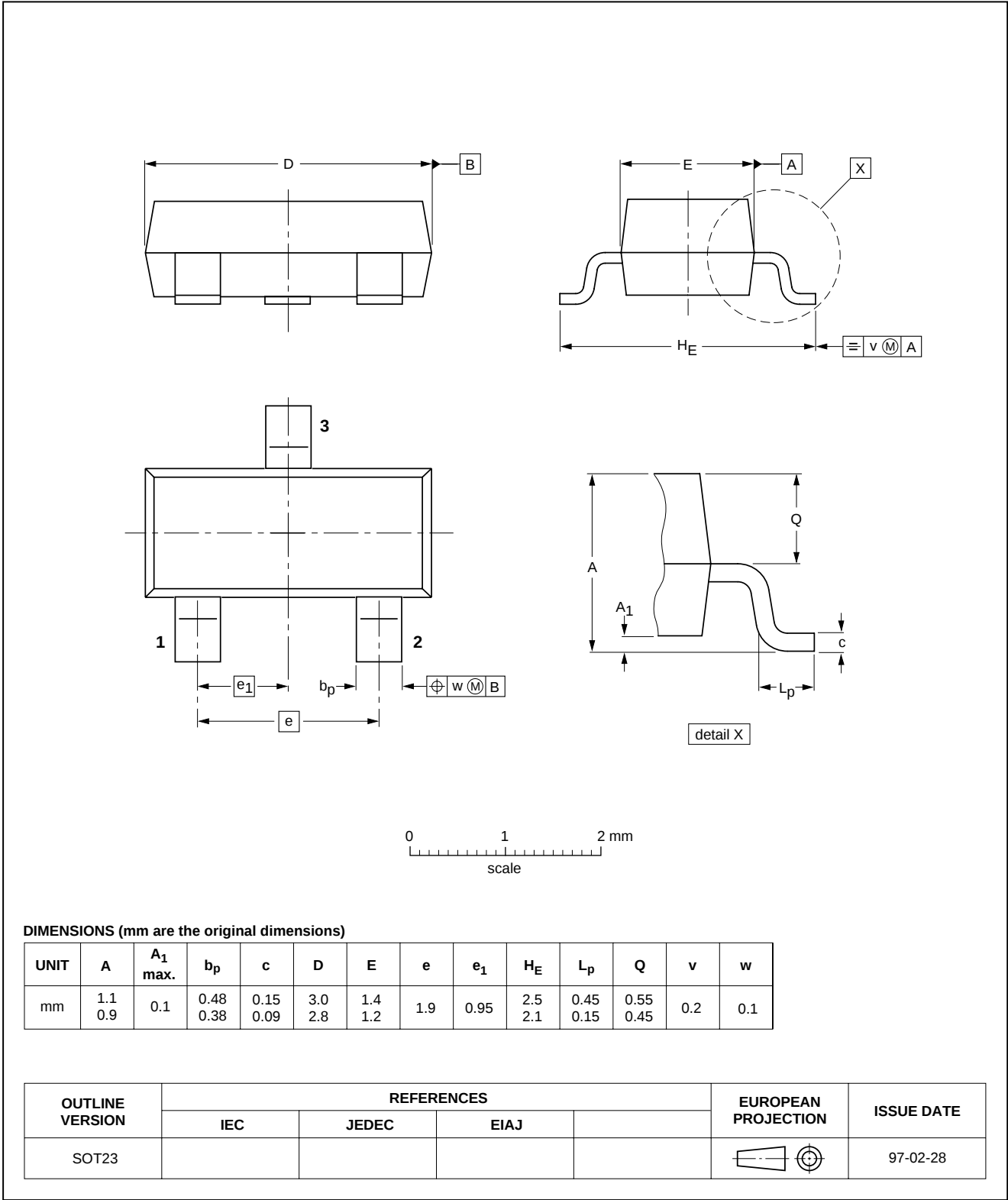
PNP switching transistors

PMBT2907; PMBT2907A

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



PNP switching transistorsPMBT2907; PMBT2907A

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

PNP switching transistors

PMBT2907; PMBT2907A

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