



PMBTA92-Q

PNP high-voltage transistor

30 March 2022

Product data sheet

1. General description

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

NPN complement: PMBTA42-Q

2. Features and benefits

- Low current (max. 100 mA)
- High voltage (max. 300 V)
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Telephony
- Professional communication equipment

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CEO}	collector-emitter voltage	open base	-	-	-300	V
I_C	collector current		-	-	-100	mA
h_{FE}	DC current gain	$V_{CE} = -10\text{ V}$; $I_C = -10\text{ mA}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$	40	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base	SOT23	sym132
2	E	emitter		
3	C	collector		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMBTA92-Q	SOT23	plastic, surface-mounted package; 3 terminals; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body	SOT23

7. Marking

Table 4. Marking codes

Type number	Marking code ^[1]
PMBTA92-Q	%2D

[1] % = placeholder for manufacturing site code

8. 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		-	-5	V
I_C	collector current	single pulse; $t_p \leq 1$ ms		-	-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	[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 PCB, single-sided, 35 µm copper, tin-plated and standard footprint.

9. 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, 35 µm copper, tin-plated and standard footprint.

10. Characteristics

Table 7. Characteristics

$T_{amb} = 25\text{ °C}$ unless otherwise specified

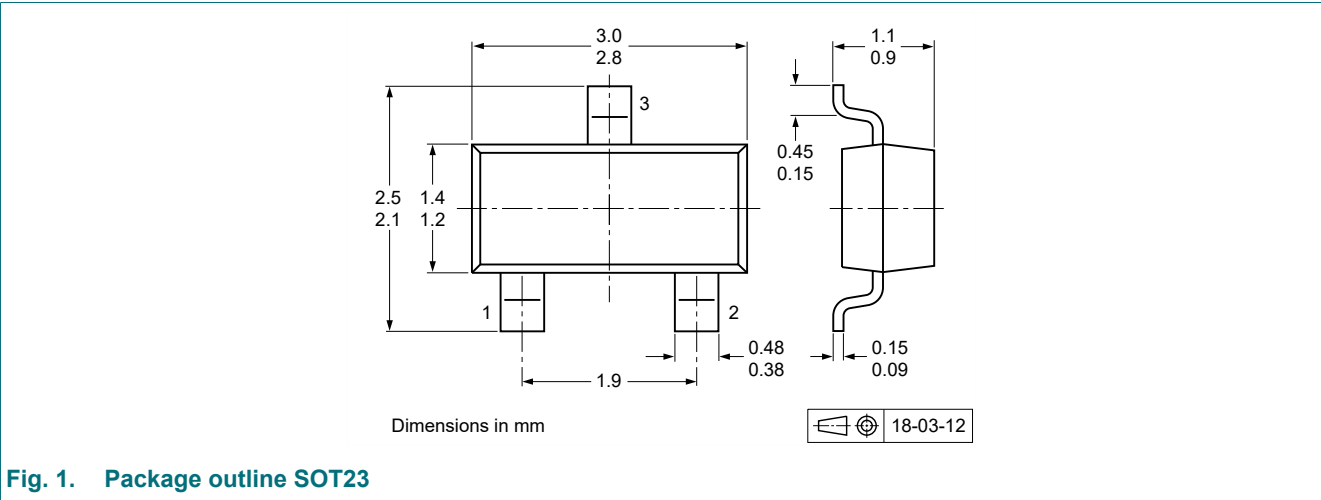
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = -100\text{ }\mu\text{A}$; $I_E = 0\text{ A}$; $T_{amb} = 25\text{ °C}$	-300	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = -1\text{ mA}$; $I_B = 0\text{ A}$; $T_{amb} = 25\text{ °C}$	-300	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage (collector open)	$I_E = -100\text{ }\mu\text{A}$; $I_C = 0\text{ A}$; $T_{amb} = 25\text{ °C}$	-5	-	-	V
I_{CBO}	collector-base cut-off current	$V_{CB} = -200\text{ V}$; $I_E = 0\text{ A}$; $T_{amb} = 25\text{ °C}$	-	-	-250	nA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -3\text{ V}$; $I_C = 0\text{ A}$; $T_{amb} = 25\text{ °C}$	-	-	-100	nA
h_{FE}	DC current gain	$V_{CE} = -10\text{ V}$; $I_C = -1\text{ mA}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_{amb} = 25\text{ °C}$	25	-	-	
		$V_{CE} = -10\text{ V}$; $I_C = -10\text{ mA}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$	40	-	-	
		$V_{CE} = -10\text{ V}$; $I_C = -30\text{ mA}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$	25	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -20\text{ mA}$; $I_B = -2\text{ mA}$; $T_{amb} = 25\text{ °C}$	-	-	-500	mV
V_{BEsat}	base-emitter saturation voltage		-	-	-900	mV
f_T	transition frequency	$V_{CE} = -20\text{ V}$; $I_C = -10\text{ mA}$; $f = 100\text{ MHz}$; $T_{amb} = 25\text{ °C}$	50	-	-	MHz
C_c	collector capacitance	$V_{CB} = -20\text{ V}$; $I_E = 0\text{ A}$; $i_e = 0\text{ A}$; $f = 1\text{ MHz}$; $T_{amb} = 25\text{ °C}$	-	-	6	pF

