



# PBSS4260PANS

60 V, 2 A NPN/NPN low V<sub>CEsat</sub> double transistor

30 September 2025

Product data sheet

## 1. General description

NPN/NPN low V<sub>CEsat</sub> double transistor in a leadless medium power DFN2020D-6 (SOT1118D) Surface-Mounted Device (SMD) plastic package with visible and solderable side pads.

PNP/PNP complement: PBSS5260PAPS

## 2. Features and benefits

- Very low collector-emitter saturation voltage V<sub>CEsat</sub>
- High collector current capability I<sub>C</sub> and I<sub>CM</sub>
- High collector current gain h<sub>FE</sub> at high I<sub>C</sub>
- Reduced Printed-Circuit Board (PCB) requirements
- Exposed heat sink for excellent thermal and electrical conductivity
- High energy efficiency due to less heat generation
- Suitable for Automatic Optical Inspection (AOI) of solder joints

## 3. Applications

- Load switch
- Battery-driven devices
- Power management
- Charging circuits
- LED lighting
- Power switches (e.g. motors, fans)

## 4. Quick reference data

Table 1. Quick reference data

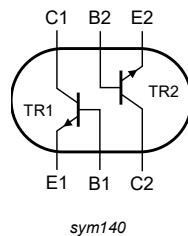
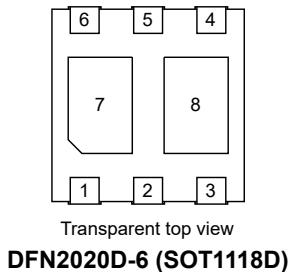
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
<b>Per transistor</b>							
V <sub>CEO</sub>	collector-emitter voltage	open base		-	-	60	V
I <sub>C</sub>	collector current			-	-	2	A
I <sub>CM</sub>	peak collector current	single pulse; t <sub>p</sub> ≤ 1 ms		-	-	3	A
R <sub>CEsat</sub>	collector-emitter saturation resistance	I <sub>C</sub> = 1 A; I <sub>B</sub> = 50 mA; pulsed; t <sub>p</sub> ≤ 300 µs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C		-	-	200	mΩ

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## 5. Pinning information

**Table 2. Pinning information**

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	E1	emitter TR1		
2	B1	base TR1		
3	C2	collector TR2		
4	E2	emitter TR2		
5	B2	base TR2		
6	C1	collector TR1		
7	C1	collector TR1		
8	C2	collector TR2		



## 6. Ordering information

**Table 3. Ordering information**

Type number	Package		
	Name	Description	Version
PBSS4260PANS	DFN2020D-6	plastic, leadless thermally enhanced ultra thin and small outline package with side-wettable flanks (SWF); 6 terminals; 0.65 mm pitch; 2 mm x 2 mm x 0.65 mm body	SOT1118D

## 7. Marking

**Table 4. Marking codes**

Type number	Marking code
PBSS4260PANS	3L

## 8. Limiting values

**Table 5. Limiting values**

*In accordance with the Absolute Maximum Rating System (IEC 60134).*

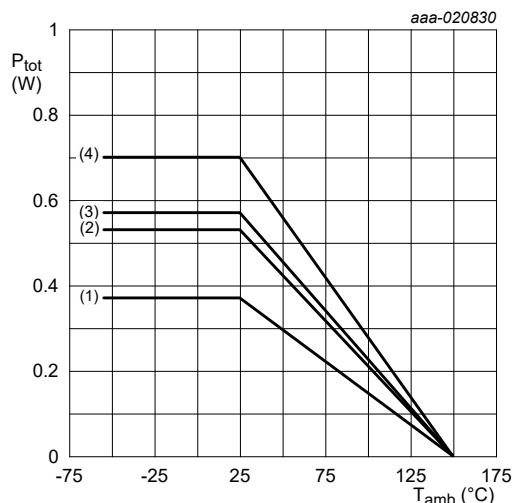
Symbol	Parameter	Conditions		Min	Max	Unit
<b>Per transistor</b>						
$V_{CBO}$	collector-base voltage	open emitter		-	60	V
$V_{CEO}$	collector-emitter voltage	open base		-	60	V
$V_{EBO}$	emitter-base voltage	open collector		-	7	V
$I_C$	collector current			-	2	A
$I_{CM}$	peak collector current	single pulse; $t_p \leq 1$ ms		-	3	A
$I_B$	base current			-	0.3	A
$I_{BM}$	peak base current	single pulse; $t_p \leq 1$ ms		-	1	A
$P_{tot}$	total power dissipation	$T_{amb} \leq 25$ °C	[1]	-	370	mW
			[2]	-	570	mW
			[3]	-	530	mW
			[4]	-	700	mW
<b>Per device</b>						
$P_{tot}$	total power dissipation	$T_{amb} \leq 25$ °C	[1]	-	510	mW
			[2]	-	780	mW
			[3]	-	730	mW
			[4]	-	960	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 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 Printed-Circuit Board (PCB), single sided copper, tin-plated; mounting pad for collector 1 cm<sup>2</sup>.

