



PBSS4032NT

30 V, 2.6 A NPN low V_{CEsat} transistor

12 August 2026

Product data sheet

1. General description

NPN low V_{CEsat} transistor in a SOT23 small Surface-Mounted Device (SMD) plastic package.

PNP complement: PBSS4032PT

2. Features and benefits

- Low collector-emitter saturation voltage V_{CEsat}
- Optimized switching time
- High collector current capability I_C and I_{CM}
- High collector current gain (h_{FE}) at high I_C
- High energy efficiency due to less heat generation

3. Applications

- DC-to-DC conversion
- Battery-driven devices
- Power management
- Charging circuits

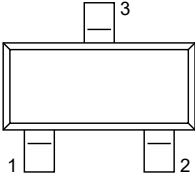
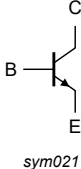
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{CEO}	collector-emitter voltage	open base	-	-	30	V
I _C	collector current		-	-	2.6	A
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms	-	-	5	A
R _{CEsat}	collector-emitter saturation resistance	I _C = 2.5 A; I _B = 250 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	76	105	mΩ

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base	 SOT23	 sym021
2	E	emitter		
3	C	collector		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PBSS4032NT	SOT23	plastic, surface-mounted package; 3 terminals; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body	SOT23

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
PBSS4032NT	%BM

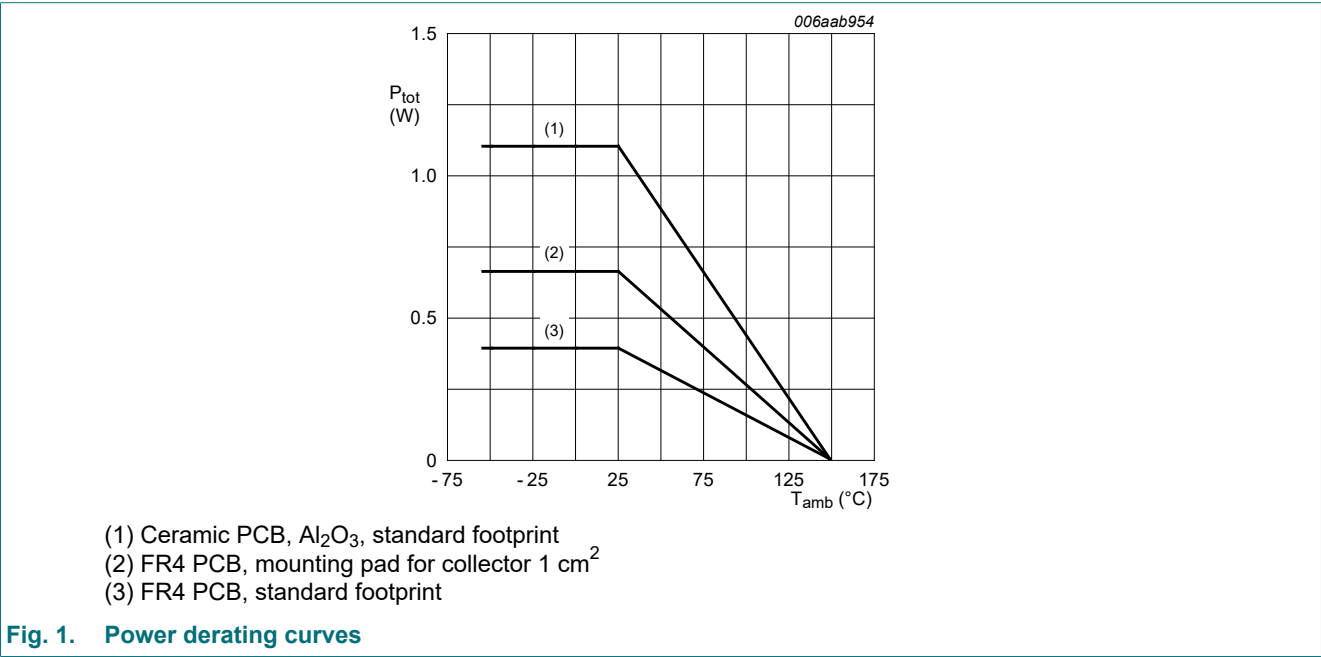
[1] % = placeholder for manufacturing site code

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		-	30	V
V _{CEO}	collector-emitter voltage	open base		-	30	V
V _{EBO}	emitter-base voltage	open collector		-	5	V
I _C	collector current			-	2.6	A
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms		-	5	A
I _B	base current			-	0.5	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	390	mW
			[2]	-	660	mW
			[3]	-	1100	mW
T _j	junction temperature			-	150	°C
T _{amb}	ambient temperature			-55	150	°C
T _{stg}	storage temperature			-65	150	°C

- [1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 1 cm².
[3] Device mounted on a ceramic PCB, Al₂O₃, 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]	-	-	320	K/W
			[2]	-	-	190	K/W
			[3]	-	-	115	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point			-	-	62	K/W

- [1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
- [2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 1 cm².
- [3] Device mounted on a ceramic PCB, Al₂O₃, standard footprint.

