



PMSTA56

80V, 500 mA PNP general-purpose transistor

24 January 2025

Product data sheet

1. General description

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

NPN complement: PMSTA06

2. Features and benefits

- High current (max. 500 mA)
- Collector-emitter voltage: 80 V
- AEC-Q101 qualified

3. Applications

- Intended for telephony and professional communication equipment.

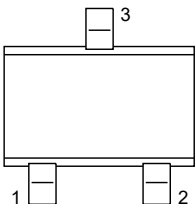
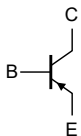
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CE0}	collector-emitter voltage	open base	-	-	-80	V
I_C	collector current		-	-	-500	mA
h_{FE}	DC current gain	$V_{CE} = -1\text{ V}$; $I_C = -10\text{ mA}$; $T_{amb} = 25\text{ °C}$	100	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base	 SC-70 (SOT323)	 006aab259
2	E	emitter		
3	C	collector		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMSTA56	SC-70	plastic, surface-mounted package; 3 leads; 1.3 mm pitch; 2 mm x 1.25 mm x 0.95 mm body	SOT323

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
PMSTA56	% 2G

[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		-	-80	V
V _{CEO}	collector-emitter voltage	open base		-	-80	V
V _{EBO}	emitter-base voltage	open collector		-	-4	V
I _C	collector current			-	-500	mA
I _{CM}	peak collector current			-	-500	mA
I _{BM}	peak base current			-	-500	mA
P _{tot}	total power dissipation	T _{amb} ≤ 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] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided 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]	-	-	625	K/W

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

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	$V_{CB} = -80\text{ V}$; $I_E = 0\text{ A}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-100	nA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -4\text{ V}$; $I_C = 0\text{ A}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-500	nA
h_{FE}	DC current gain	$V_{CE} = -1\text{ V}$; $I_C = -10\text{ mA}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	100	-	-	
		$V_{CE} = -1\text{ V}$; $I_C = -100\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	100	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -100\text{ mA}$; $I_B = -10\text{ mA}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-250	mV
V_{BE}	base-emitter voltage	$V_{CE} = -1\text{ V}$; $I_C = -100\text{ mA}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-1.2	V
f_T	transition frequency	$V_{CE} = -1\text{ V}$; $I_C = -100\text{ mA}$; $f = 100\text{ MHz}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	50	-	-	MHz