[3] Device mounted on an FR4 Printed-Circuit Board (PCB), 4-layer copper, tin-plated and standard footprint.

[4] Device mounted on an FR4 Printed-Circuit Board (PCB), 4-layer copper, tin-plated; mounting pad for collector 1 cm<sup>2</sup>.



(1) FR4 PCB, single-sided copper, standard footprint  
 (2) FR4 PCB, 4-layer copper, standard footprint  
 (3) FR4 PCB, single-sided copper, 1 cm<sup>2</sup>  
 (4) FR4 PCB, 4-layer copper, 1 cm<sup>2</sup>

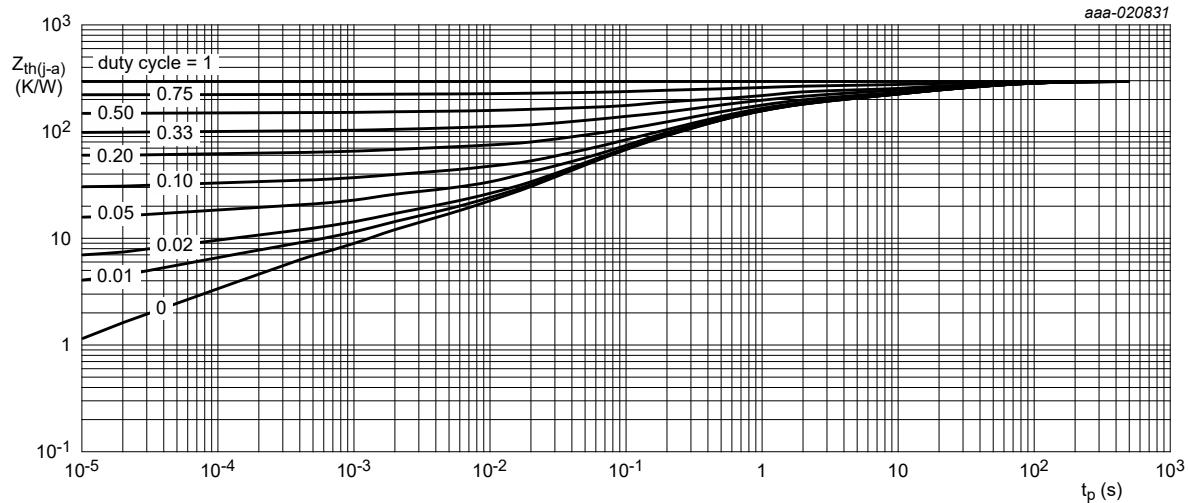
Fig. 1. Power derating curves

## 9. Thermal characteristics

Table 6. Thermal characteristics

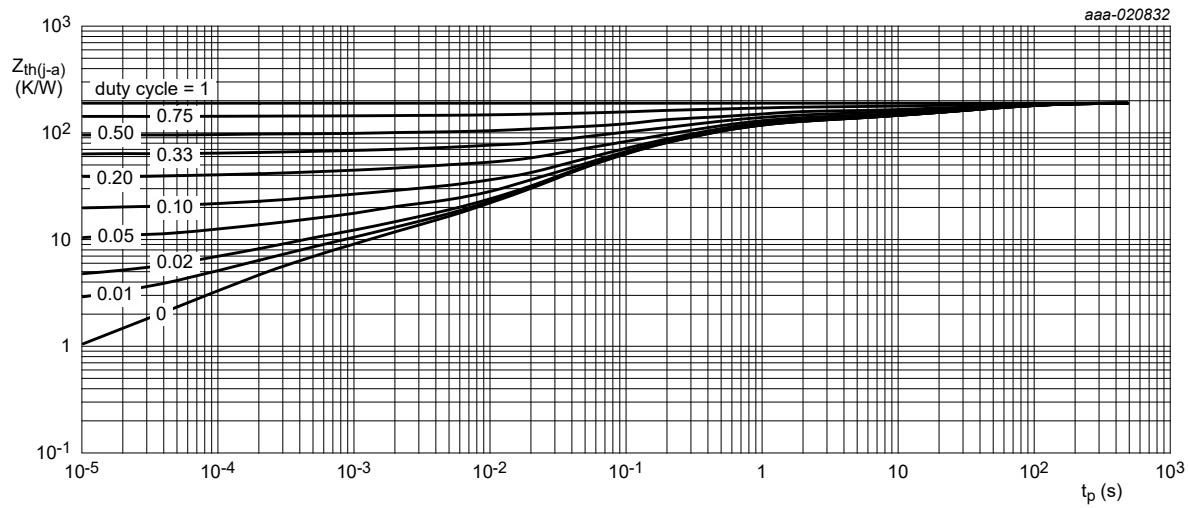
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
<b>Per transistor</b>							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	338	K/W
			[2]	-	-	219	K/W
			[3]	-	-	236	K/W
			[4]	-	-	179	K/W
<b>Per device</b>							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	246	K/W
			[2]	-	-	161	K/W
			[3]	-	-	172	K/W
			[4]	-	-	131	K/W

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.  
 [2] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.  
 [3] Device mounted on an FR4 Printed-Circuit Board (PCB), 4-layer copper, tin-plated and standard footprint.  
 [4] Device mounted on an FR4 Printed-Circuit Board (PCB), 4-layer copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.



