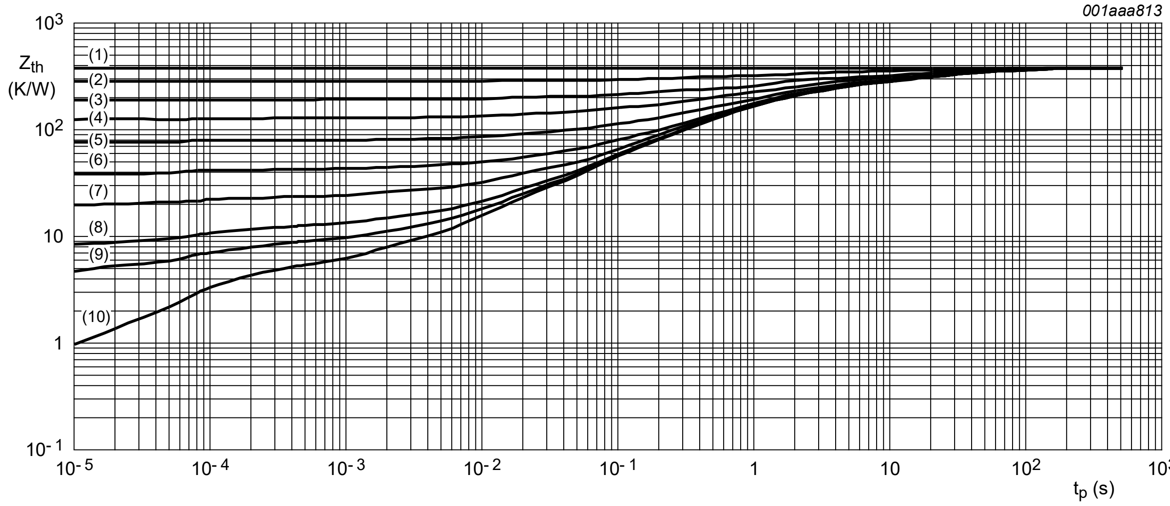

Mounted on printed-circuit board; standard footprint

(1) δ = 1
(2) δ = 0.75
(3) δ = 0.5
(4) δ = 0.33
(5) δ = 0.2
(6) δ = 0.1
(7) δ = 0.05
(8) δ = 0.02
(9) δ = 0.01
(10) δ = 0

Fig. 3. Transient thermal impedance as a function of pulse time; typical values

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10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$V_{(BR)CBO}$	collector-base breakdown voltage	I_C = -100 μA; I_E = 0 A; T_{amb} = 25 °C		-120	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	I_C = -10 mA; I_B = 0 A; T_{amb} = 25 °C		-100	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage (collector open)	I_C = 0 A; T_{amb} = 25 °C		-5	-	-	V
I_{CBO}	collector-base cut-off current	V_{CB} = -80 V; I_E = 0 A; T_{amb} = 25 °C		-	-	-100	nA
		V_{CB} = -80 V; I_E = 0 A; T_j = 150 °C		-	-	-50	μA
I_{EBO}	emitter-base cut-off current	V_{EB} = -4 V; I_C = 0 A; T_{amb} = 25 °C		-	-	-100	nA
I_{CES}	collector-emitter cut-off current	V_{CE} = -80 V; V_{BE} = 0 V; T_{amb} = 25 °C		-	-	-100	nA
h_{FE}	DC current gain	V_{CE} = -5 V; I_C = -1 mA; T_{amb} = 25 °C		150	-	-	
		V_{CE} = -5 V; I_C = -250 mA; T_{amb} = 25 °C		150	-	-	
		V_{CE} = -5 V; I_C = -500 mA; pulsed; t_p ≤ 300 μs; δ ≤ 0.02; T_{amb} = 25 °C		150	-	450	
		V_{CE} = -5 V; I_C = -1 A; pulsed; t_p ≤ 300 μs; δ ≤ 0.02; T_{amb} = 25 °C		125	-	-	
V_{CEsat}	collector-emitter saturation voltage	I_C = -250 mA; I_B = -25 mA; T_{amb} = 25 °C		-	-	-120	mV
		I_C = -500 mA; I_B = -50 mA; T_{amb} = 25 °C		-	-	-180	mV
		I_C = -1 A; I_B = -100 mA; pulsed; t_p ≤ 300 μs; δ ≤ 0.02; T_{amb} = 25 °C		-	-	-320	mV
R_{CEsat}	collector-emitter saturation resistance			-	170	320	mΩ
V_{BEsat}	base-emitter saturation voltage	I_C = -1 A; I_B = -100 mA; T_{amb} = 25 °C		-	-	-1.1	V
V_{BEon}	base-emitter turn-on voltage	V_{CE} = -5 V; I_C = -1 A; T_{amb} = 25 °C		-	-	-1	V
f_T	transition frequency	V_{CE} = -10 V; I_C = -50 mA; f = 100 MHz; T_{amb} = 25 °C		100	-	-	MHz
C_c	collector capacitance	V_{CB} = -10 V; I_E = 0 A; i_e = 0 A; f = 1 MHz; T_{amb} = 25 °C		-	-	17	pF

