



PMST2907A

60 V, 600 mA PNP switching transistor

8 October 2024

Product data sheet

1. General description

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

NPN complement: PMST2222A

2. Features and benefits

- General purpose switching transistor

3. Applications

- Switching and linear amplification

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CE0}	collector-emitter voltage	open base	-	-	-60	V
I_C	collector current		-	-	-600	mA
h_{FE}	DC current gain	$V_{CE} = -10\text{ V}$; $I_C = -150\text{ mA}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_{amb} = 25\text{ }^\circ\text{C}$	100	-	300	

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
PMST2907A	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]
PMST2907A	%2F

[1] % = placeholder for manufacturing site code

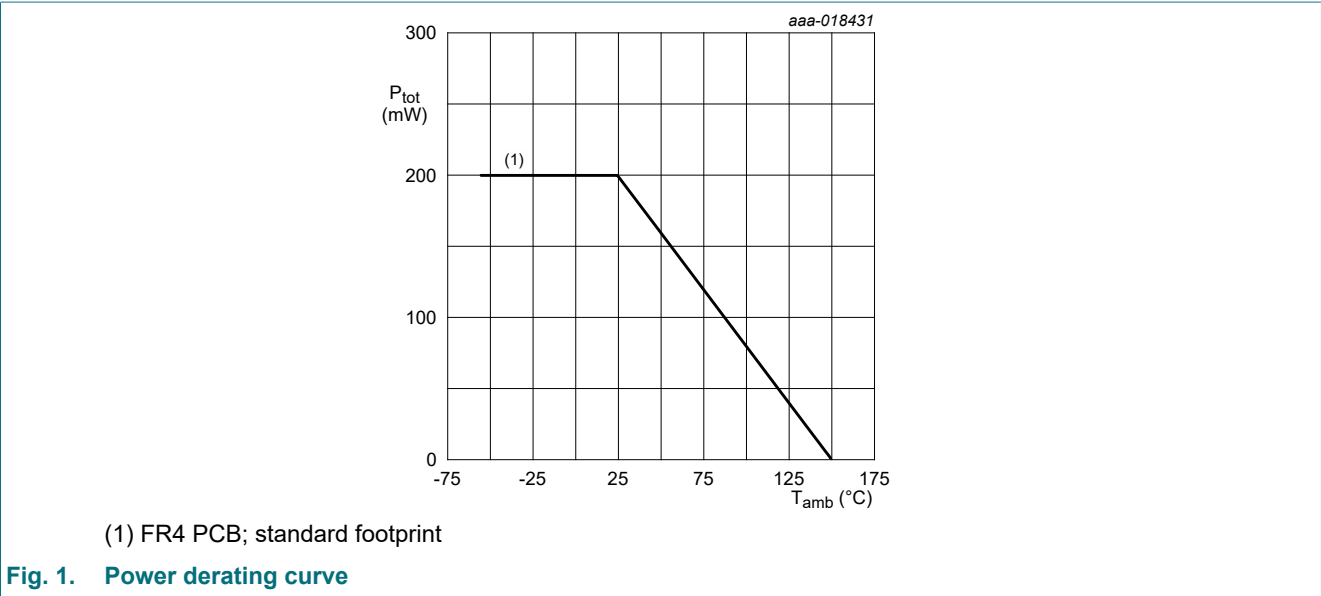
8. Limiting values

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		-	-60	V
V_{CEO}	collector-emitter voltage	open base		-	-60	V
V_{EBO}	emitter-base voltage	open collector		-	-5	V
I_C	collector current	single pulse; $t_p \leq 1$ ms		-	-600	mA
I_{CM}	peak collector current			-	-800	mA
I_{BM}	peak base current			-	-200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	[1]	-	200	mW