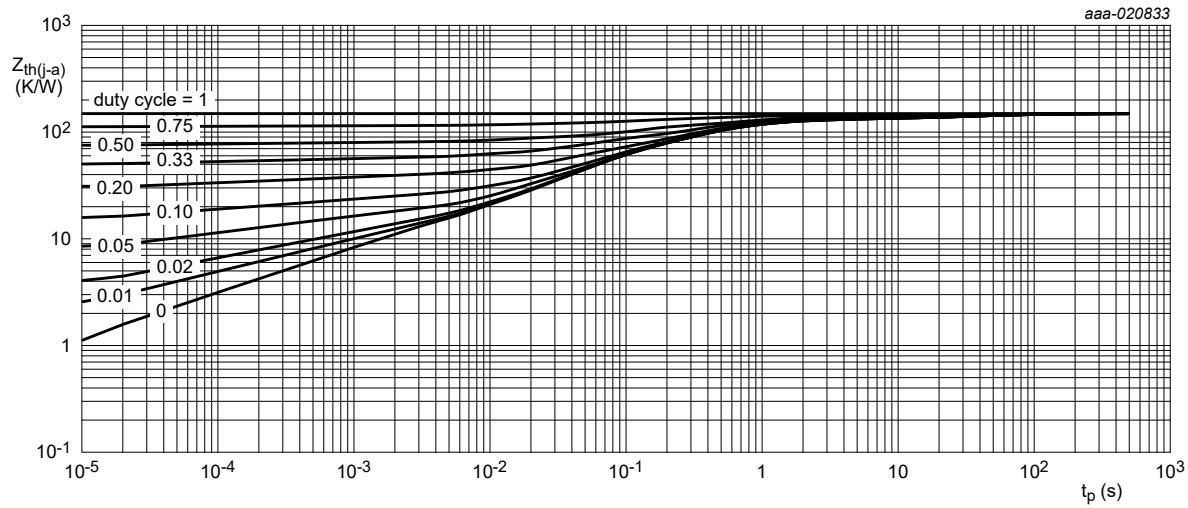
FR4 PCB, standard footprint

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



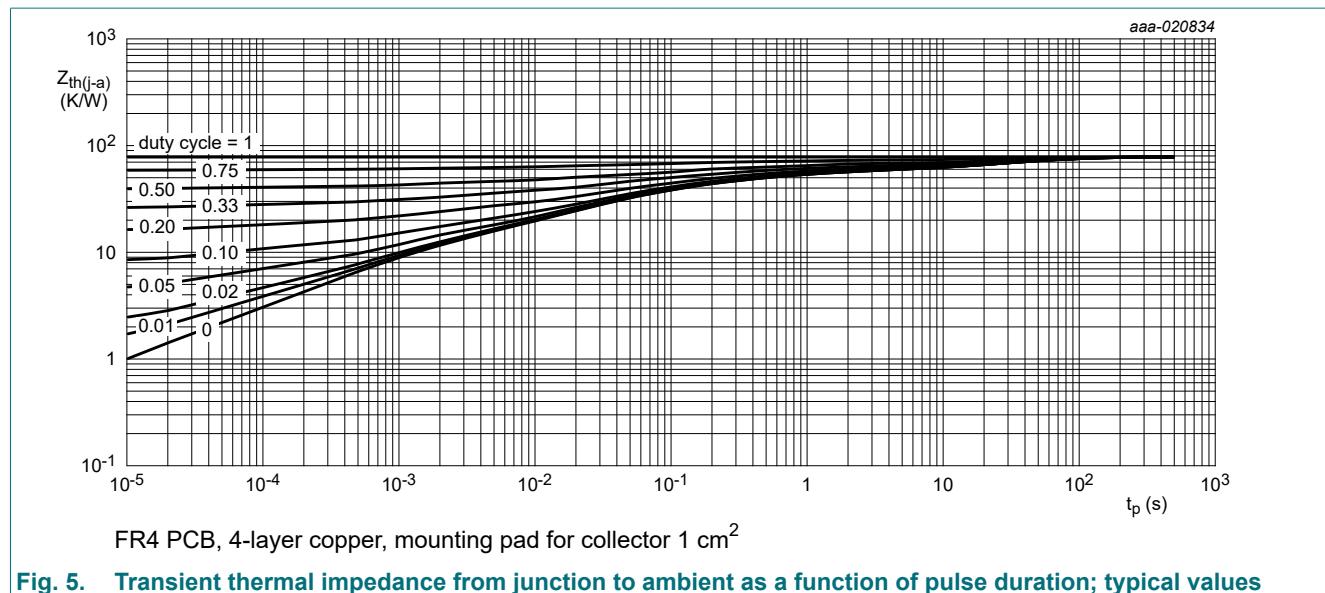
FR4 PCB, mounting pad for collector  $1 \text{ cm}^2$

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



FR4 PCB, 4-layer copper, standard footprint

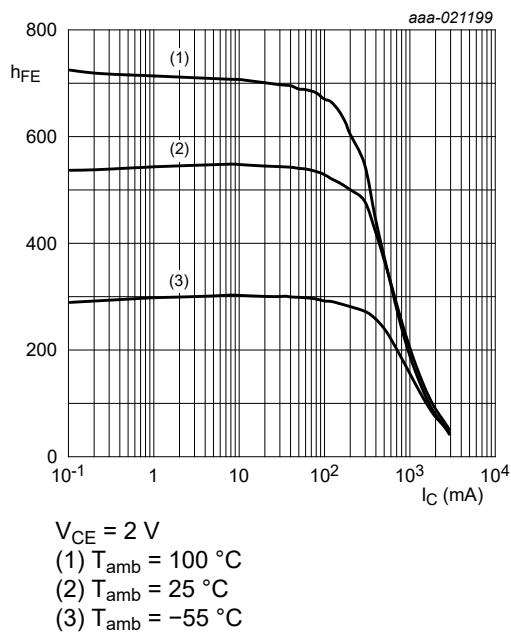
**Fig. 4. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values**



