



PMSTA92

PNP high-voltage transistor

16 May 2019

Product data sheet

1. General description

PNP high-voltage transistor in a very small SOT323 (SC-70) Surface-Mounted Device (SMD) plastic package.

NPN complement: PMSTA42

2. Features and benefits

- Very small package
- High voltage
- AEC-Q101 qualified

3. Applications

- Primarily intended for use in telephony and professional communication equipment.

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	$V_{CE} = -10\text{ V}; I_C = -30\text{ mA}$	30	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base	<p>SC-70 (SOT323)</p>	<p>sym132</p>
2	E	emitter		
3	C	collector		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMSTA92	SC-70	plastic surface-mounted package; 3 leads	SOT323

7. Marking

Table 4. Marking codes

Type number	Marking code ^[1]
PMSTA92	%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		-	-100	mA
I_{CM}	peak collector current	single pulse; $t_p \leq 1$ ms	-	-200	mA
I_{BM}	peak base current		-	-100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	[1]	200	mW
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-65	150	°C
T_{stg}	storage temperature		-65	150	°C

[1] Refer to SOT323 (SC-70) standard mounting conditions.

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]	-	625	K/W

[1] Device mounted on an FR4 PCB, single-sided 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
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	$V_{EB} = -3\text{ V}$; $I_C = 0\text{ A}$	-	-	-100	nA
h_{FE}	DC current gain	$V_{CE} = -10\text{ V}$; $I_C = -1\text{ mA}$	40	-	-	
		$V_{CE} = -10\text{ V}$; $I_C = -10\text{ mA}$	40	-	-	
		$V_{CE} = -10\text{ V}$; $I_C = -30\text{ mA}$	30	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -20\text{ mA}$; $I_B = -2\text{ mA}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_{amb} = 25\text{ °C}$	-	-	-250	mV
V_{BEsat}	base-emitter saturation voltage		-	-	-900	mV
C_c	collector capacitance	$V_{CB} = -20\text{ V}$; $I_E = 0\text{ A}$; $i_e = 0\text{ A}$; $f = 1\text{ MHz}$	-	1.9	3.5	pF
C_e	emitter capacitance	$V_{EB} = -5\text{ V}$; $I_C = 0\text{ A}$; $i_c = 0\text{ A}$; $f = 1\text{ MHz}$	-	20	-	pF
f_T	transition frequency	$V_{CE} = -20\text{ V}$; $I_C = -10\text{ mA}$; $f = 100\text{ MHz}$	50	-	-	MHz