11. Test information

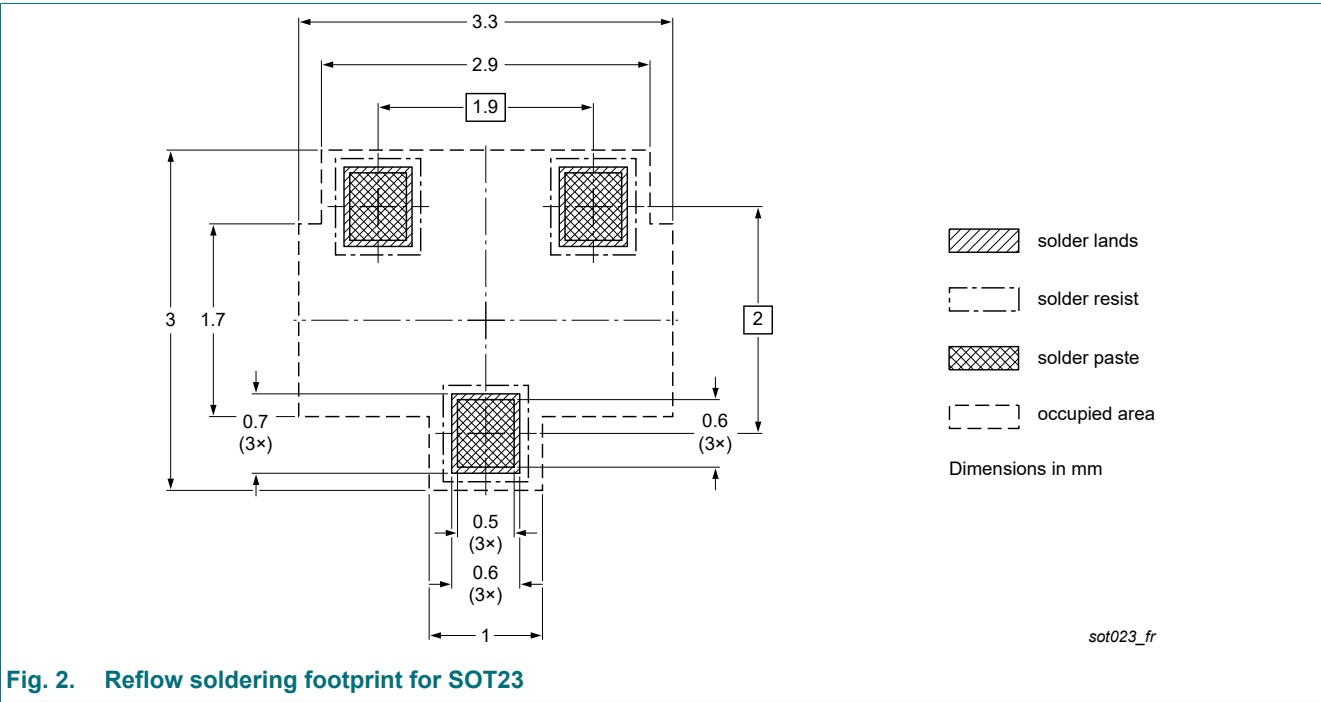
Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline