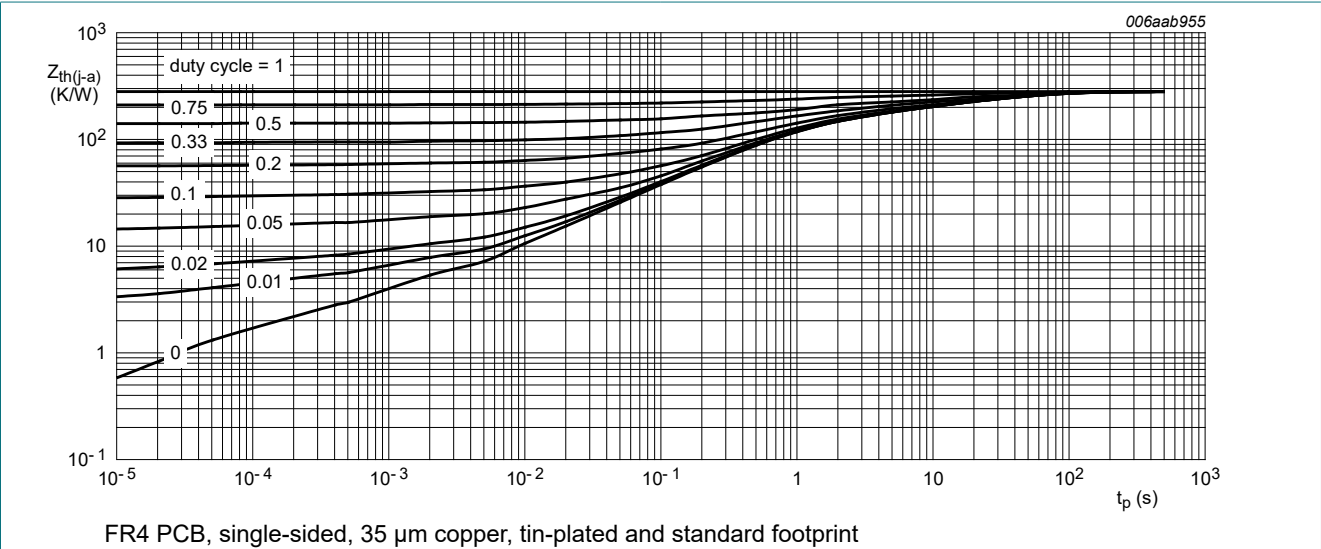


Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

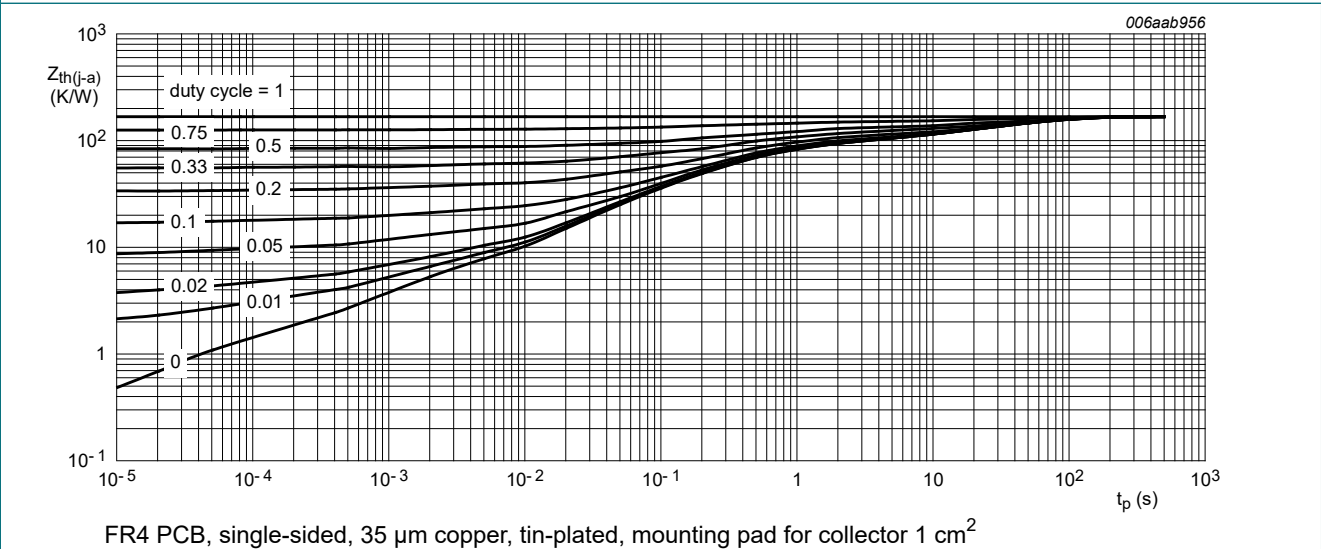
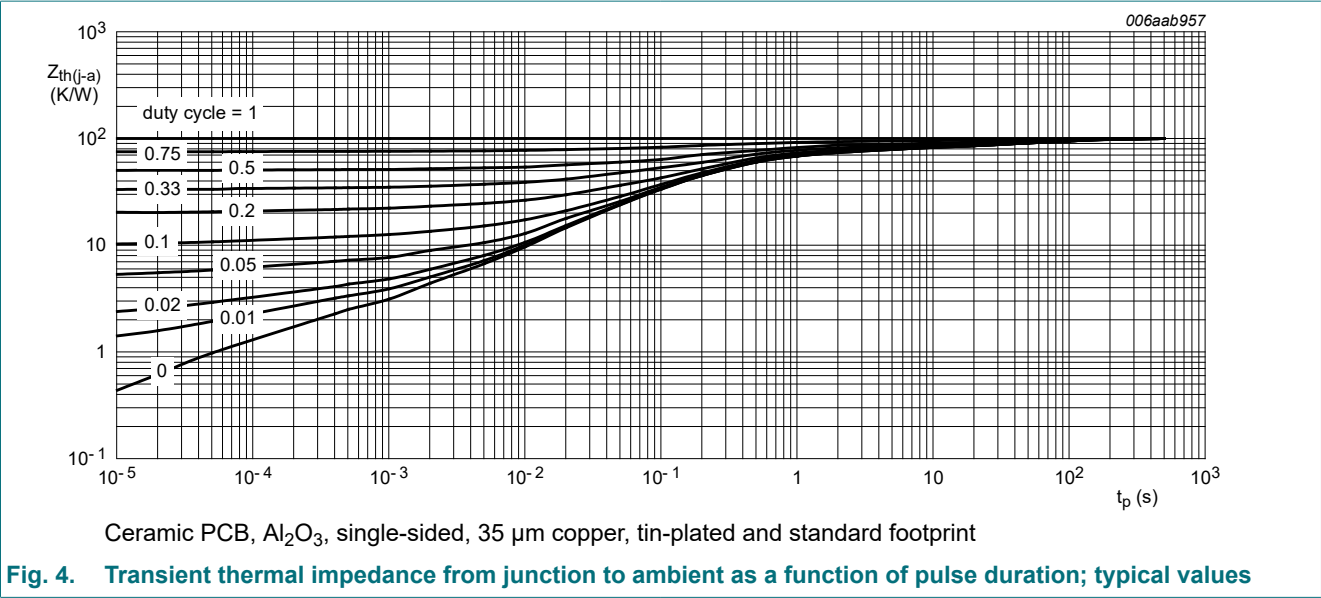


Fig. 3. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I _{CBO}	collector-base cut-off current	V _{CB} = 30 V; I _E = 0 A; T _{amb} = 25 °C	-	-	100	nA
		V _{CB} = 30 V; I _E = 0 A; T _j = 150 °C	-	-	50	μA
I _{CES}	collector-emitter cut-off current	V _{CE} = 24 V; V _{BE} = 0 V; T _{amb} = 25 °C	-	-	100	nA
I _{EBO}	emitter-base cut-off current	V _{EB} = 5 V; I _C = 0 A; T _{amb} = 25 °C	-	-	100	nA
h _{FE}	DC current gain	V _{CE} = 2 V; I _C = 500 mA; T _{amb} = 25 °C	300	500	-	
		V _{CE} = 2 V; I _C = 1 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	300	500	-	
		V _{CE} = 2 V; I _C = 2 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	200	370	-	
		V _{CE} = 2 V; I _C = 4 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	100	150	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = 500 mA; I _B = 50 mA; T _{amb} = 25 °C	-	80	120	mV
		I _C = 1 A; I _B = 50 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	125	175	mV
		I _C = 1 A; I _B = 10 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	175	245	mV