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

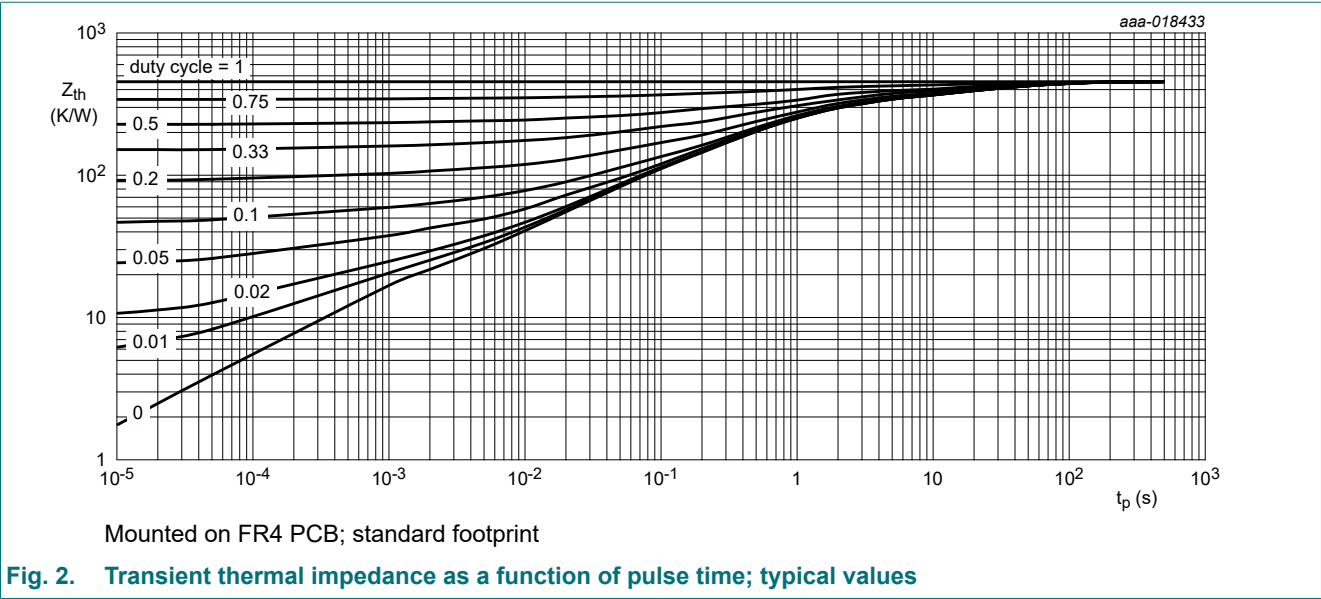


9. Thermal characteristics

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} = -50 V; I _E = 0 A; T _{amb} = 25 °C		-	-	-10	nA
		V _{CB} = -50 V; I _E = 0 A; T _j = 125 °C		-	-	-10	µA
I _{EBO}	emitter-base cut-off current	V _{EB} = -3 V; I _C = 0 A; T _{amb} = 25 °C		-	-	-50	nA
h _{FE}	DC current gain	V _{CE} = -10 V; I _C = -0.1 mA; T _{amb} = 25 °C		75	-	-	
		V _{CE} = -10 V; I _C = -1 mA; T _{amb} = 25 °C		100	-	-	
		V _{CE} = -10 V; I _C = -10 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		100	-	-	
		V _{CE} = -10 V; I _C = -150 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		100	-	300	
		V _{CE} = -10 V; I _C = -500 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		50	-	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = -150 mA; I _B = -15 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-	-400	mV
		I _C = -500 mA; I _B = -50 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-	-1.6	V
V _{BEsat}	base-emitter saturation voltage	I _C = -150 mA; I _B = -15 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-	-1.3	V
		I _C = -500 mA; I _B = -50 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-	-2.6	V
t _d	delay time	I _C = -150 mA; I _{Bon} = -15 mA; I _{Boff} = 15 mA; T _{amb} = 25 °C		-	-	15	ns
t _r	rise time			-	-	35	ns
t _{on}	turn-on time			-	-	45	ns
t _s	storage time			-	-	250	ns
t _f	fall time			-	-	50	ns
t _{off}	turn-off time			-	-	300	ns
C _c	collector capacitance	V _{CB} = -10 V; I _E = 0 A; i _e = 0 A; f = 1 MHz; T _{amb} = 25 °C		-	-	8	pF
C _e	emitter capacitance	V _{EB} = -2 V; I _C = 0 A; i _c = 0 A; f = 1 MHz; T _{amb} = 25 °C		-	-	30	pF
f _T	transition frequency	V _{CE} = -20 V; I _C = -50 mA; f = 100 MHz; T _{amb} = 25 °C; Pulse test: t _p ≤ 300 µs; δ ≤ 0.02		200	-	-	MHz