13. Soldering



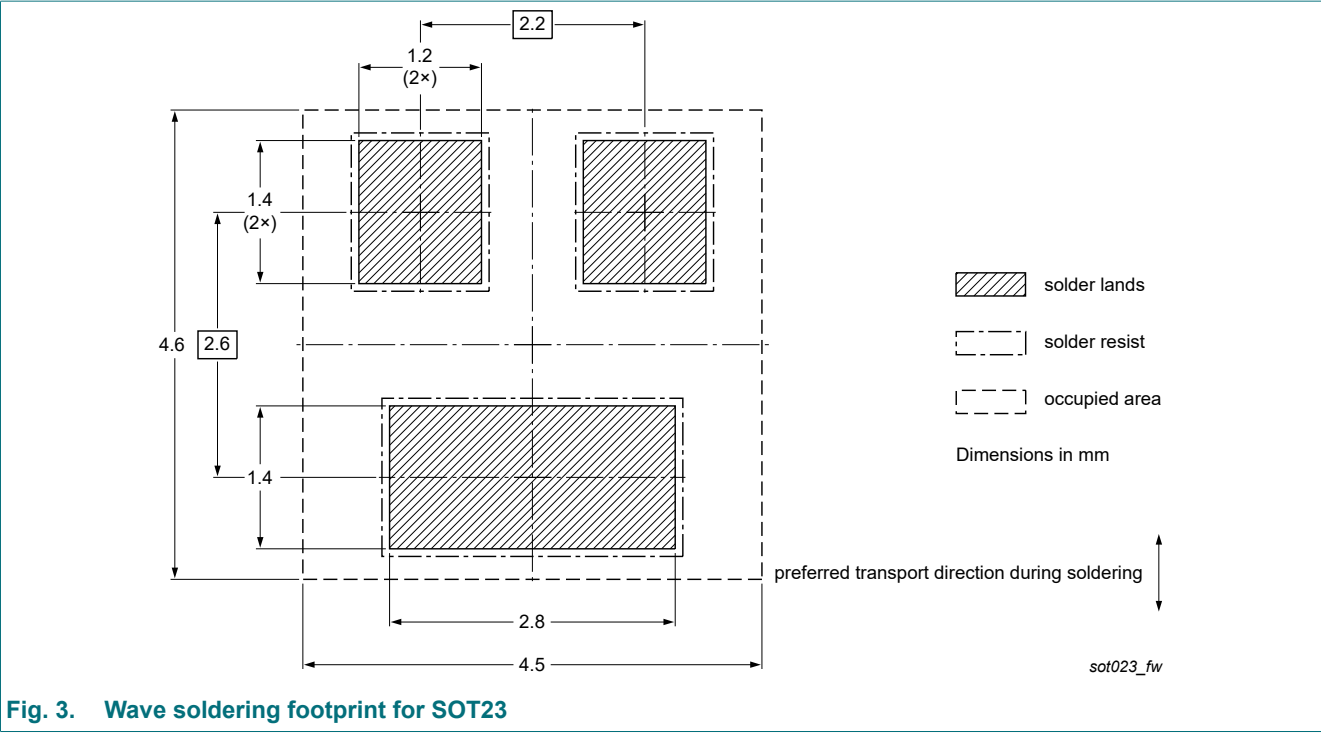


Fig. 3. Wave soldering footprint for SOT23

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMBTA92-Q v.1	20220330	Product data sheet	-	-

15. Legal information

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.

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