		I _C = 2.5 A; I _B = 250 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	200	280	mV
		I _C = 3 A; I _B = 300 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	230	320	mV
R _{CEsat}	collector-emitter saturation resistance	I _C = 2.5 A; I _B = 250 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	76	105	mΩ
V _{BEsat}	base-emitter saturation voltage	I _C = 1 A; I _B = 100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	0.79	0.9	V
		I _C = 2.5 A; I _B = 250 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	0.88	0.95	V
V _{BEon}	base-emitter turn-on voltage	V _{CE} = 2 V; I _C = 2 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	0.79	0.85	V
t _d	delay time	V _{CC} = 12.5 V; I _C = 1 A; I _{Bon} = 0.05 A; I _{Boff} = -0.05 A; T _{amb} = 25 °C	-	15	-	ns
t _r	rise time		-	20	-	ns
t _{on}	turn-on time		-	35	-	ns
t _s	storage time		-	135	-	ns
t _f	fall time		-	60	-	ns
t _{off}	turn-off time		-	195	-	ns
f _T	transition frequency	V _{CE} = 10 V; I _C = 100 mA; f = 100 MHz; T _{amb} = 25 °C	-	180	-	MHz
C _c	collector capacitance	V _{CB} = 10 V; I _E = 0 A; i _e = 0 A; f = 1 MHz; T _{amb} = 25 °C	-	28	-	pF