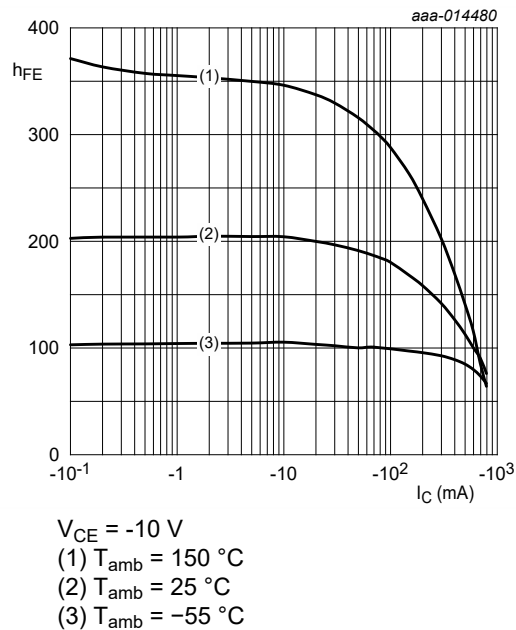


Fig. 3. DC current gain as a function of collector current; typical values

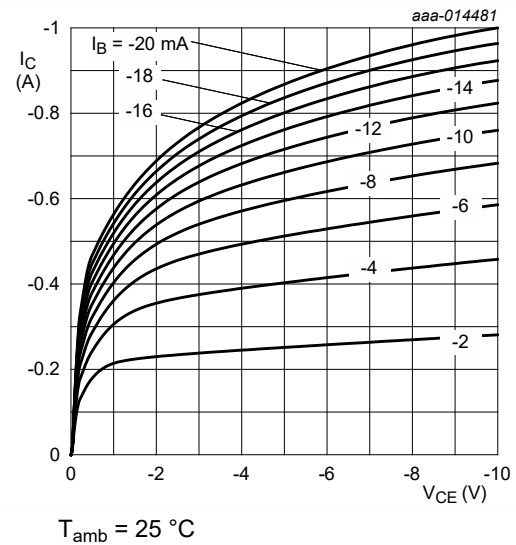


Fig. 4. Collector current as a function of collector-emitter voltage; typical values