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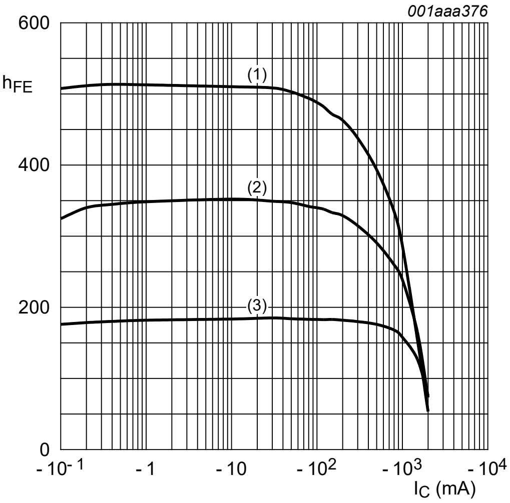
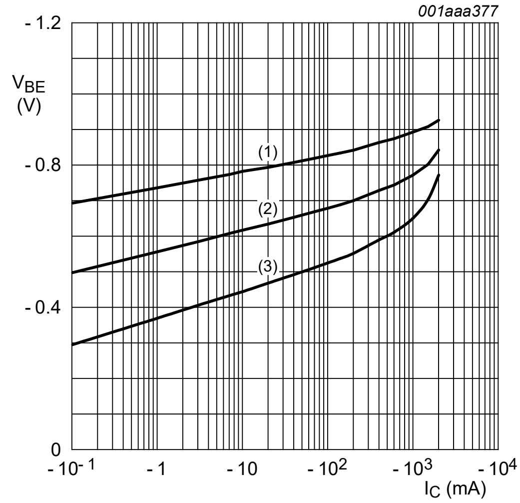


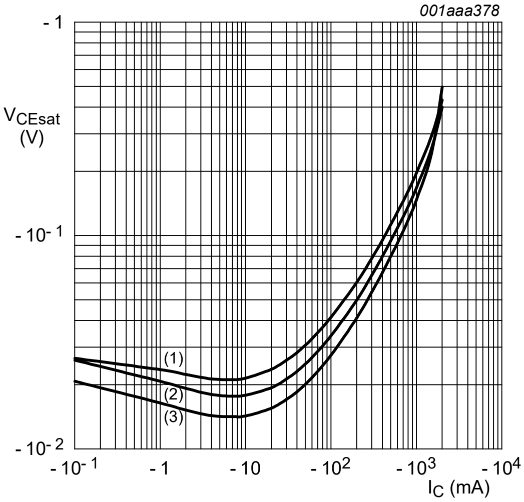
$V_{CE} = -10$ V
(1) $T_{amb} = 100$ °C
(2) $T_{amb} = 25$ °C
(3) $T_{amb} = -55$ °C