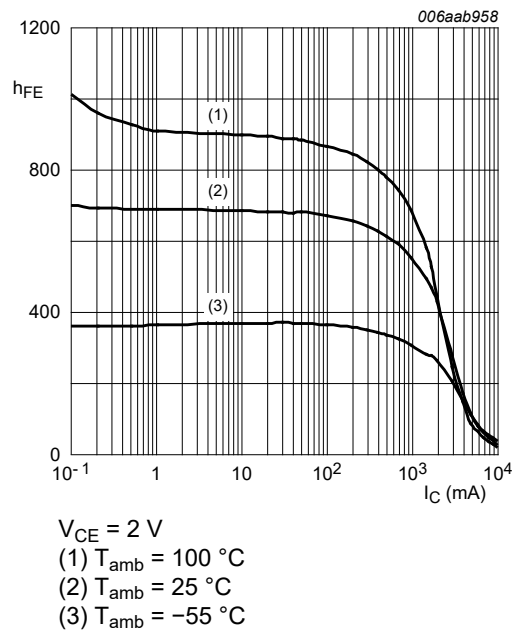


Fig. 5. DC current gain as a function of collector current; typical values

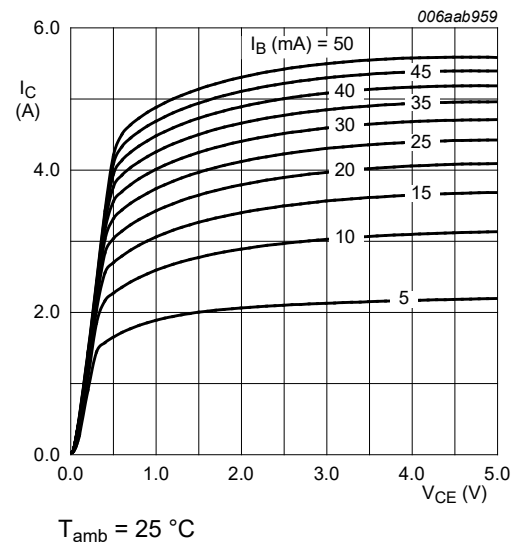


Fig. 6. Collector current as a function of collector-emitter voltage; typical values