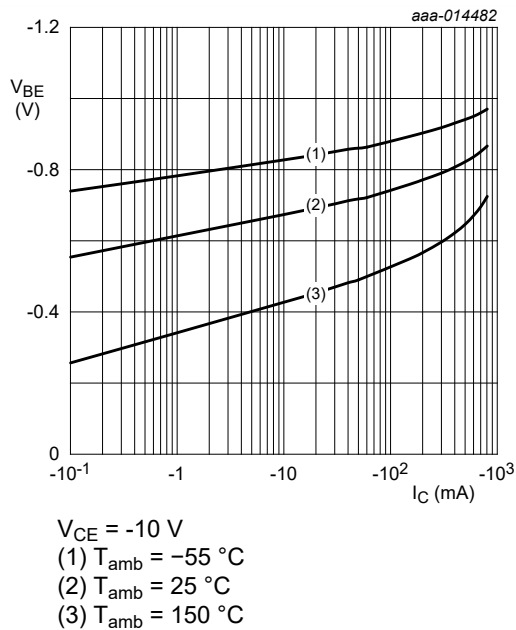


Fig. 5. Base-emitter voltage as a function of collector current; typical values

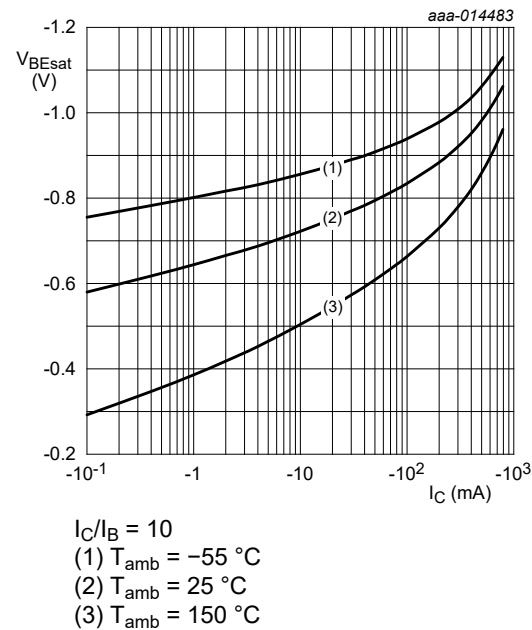


Fig. 6. Base-emitter saturation voltage as a function of collector current; typical values

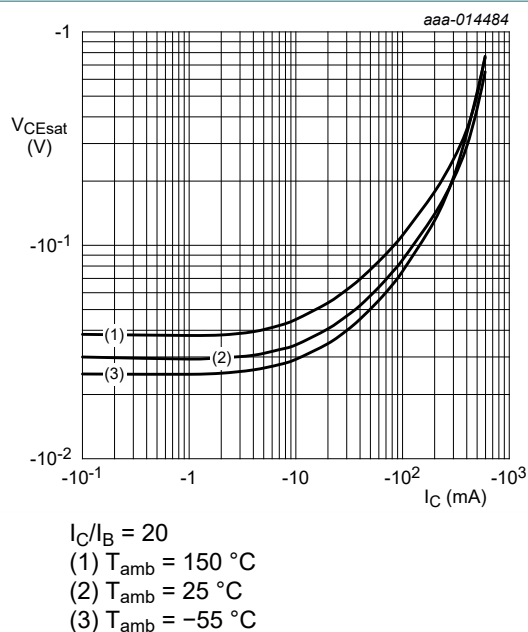


Fig. 7. Collector-emitter saturation voltage as a function of collector current; typical values

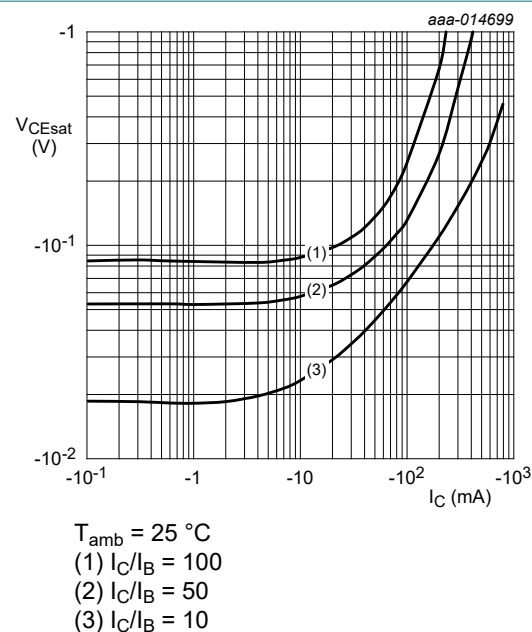


Fig. 8. Collector-emitter saturation voltage as a function of collector current; typical values