Fig. 4. DC current gain as a function of collector current; typical values



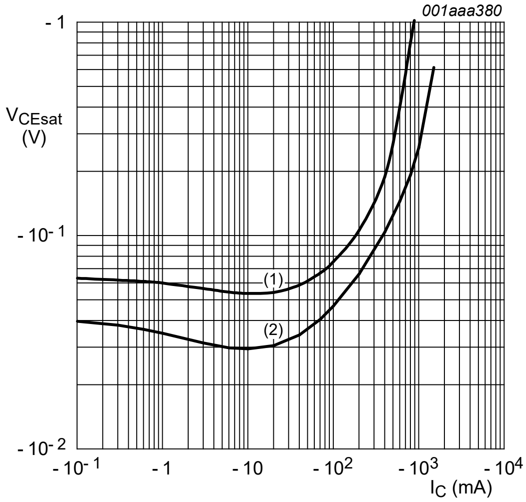
$V_{CE} = -10$ V
(1) $T_{amb} = -55$ °C
(2) $T_{amb} = 25$ °C
(3) $T_{amb} = 100$ °C

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



$I_C/I_B = 10$
(1) $T_{amb} = 100$ °C
(2) $T_{amb} = 25$ °C
(3) $T_{amb} = -55$ °C

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



$T_{amb} = 25$ °C
(1) $I_C/I_B = 50$
(2) $I_C/I_B = 20$

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

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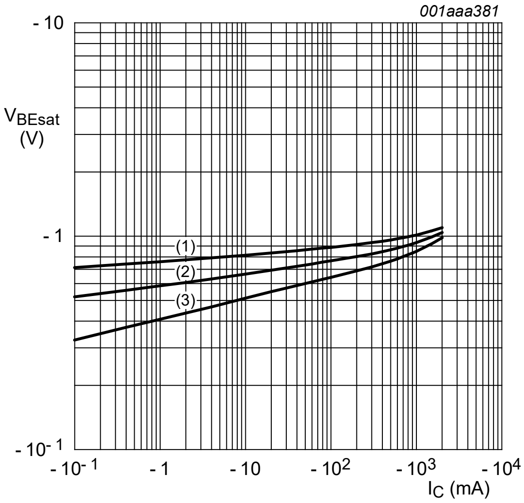
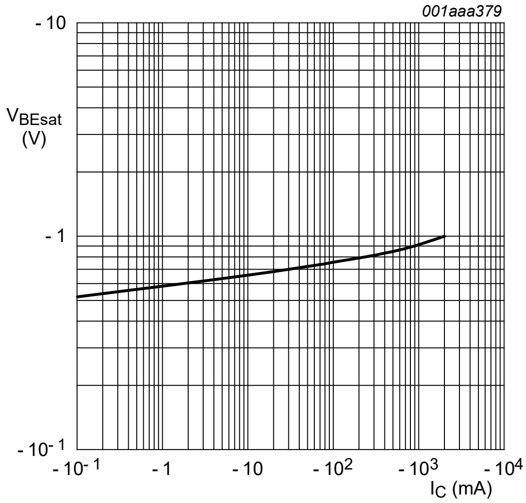


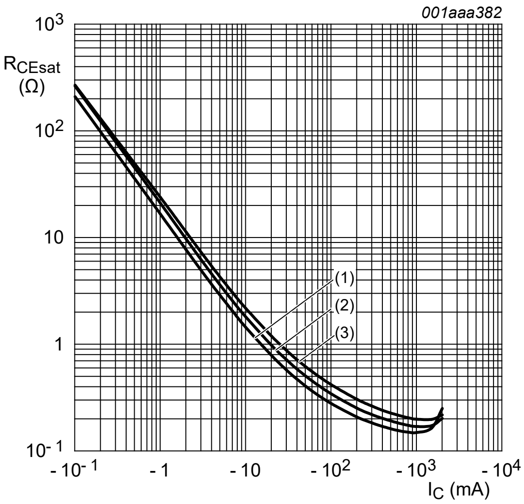
$I_C/I_B = 10$
(1) $T_{amb} = -55$ °C
(2) $T_{amb} = 25$ °C
(3) $T_{amb} = 100$ °C

