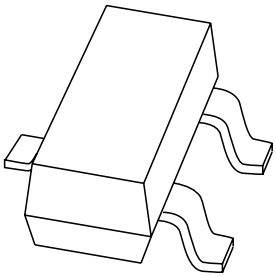
DATA SHEET



PMBTA42
NPN high-voltage transistor

Product specification
Supersedes data of 1999 Apr 22

2004 Jan 22

Philips
Semiconductors

PHILIPS

NPN high-voltage transistor PMBTA42

FEATURES

- Low current (max. 100 mA)
- High voltage (max. 300 V).

APPLICATIONS

- Telephony and professional communication equipment.

DESCRIPTION

NPN high-voltage transistor in a SOT23 plastic package.
PNP complement: PMBTA92.

MARKING

TYPE NUMBER	MARKING CODE(1)
PMBTA42	*1D

Note

1. * = p : Made in Hong Kong.
   * = t : Made in Malaysia.
   * = W : Made in China.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

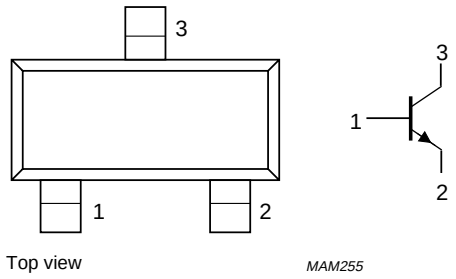


Fig.1 Simplified outline (SOT23) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PMBTA42	–	plastic surface mounted package; 3 leads	SOT23

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	–	300	V
V_{CEO}	collector-emitter voltage	open base	–	300	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current (DC)		–	100	mA
I_{CM}	peak collector current		–	200	mA
I_{BM}	peak base current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	250	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
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

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

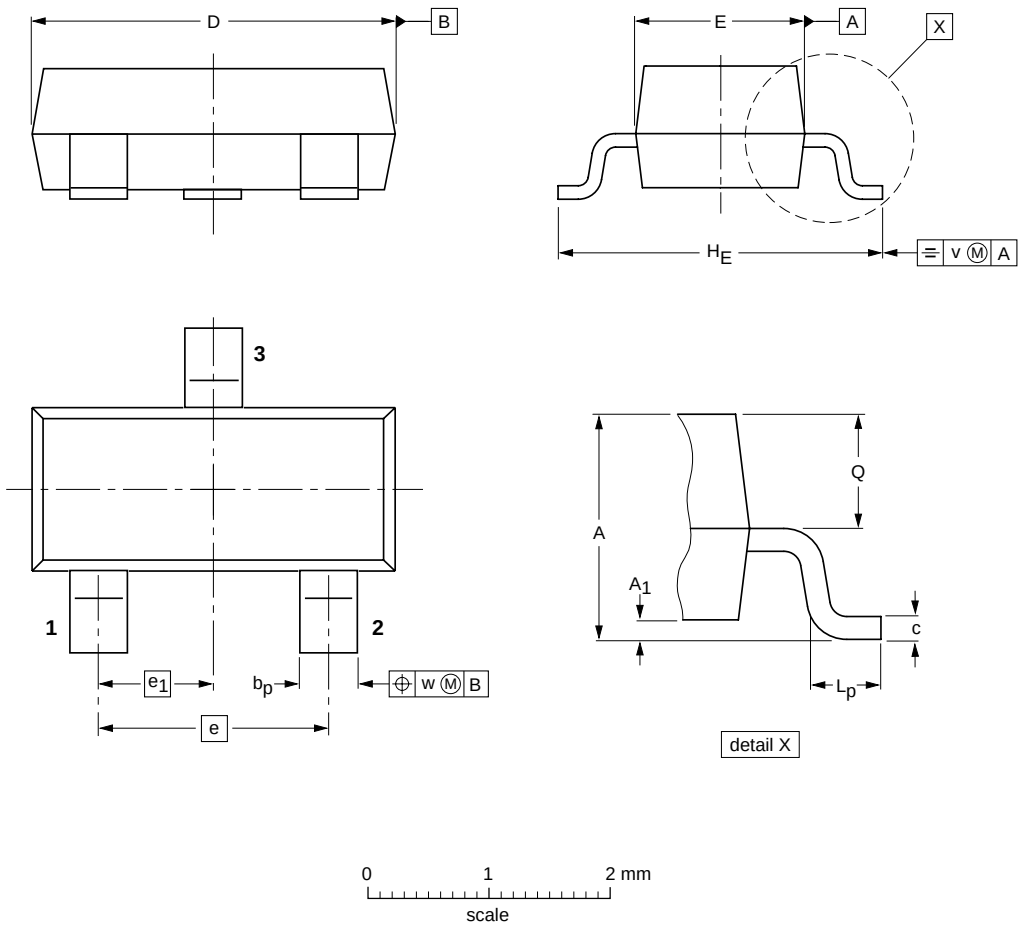
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = 200 V	–	100	nA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = 6 V	–	100	nA
h_{FE}	DC current gain	V_{CE} = 10 V			
		I_C = 1 mA	25	–	
		I_C = 10 mA	40	–	
		I_C = 30 mA	40	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = 20 mA; I_B = 2 mA	–	500	mV
V_{BEsat}	base-emitter saturation voltage	I_C = 20 mA; I_B = 2 mA	–	900	mV
C_{re}	feedback capacitance	I_C = I_c = 0; V_{CB} = 20 V; f = 1 MHz	–	3	pF
f_T	transition frequency	I_C = 10 mA; V_{CE} = 20 V; f = 100 MHz	50	–	MHz

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT23**



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 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				~~97-02-28~~ 99-09-13

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS[1]	PRODUCT STATUS[2][3]	DEFINITION
I	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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

1. Please consult the most recently issued data sheet before initiating or completing a design.
2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.
3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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