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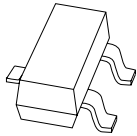
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Kind regards,

Team Nexperia



PMBTA42

300 V, 100 mA NPN high-voltage transistor

Rev. 05 — 12 December 2008

Product data sheet

1. Product profile

1.1 General description

NPN high-voltage transistor in a small SOT23 (TO-236AB) Surface-Mounted Device (SMD) plastic package.

PNP complement: PMBTA92.

1.2 Features

- High voltage (max. 300 V)

1.3 Applications

- Telephony and professional communication equipment

1.4 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CE0}	collector-emitter voltage	open base	-	-	300	V
I_C	collector current		-	-	100	mA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}$				
		$I_C = 1\text{ mA}$	25	-	-	
		$I_C = 10\text{ mA}$	40	-	-	
		$I_C = 30\text{ mA}$	40	-	-	

2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	base		
2	emitter		
3	collector		

sym021

3. Ordering information

Table 3. Ordering information

Type number ^[1]	Package		
	Name	Description	Version
PMBTA42	-	plastic surface-mounted package; 3 leads	SOT23
PMBTA42/DG			

[1] /DG: halogen-free

4. Marking

Table 4. Marking codes

Type number ^[1]	Marking code ^[2]
PMBTA42	*1D
PMBTA42/DG	*BV

[1] /DG: halogen-free

[2] * = -: made in Hong Kong

* = p: made in Hong Kong

* = t: made in Malaysia

* = W: made in China

5. Limiting values

Table 5. 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		-	100	mA
I_{CM}	peak collector current	single pulse; $t_p \leq 1$ ms	-	200	mA
I_{BM}	peak base current	single pulse; $t_p \leq 1$ ms	-	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	^[1] -	250	mW
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-65	+150	°C
T_{stg}	storage temperature		-65	+150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	500	K/W

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

7. Characteristics

Table 7. Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	$V_{CB} = 200\text{ V}; I_E = 0\text{ A}$	-	-	100	nA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 6\text{ V}; I_C = 0\text{ A}$	-	-	100	nA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}$				
		$I_C = 1\text{ mA}$	25	-	-	
		$I_C = 10\text{ mA}$	40	-	-	
		$I_C = 30\text{ mA}$	40	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 20\text{ mA}; I_B = 2\text{ mA}$	-	-	500	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = 20\text{ mA}; I_B = 2\text{ mA}$	-	-	900	mV
C_{re}	feedback capacitance	$V_{CB} = 20\text{ V}; I_C = i_c = 0\text{ A};$ $f = 1\text{ MHz}$	-	-	3	pF
f_T	transition frequency	$V_{CE} = 20\text{ V}; I_C = 10\text{ mA};$ $f = 100\text{ MHz}$	50	-	-	MHz