11. Test information

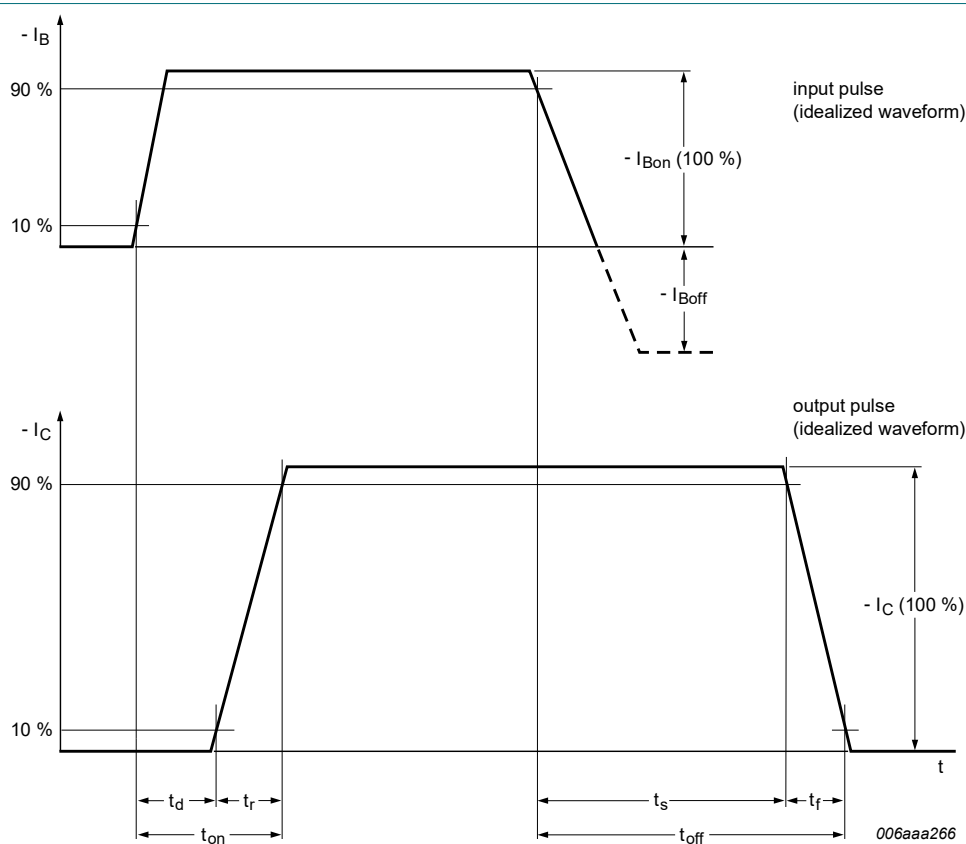


Fig. 9. Transistor switching time definition

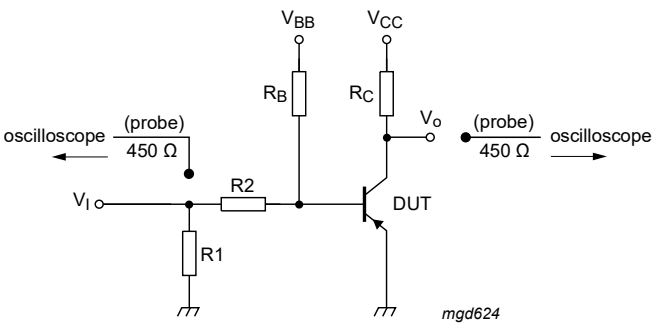


Fig. 10. Test circuit for switching times

12. Package outline

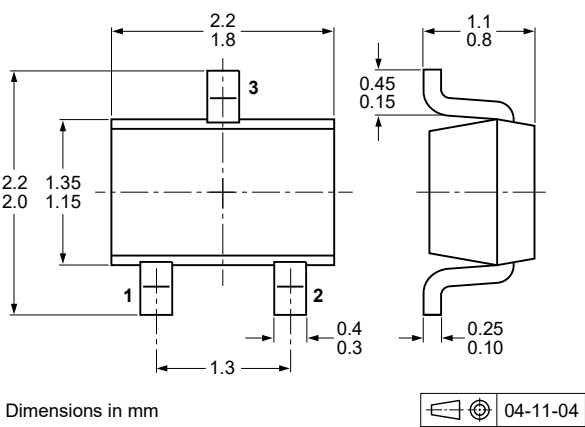


Fig. 11. Package outline SC-70 (SOT323)