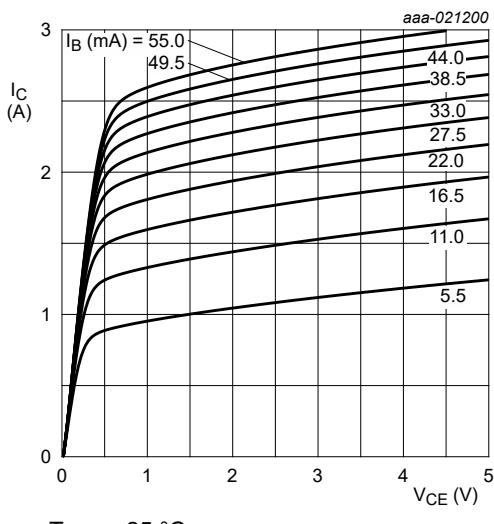
## 10. Characteristics

Table 7. Characteristics

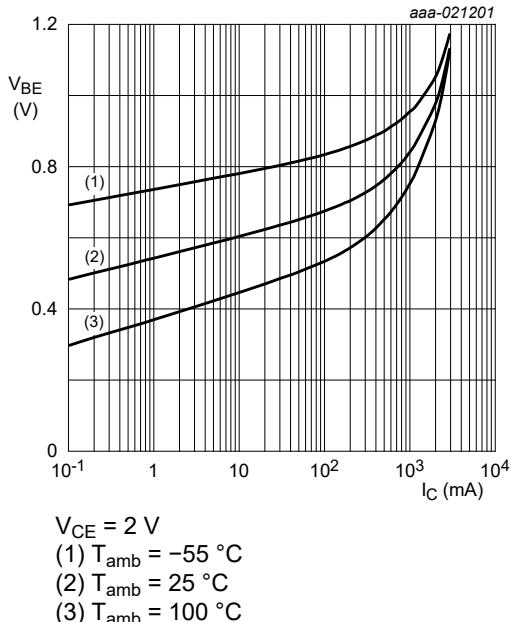
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
<b>Per transistor</b>							
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 48 \text{ V}$ ; $I_E = 0 \text{ A}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	100	nA
		$V_{CB} = 48 \text{ V}$ ; $I_E = 0 \text{ A}$ ; $T_j = 150 \text{ }^\circ\text{C}$		-	-	50	$\mu\text{A}$
$I_{CES}$	collector-emitter cut-off current	$V_{CE} = 48 \text{ V}$ ; $V_{BE} = 0 \text{ V}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	100	nA
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 5 \text{ V}$ ; $I_C = 0 \text{ A}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 2 \text{ V}$ ; $I_C = 100 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		250	400	-	
		$V_{CE} = 2 \text{ V}$ ; $I_C = 500 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		210	330	-	
		$V_{CE} = 2 \text{ V}$ ; $I_C = 1 \text{ A}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		120	190	-	
		$V_{CE} = 2 \text{ V}$ ; $I_C = 2 \text{ A}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$		50	80	-	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 0.5 \text{ A}$ ; $I_B = 50 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	70	100	mV
		$I_C = 1 \text{ A}$ ; $I_B = 50 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	140	200	mV
		$I_C = 2 \text{ A}$ ; $I_B = 200 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	260	350	mV
$R_{CEsat}$	collector-emitter saturation resistance	$I_C = 1 \text{ A}$ ; $I_B = 50 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	200	$\text{m}\Omega$
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 0.5 \text{ A}$ ; $I_B = 50 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	0.92	1	V
		$I_C = 1 \text{ A}$ ; $I_B = 50 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	0.96	1.1	V
		$I_C = 2 \text{ A}$ ; $I_B = 200 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	1.18	1.3	V
$V_{BE}$	base-emitter voltage	$V_{CE} = 2 \text{ V}$ ; $I_C = 0.5 \text{ A}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	0.77	0.9	V
$t_d$	delay time	$I_C = 1 \text{ A}$ ; $I_{Bon} = 50 \text{ mA}$ ; $I_{Boff} = -50 \text{ mA}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	10	-	ns
$t_r$	rise time			-	140	-	ns
$t_{on}$	turn-on time			-	150	-	ns
$t_s$	storage time			-	445	-	ns
$t_f$	fall time			-	180	-	ns
$t_{off}$	turn-off time			-	625	-	ns
$f_T$	transition frequency	$V_{CE} = 10 \text{ V}$ ; $I_C = 500 \text{ mA}$ ; $f = 100 \text{ MHz}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	140	-	MHz
$C_c$	collector capacitance	$V_{CB} = 10 \text{ V}$ ; $I_E = 0 \text{ A}$ ; $i_e = 0 \text{ A}$ ; $f = 1 \text{ MHz}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	6.5	-	pF



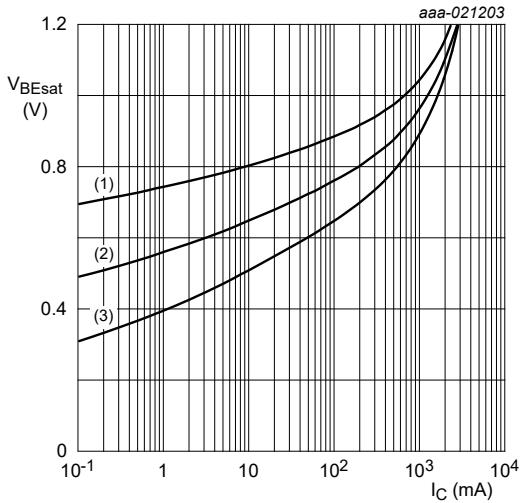
**Fig. 6. DC current gain as a function of collector current; typical values**