8. Package outline

Plastic surface-mounted package; 3 leads

SOT23

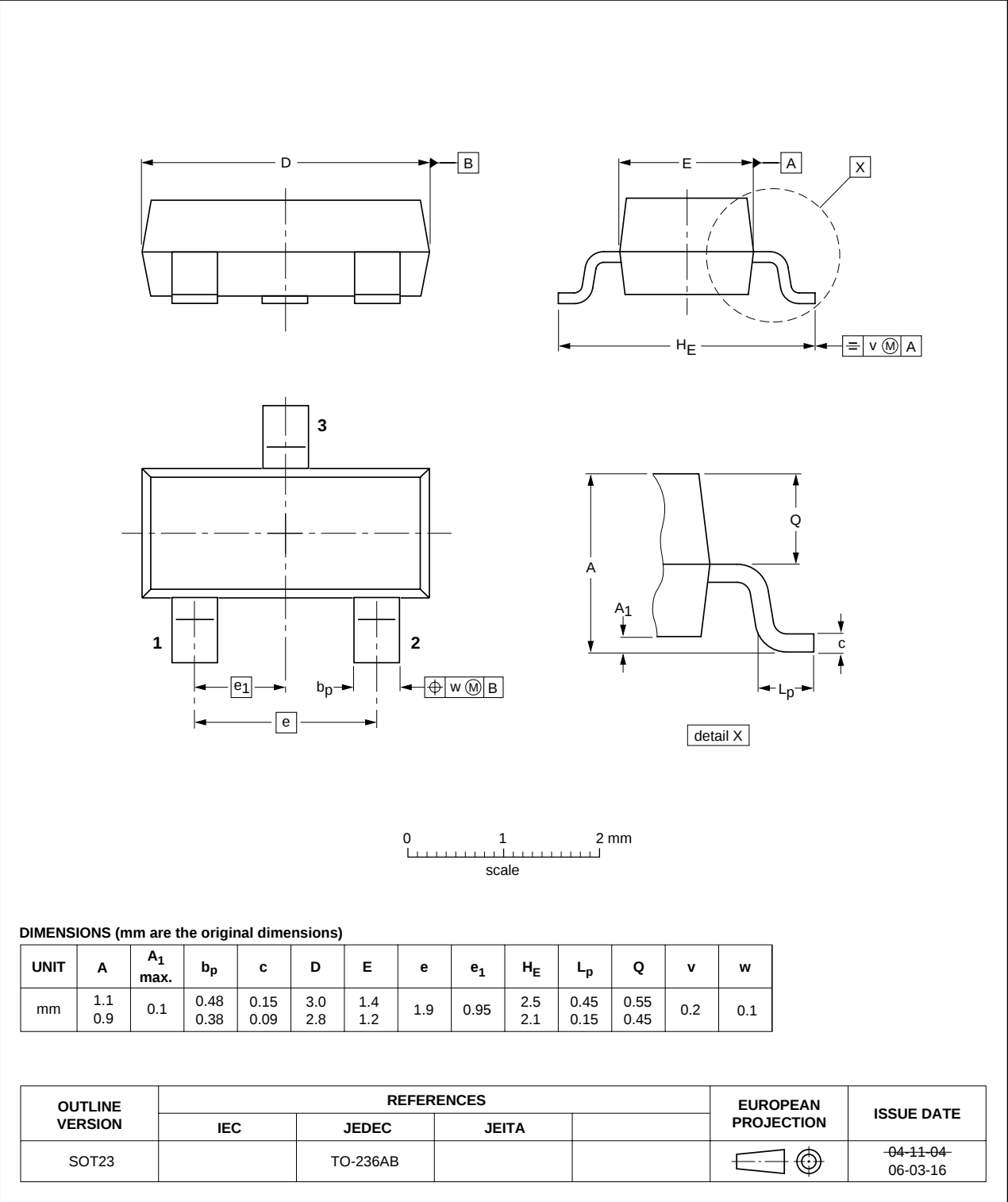


Fig 1. Package outline SOT23 (TO-236AB)

9. Packing information

Table 8. Packing methods

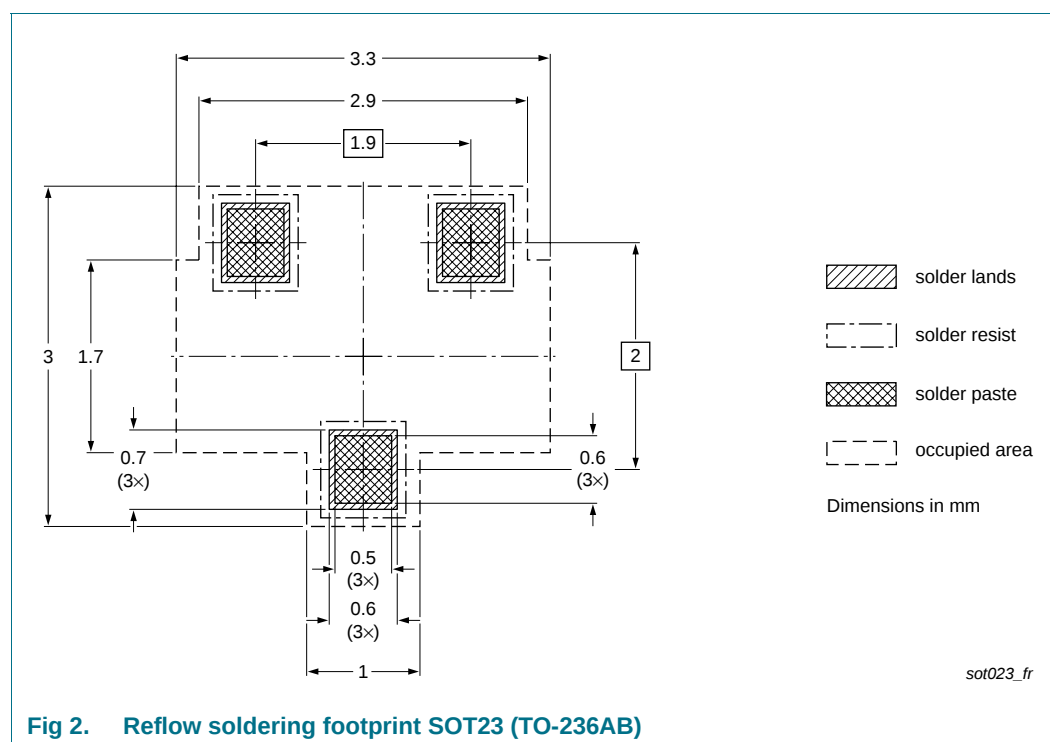
The indicated -xxx are the last three digits of the 12NC ordering code.^[1]