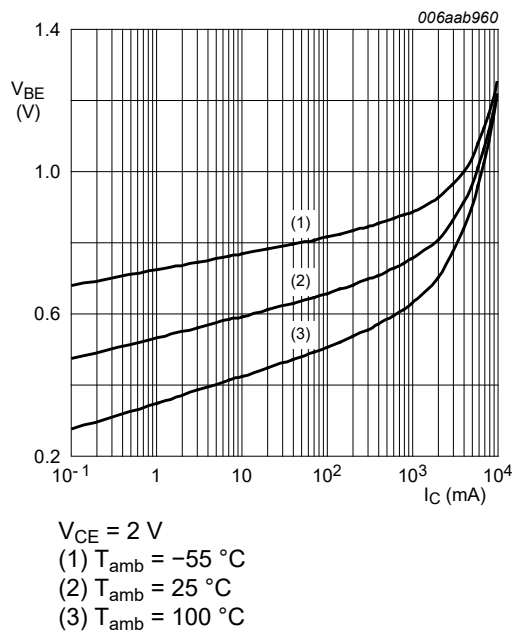


Fig. 7. Base-emitter voltage as a function of collector current; typical values

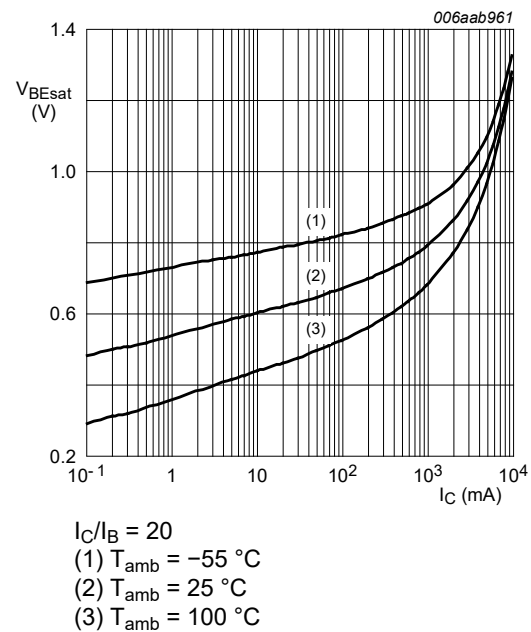


Fig. 8. Base-emitter saturation voltage as a function of collector current; typical values

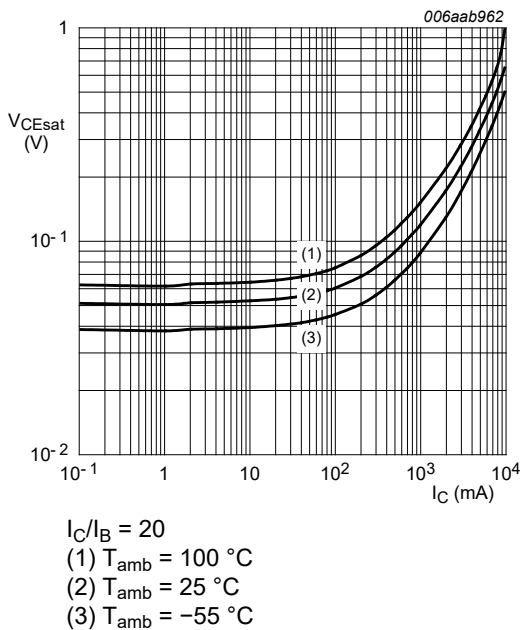


Fig. 9. Collector-emitter saturation voltage as a function of collector current; typical values

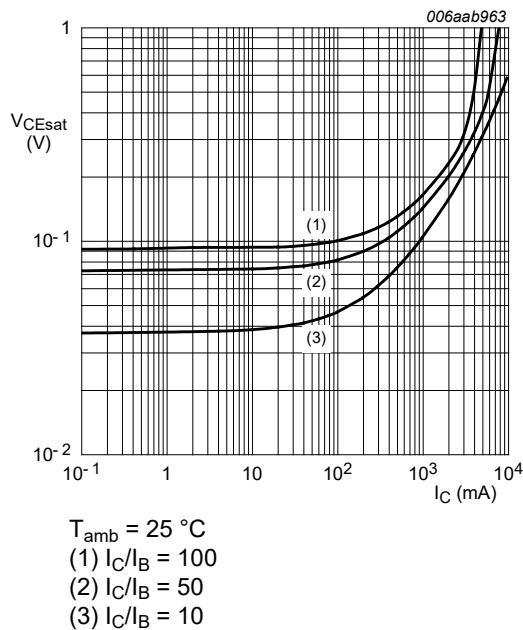


Fig. 10. Collector-emitter saturation voltage as a function of collector current; typical values

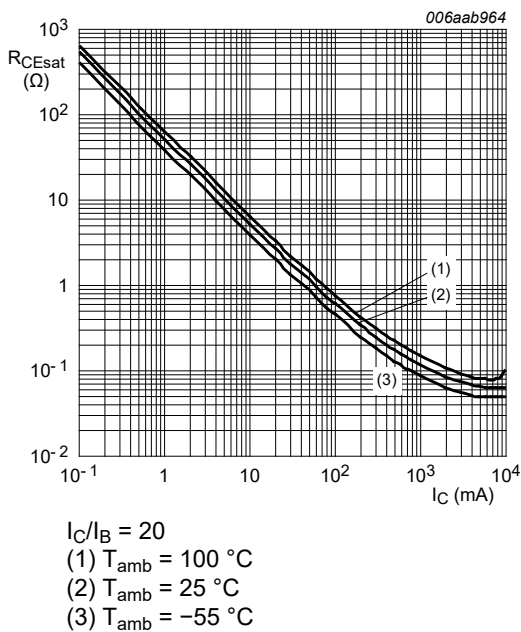


Fig. 11. Collector-emitter saturation resistance as a function of collector current; typical values