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

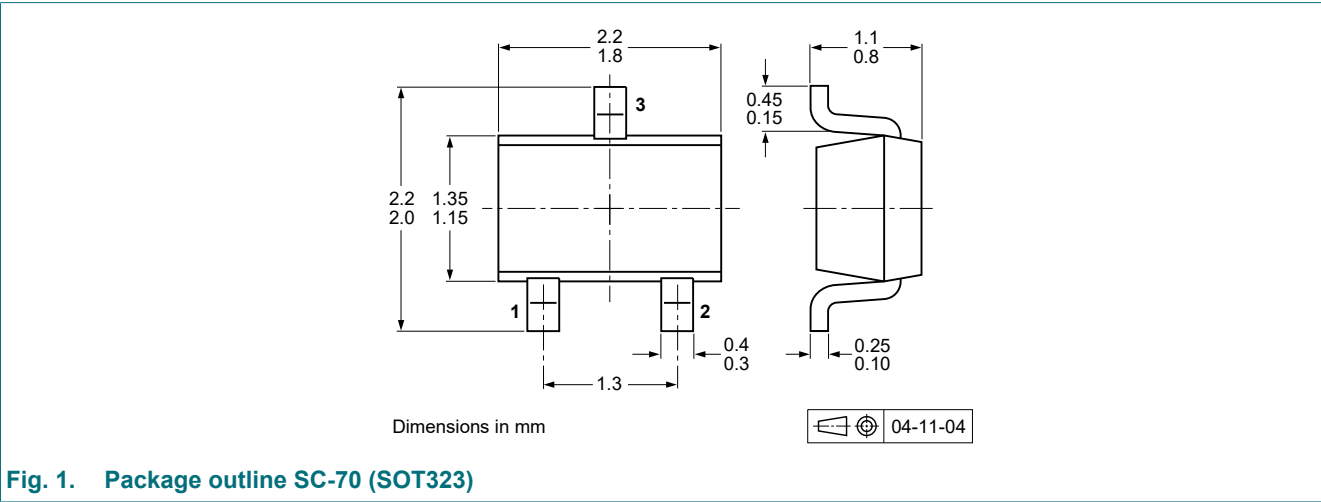
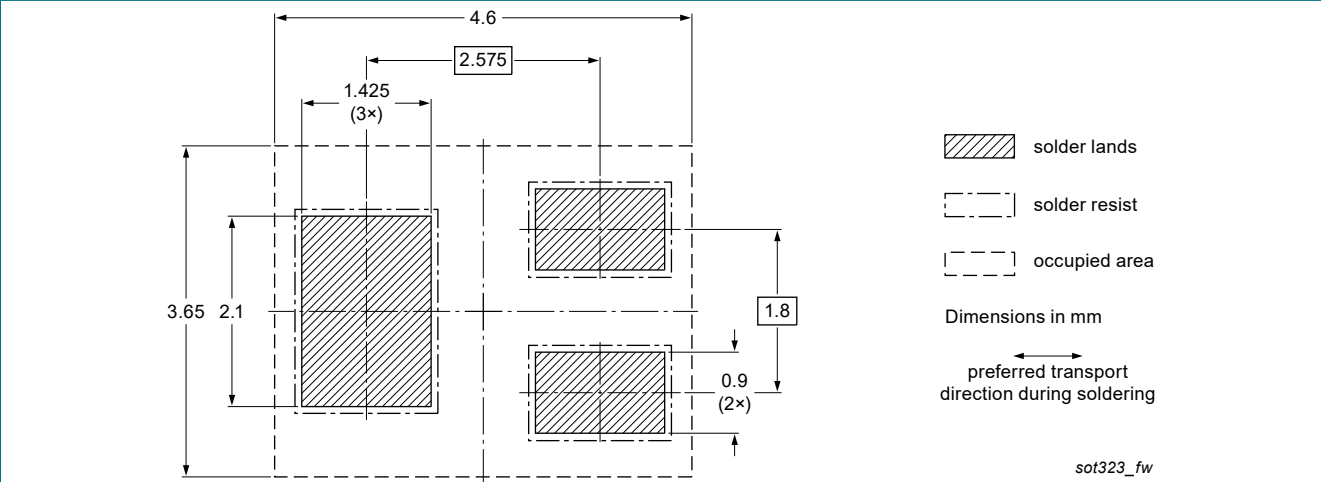
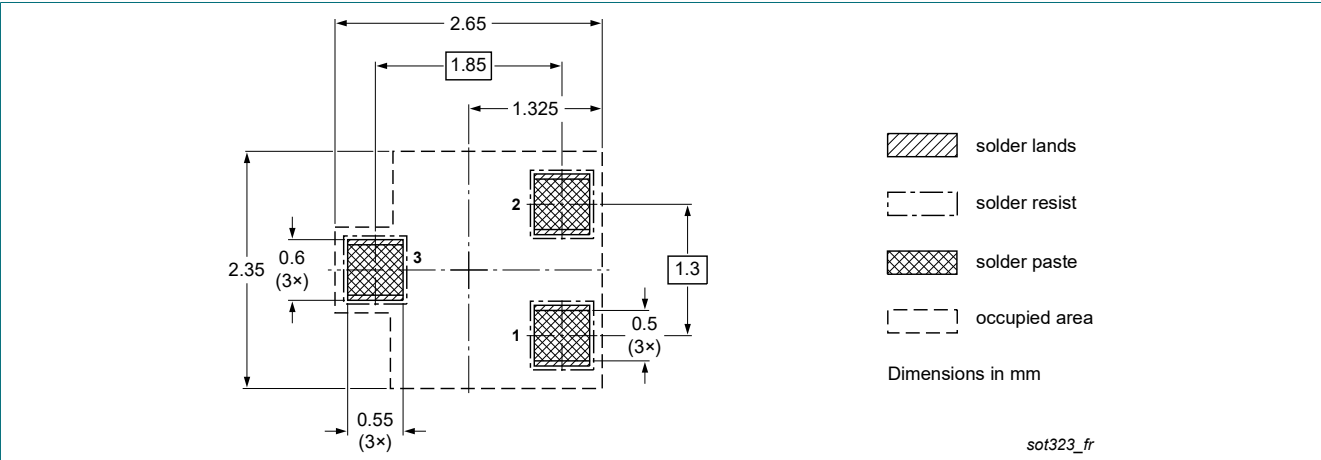


Fig. 1. Package outline SC-70 (SOT323)

13. Soldering



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMSTA56 v.6	20250124	Product data sheet	-	PMSTA55_56_5
Modifications:	<ul style="list-style-type: none">• 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.• Packing information removed.• Family data sheet reduced to single type data sheet.• Section 10 "Characteristics" value $V_{BE} = -1.2\text{ mV max}$, changed to -1.2 V max.			
PMSTA55_56_5	20100201	Product data sheet	-	PMSTA55_56_N_4
PMSTA55_56_N_4	20080117	Product specification	-	PMSTA55_56_3
PMSTA55_56_3	19990422	Product specification	-	PMSTA55_56_2
PMSTA55_56_2	19980721	Product specification	-	PMSTA55_56_1
PMSTA55_56_1	19970602	Product specification	-	-

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.

- [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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