11. Package outline

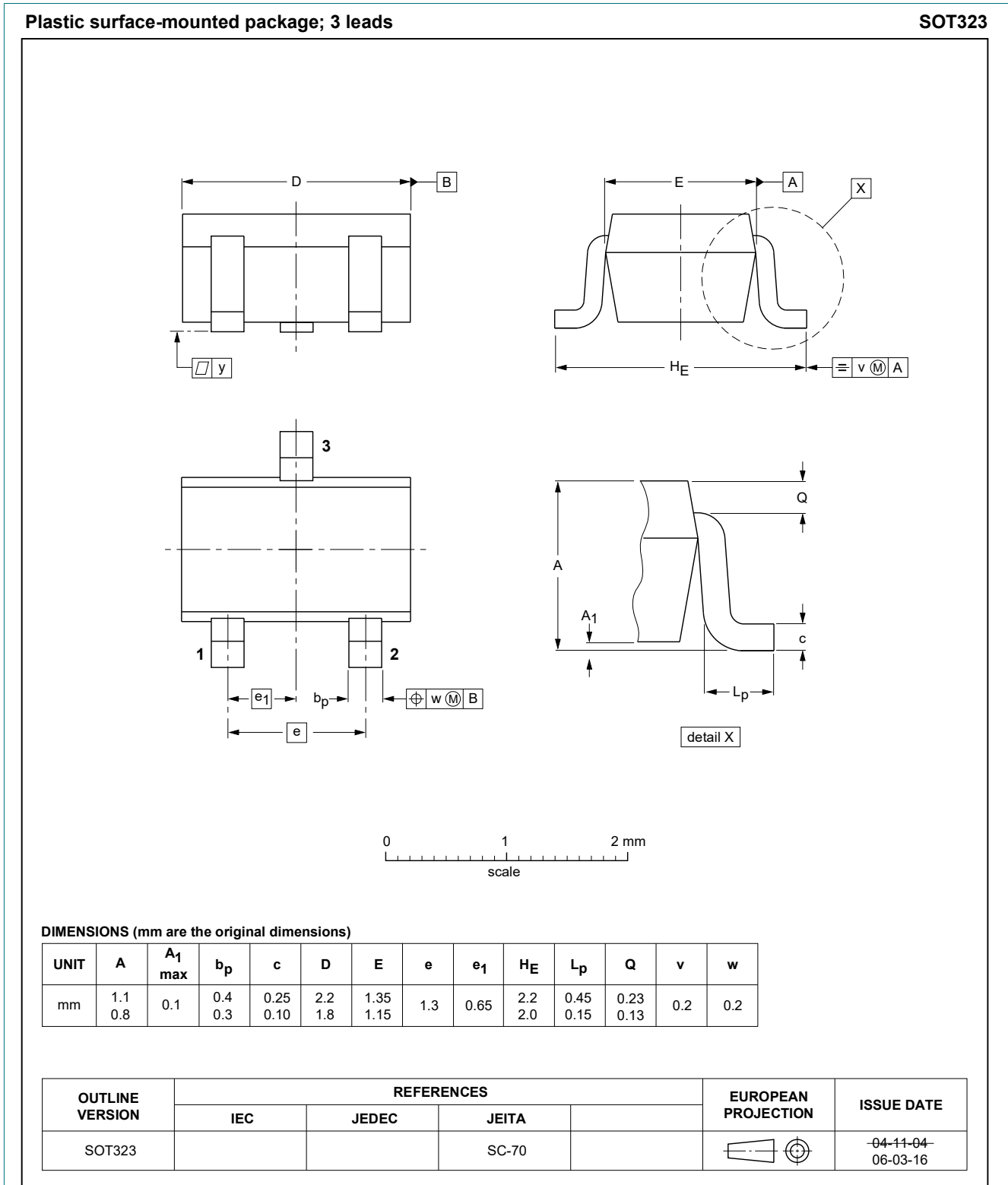


Fig. 1. Package outline SC-70 (SOT323)