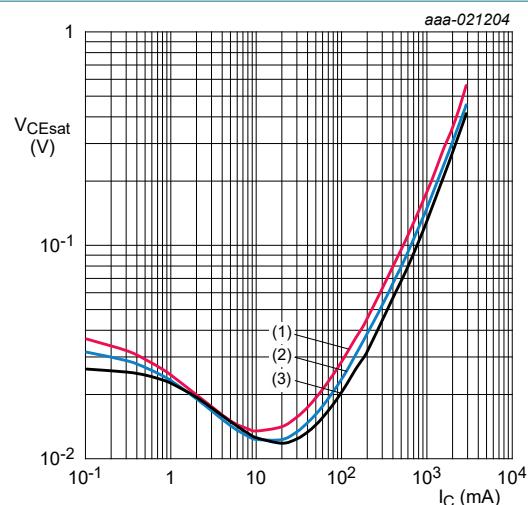
**Fig. 7. Collector current as a function of collector-emitter voltage; typical values**



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

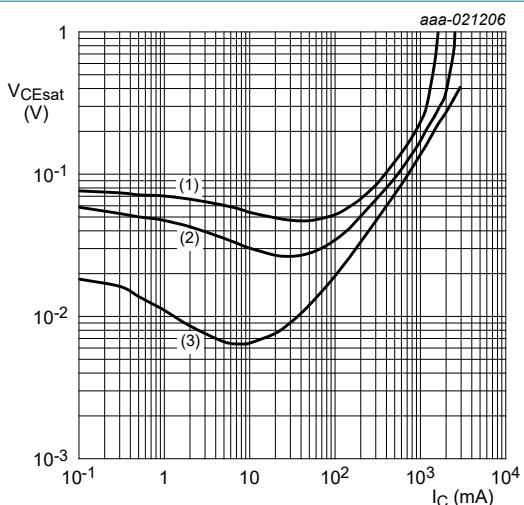


**Fig. 9. Base-emitter saturation voltage as a function of collector current; typical values**



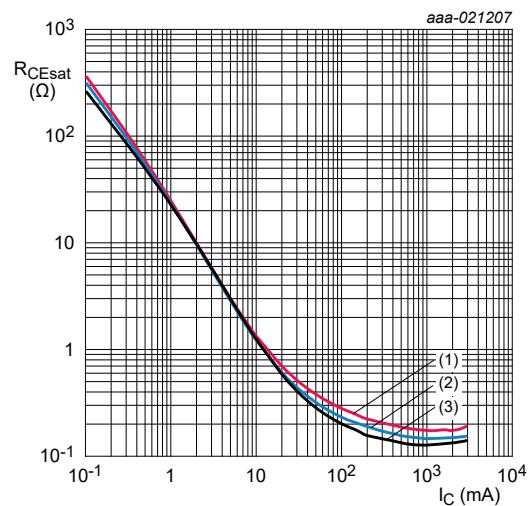
$I_C/I_B = 20$   
 (1)  $T_{amb} = 100^\circ C$   
 (2)  $T_{amb} = 25^\circ C$   
 (3)  $T_{amb} = -55^\circ C$

**Fig. 10. TR1 (NPN): Collector-emitter saturation voltage as a function of collector current; typical values**



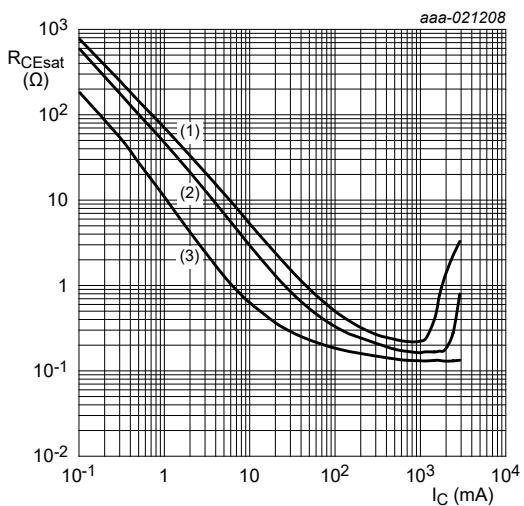
$T_{amb} = 25^\circ C$   
 (1)  $I_C/I_B = 100$   
 (2)  $I_C/I_B = 50$   
 (3)  $I_C/I_B = 10$