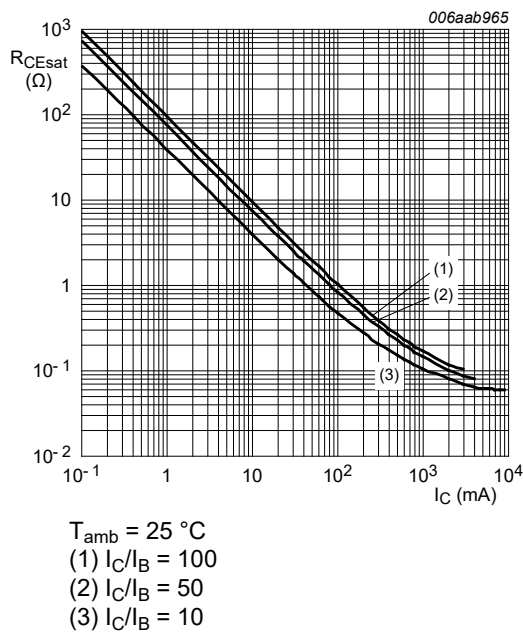
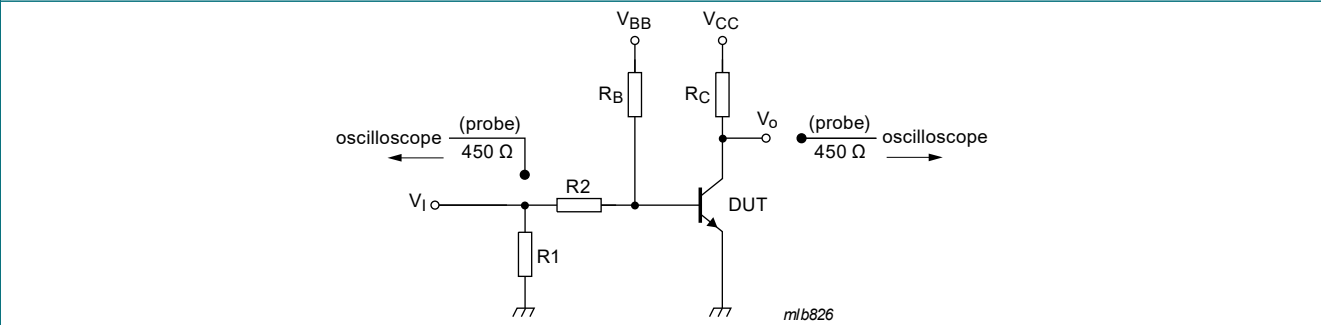