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



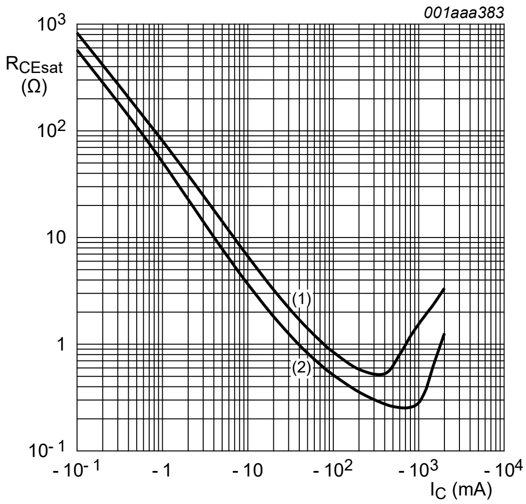
$I_C/I_B = 20$
$T_{amb} = 25$ °C

Fig. 9. Base-emitter saturation voltage as a function of collector current; typical values



$I_C/I_B = 10$
(1) $T_{amb} = -55$ °C
(2) $T_{amb} = 25$ °C
(3) $T_{amb} = 100$ °C

Fig. 10. Collector-emitter saturation resistance as a function of collector current; typical values



$T_{amb} = 25$ °C
(1) $I_C/I_B = 50$
(2) $I_C/I_B = 20$

Fig. 11. Collector-emitter saturation resistance as a function of collector current; typical values