13. Soldering

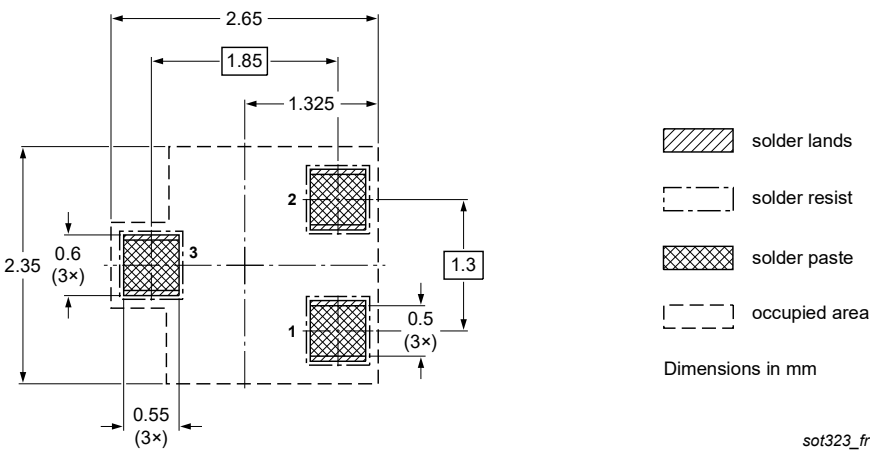
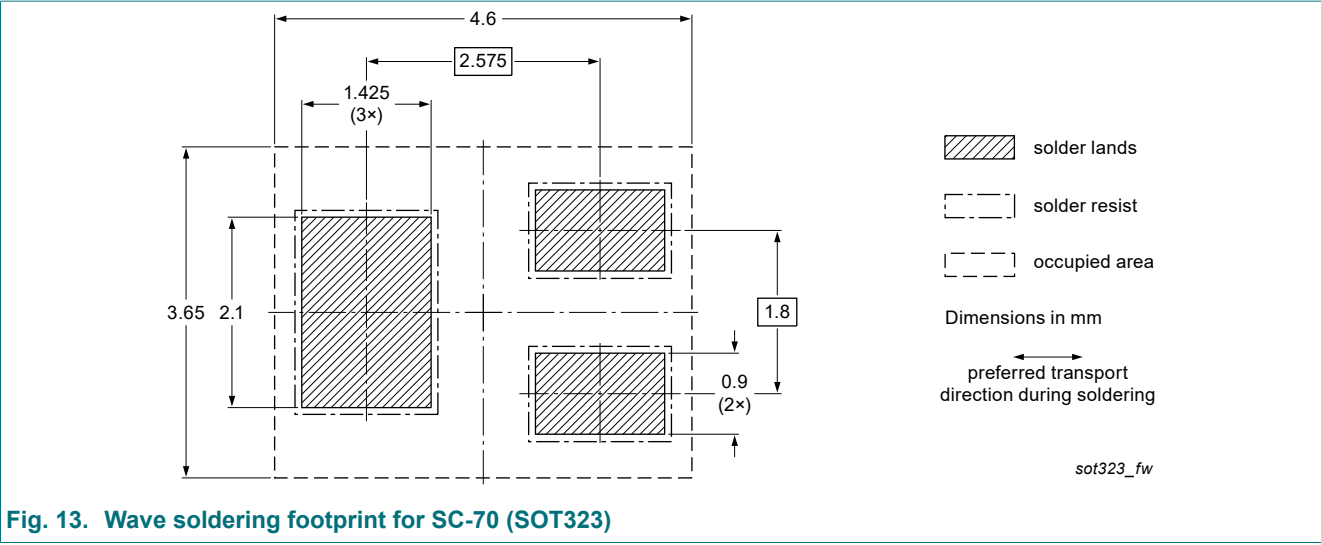


Fig. 12. Reflow soldering footprint for SC-70 (SOT323)



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMST2907A v.5	20241008	Product data sheet	-	PMST2907A v.4
Modifications:	Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
PMST2907A v.4	20160812	Product data sheet	-	PMST2907A v.3
PMST2907A v.3	20011119	Product data sheet	-	PMST2907A v.2
PMST2907A v.2	19990422	Product data sheet	-	PMST2907A v.1
PMST2907A v.1	19970708	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.

- [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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