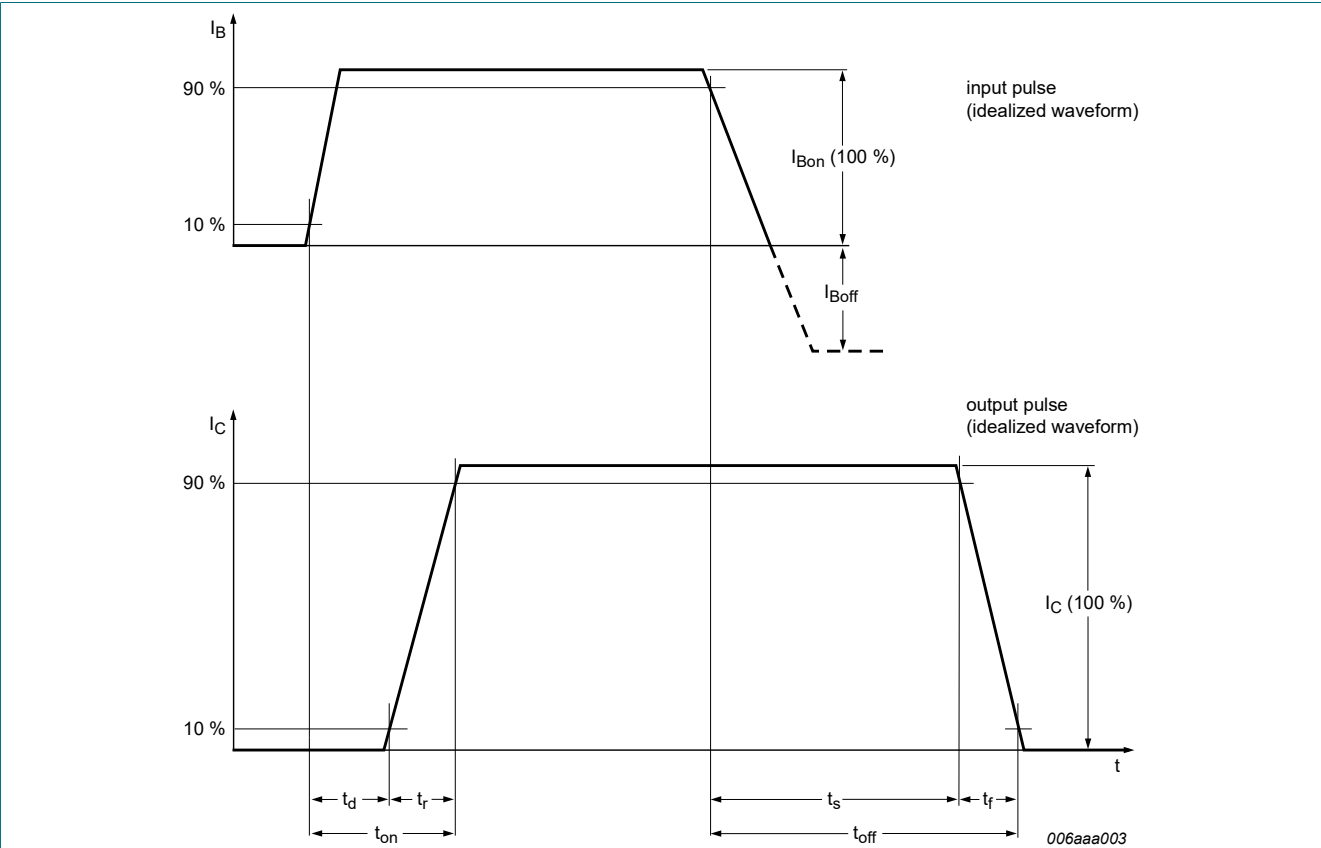
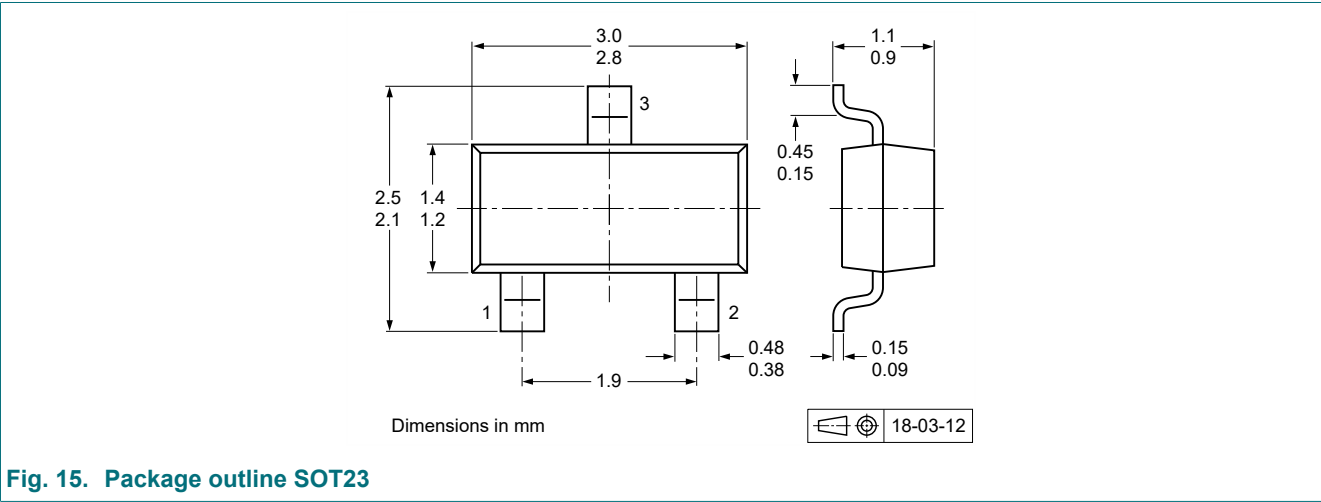