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11. Package outline

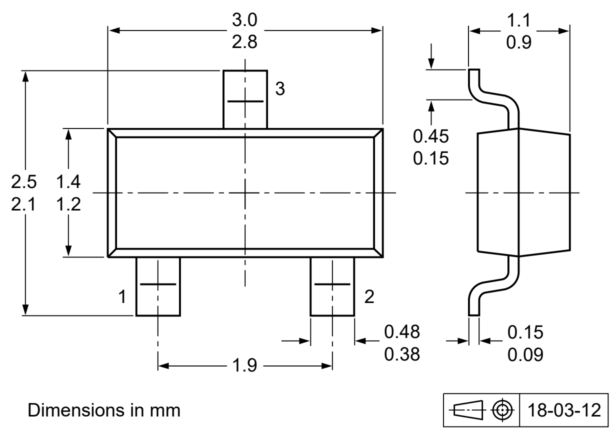

Fig. 12. Package outline SOT23

12. Soldering

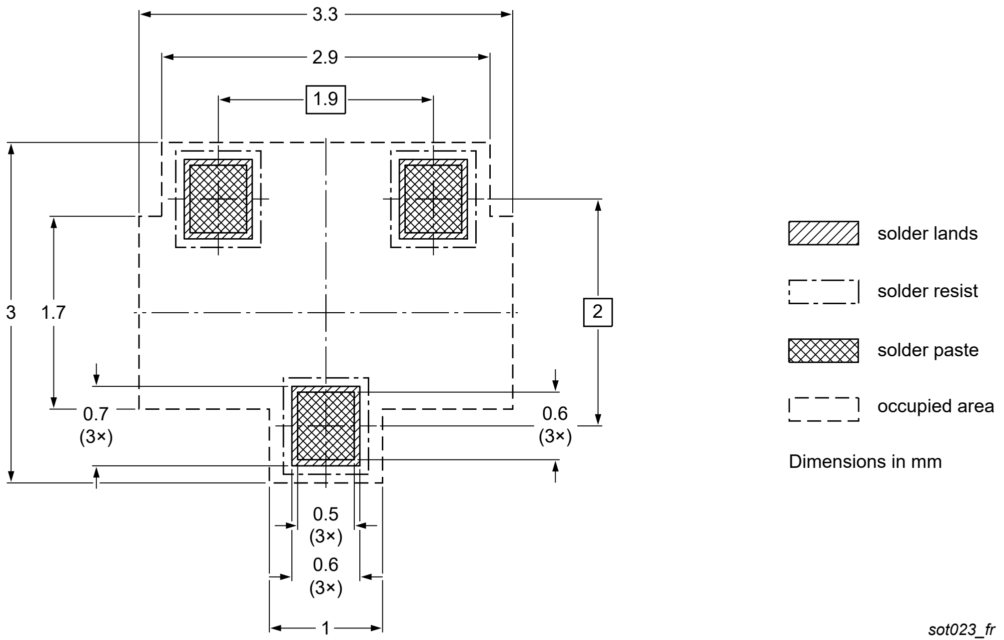

Fig. 13. Reflow soldering footprint for SOT23

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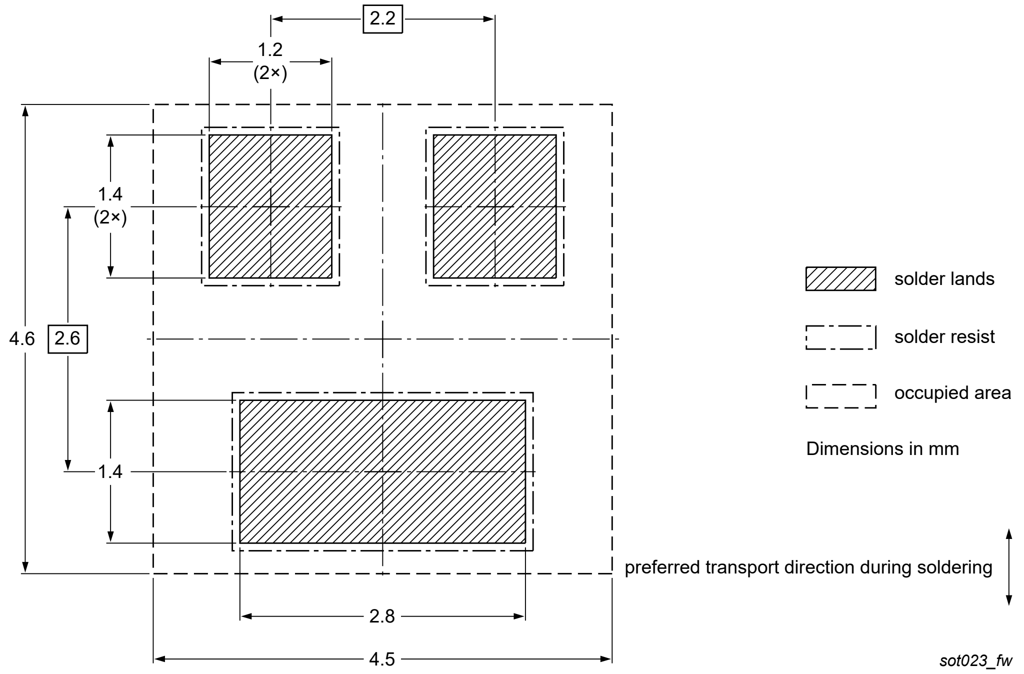

Fig. 14. Wave soldering footprint for SOT23

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13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PBSS9110T v.4	20230101	Product data sheet	-	PBSS9110T v.3
Modifications:	• Product changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
PBSS9110T v.3	20220523	Product data sheet	-	PBSS9110T v.2
PBSS9110T v.2	20040513	Product data sheet	-	PBSS9110T v.1
PBSS9110T v.1	20040506	Product data sheet	-	-

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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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Date of release: 1 January 2023

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