12. Soldering

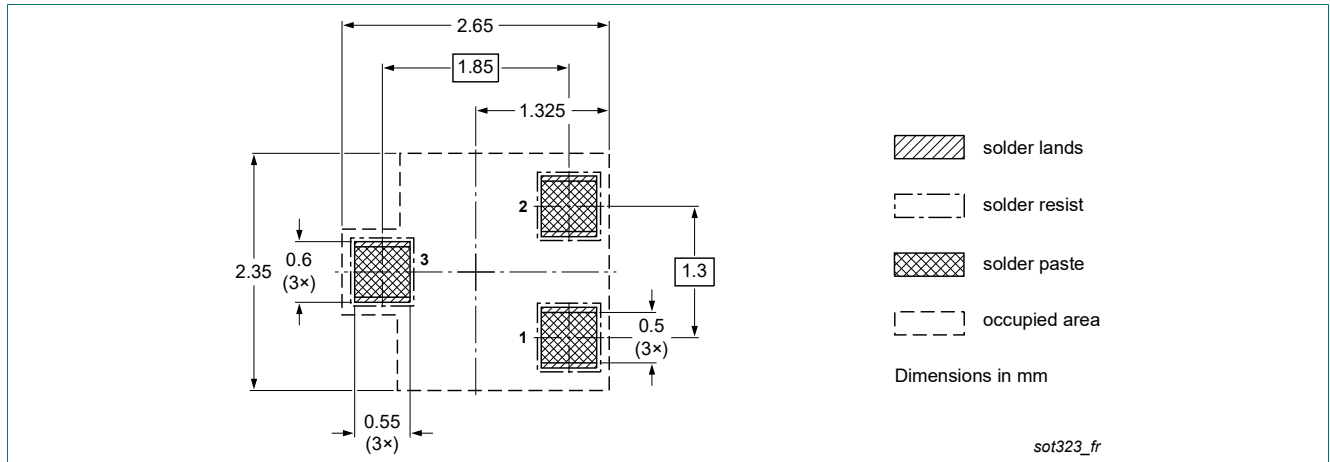


Fig. 2. Reflow soldering footprint for SC-70 (SOT323)

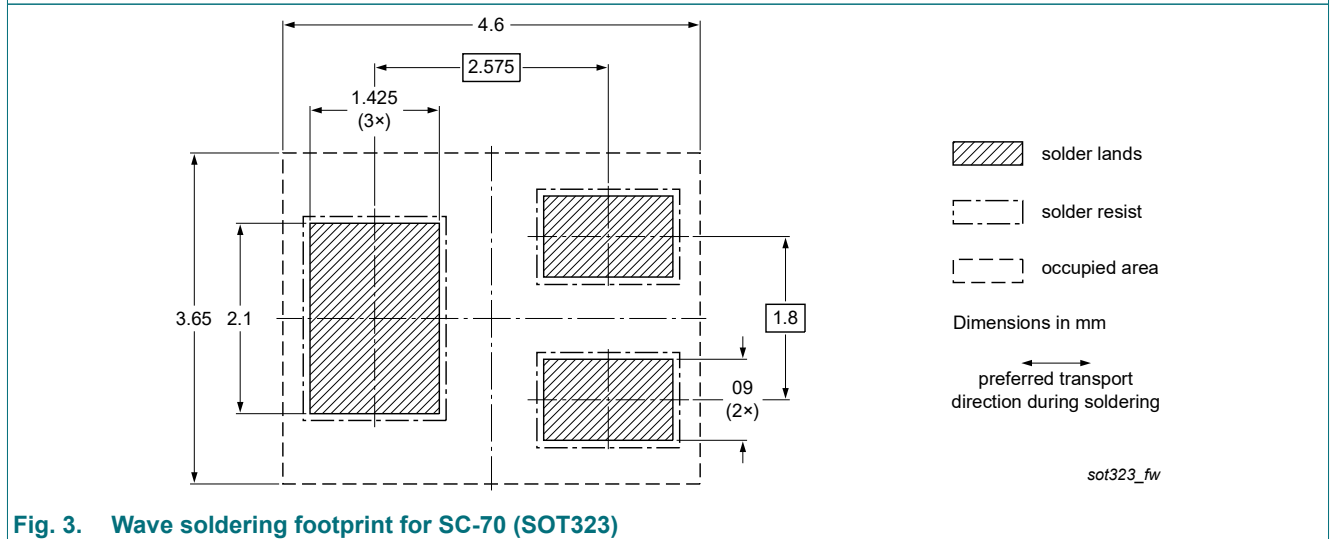


Fig. 3. Wave soldering footprint for SC-70 (SOT323)

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMSTA92 v.4	20190516	Product data sheet	-	PMSTA92 v.3
Modifications:	<ul style="list-style-type: none"> • Marking: Marking code corrected • The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. • Legal texts have been adapted to the new company name where appropriate. 			
PMSTA92 v.3	20010220	Product data sheet	-	PMSTA92_93 v.2
PMSTA92_93 v.2	19990601	Product data sheet	-	PMSTA92_93 v.1
PMSTA92_93 v.1	19961209	Product data sheet	-	-

14. 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.

- [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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