Fig. 12. Collector-emitter saturation resistance as a function of collector current; typical values

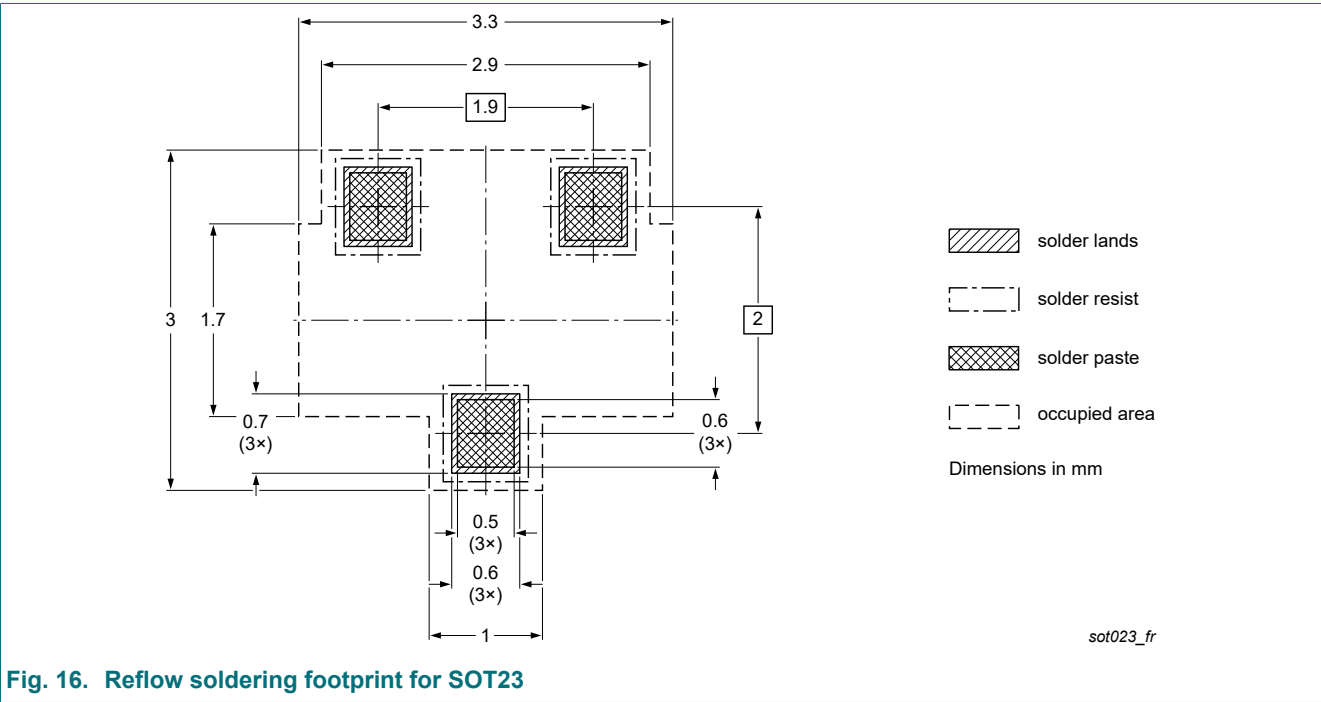
11. Test information



12. Package outline



13. Soldering



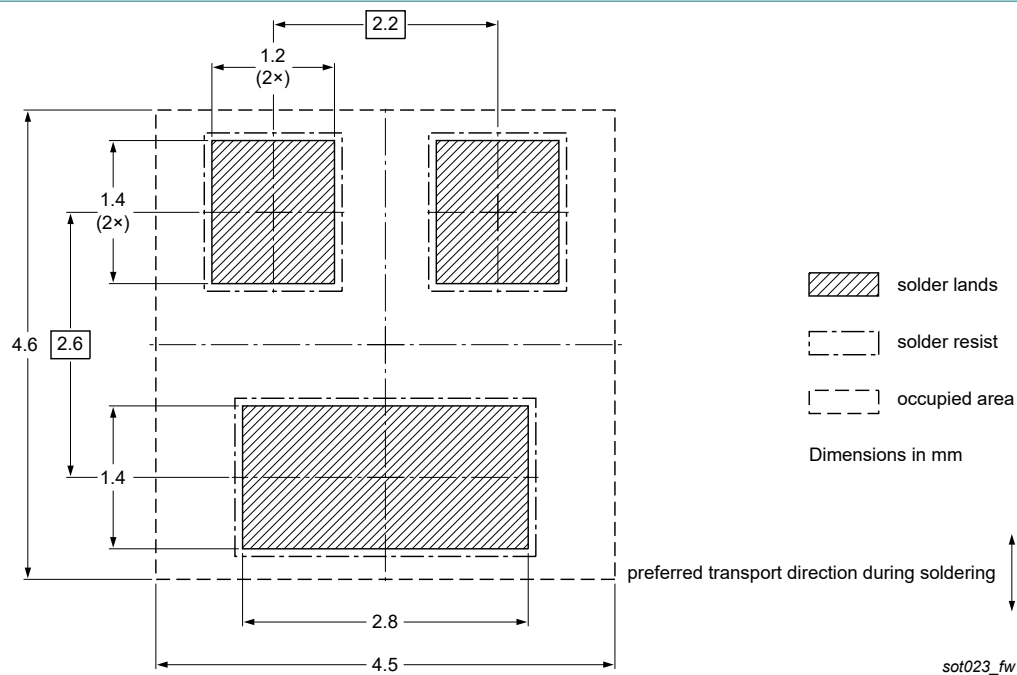


Fig. 17. Wave soldering footprint for SOT23

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PBSS4032NT v.2	20260812	Product data sheet	-	PBSS4032NT v.1
Modifications:	- 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. - Section "Packing information" removed. - Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
PBSS4032NT v.1	20091218	Product data sheet	-	-

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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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