



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	SC-70 (SOT323)	sym132
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	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]	-	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 °C, unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I _{CBO}	collector-base cut-off current	V _{CB} = -200 V; I _E = 0 A	-	-	-100	nA
I _{EBO}	emitter-base cut-off current	V _{EB} = -3 V; I _C = 0 A	-	-	-100	nA
h _{FE}	DC current gain	V _{CE} = -10 V; I _C = -1 mA	40	-	-	
		V _{CE} = -10 V; I _C = -10 mA	40	-	-	
		V _{CE} = -10 V; I _C = -30 mA	30	-	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = -20 mA; I _B = -2 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	-	-250	mV
V _{BEsat}	base-emitter saturation voltage		-	-	-900	mV
C _c	collector capacitance	V _{CB} = -20 V; I _E = 0 A; i _e = 0 A; f = 1 MHz	-	1.9	3.5	pF
C _e	emitter capacitance	V _{EB} = -5 V; I _C = 0 A; i _c = 0 A; f = 1 MHz	-	20	-	pF
f _T	transition frequency	V _{CE} = -20 V; I _C = -10 mA; f = 100 MHz	50	-	-	MHz

12. Soldering

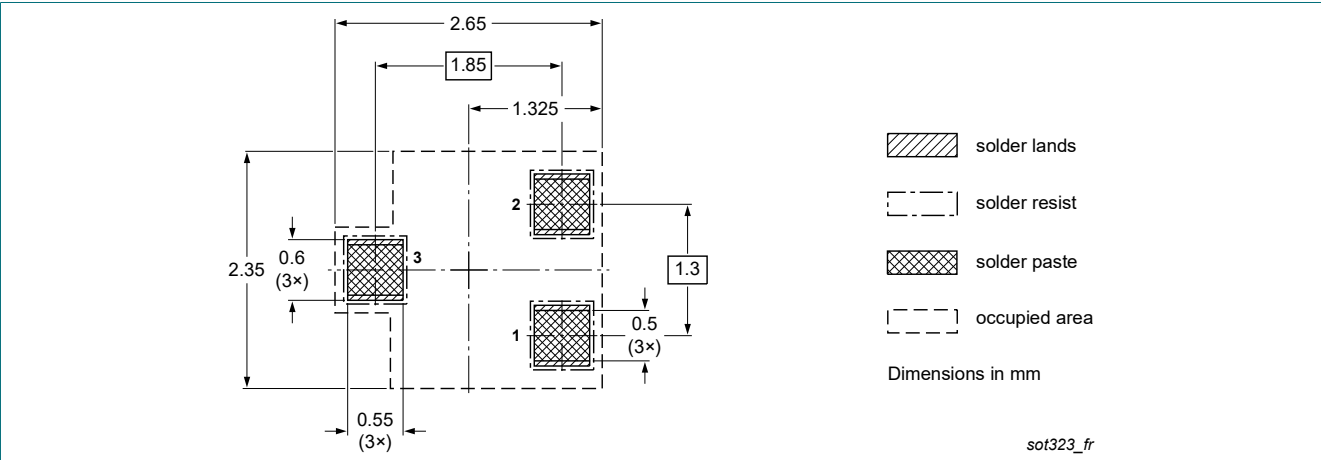


Fig. 2. Reflow soldering footprint for SC-70 (SOT323)

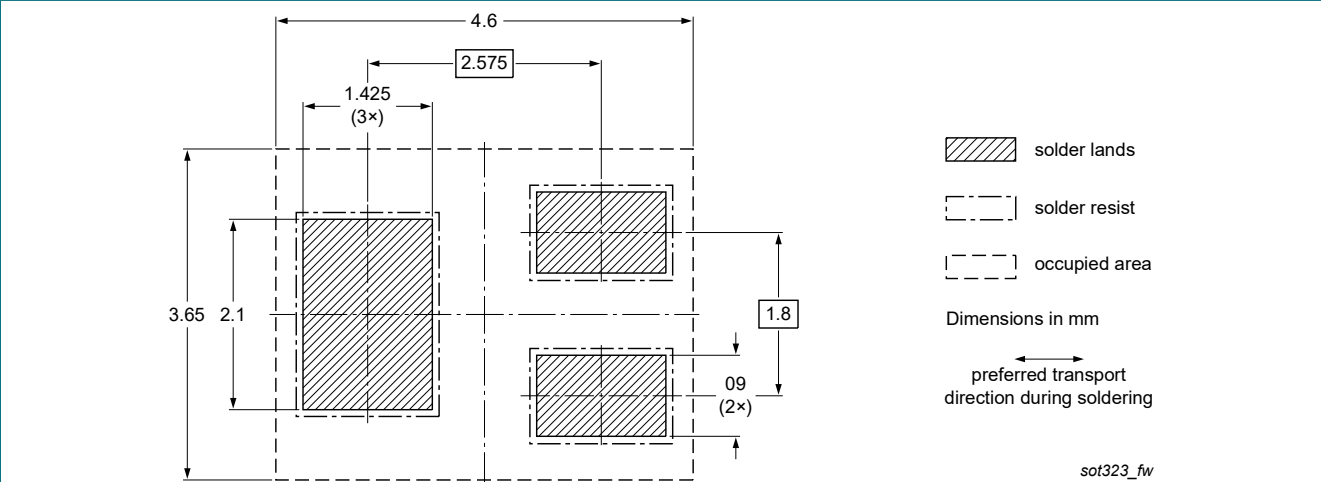


Fig. 3. Wave soldering footprint for SC-70 (SOT323)

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:	- 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".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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