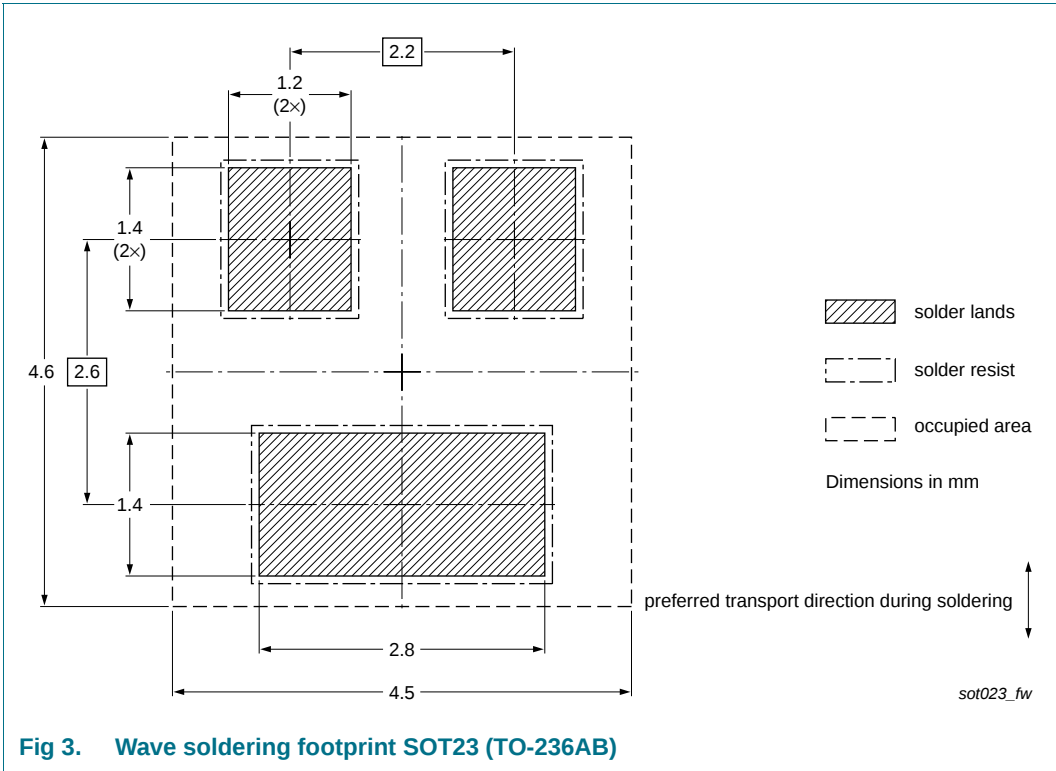
Type number	Package	Description	Packing quantity	
			3000	10000
PMBTA42	SOT23	4 mm pitch, 8 mm tape and reel	-215	-235
PMBTA42/DG				

[1] For further information and the availability of packing methods, see [Section 13](#).

[2] /DG: halogen-free

10. Soldering





11. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PMBTA42_5	20081212	Product data sheet	-	PMBTA42_4
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Type number PMBTA42/DG added • Table 4 "Marking codes": enhanced • Section 12 "Legal information": updated			
PMBTA42_4	20040122	Product specification	-	PMBTA42_3
PMBTA42_3	19990422	Product specification	-	PMBTA42_43_CNV_2

12. Legal information

12.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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