**Fig. 11. TR1 (NPN): Collector-emitter saturation voltage as a function of collector current; typical values**



$I_C/I_B = 20$   
 (1)  $T_{amb} = 100^\circ C$   
 (2)  $T_{amb} = 25^\circ C$   
 (3)  $T_{amb} = -55^\circ C$

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



$T_{amb} = 25^\circ C$   
 (1)  $I_C/I_B = 100$   
 (2)  $I_C/I_B = 50$   
 (3)  $I_C/I_B = 10$

**Fig. 13. Collector-emitter saturation resistance as a function of collector current; typical values**

## 11. Test information

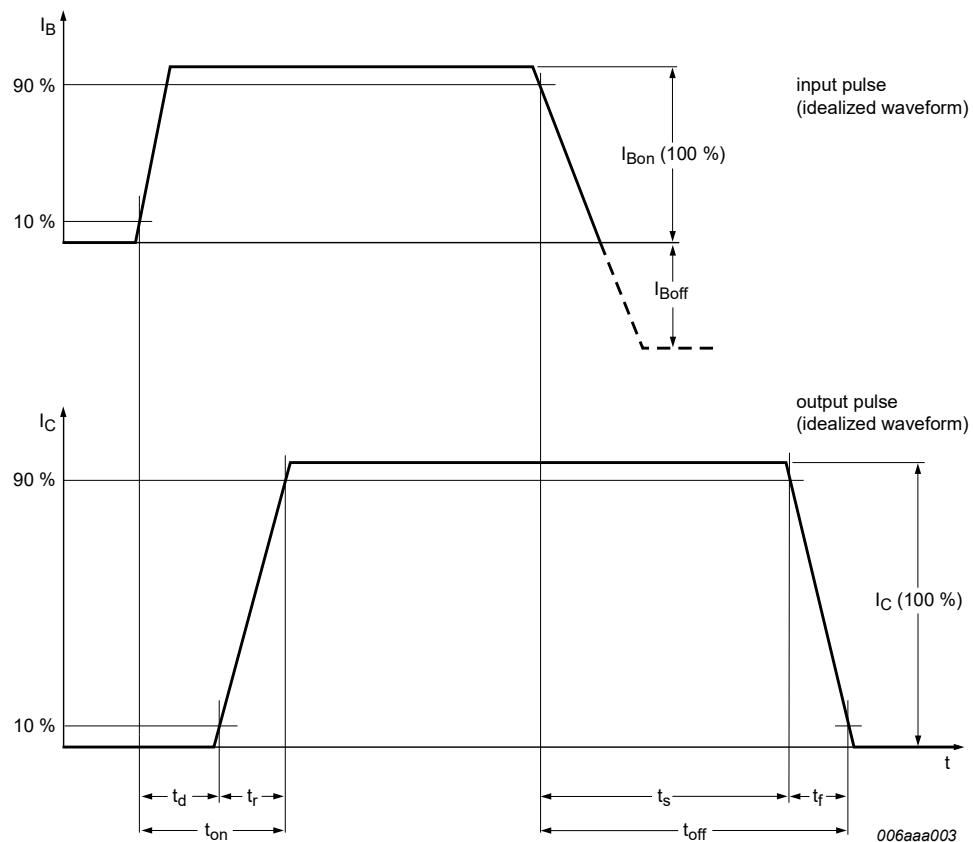


Fig. 14. Switching time definition

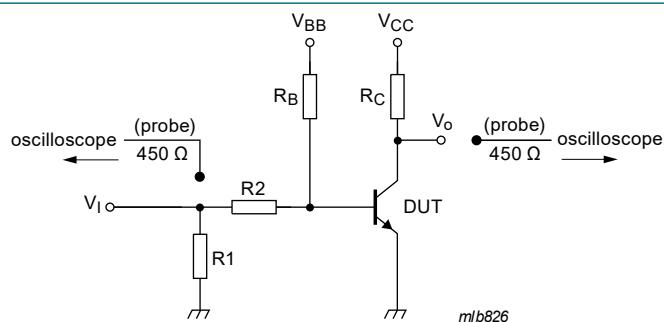


Fig. 15. Test circuit for switching times

## 12. Package outline

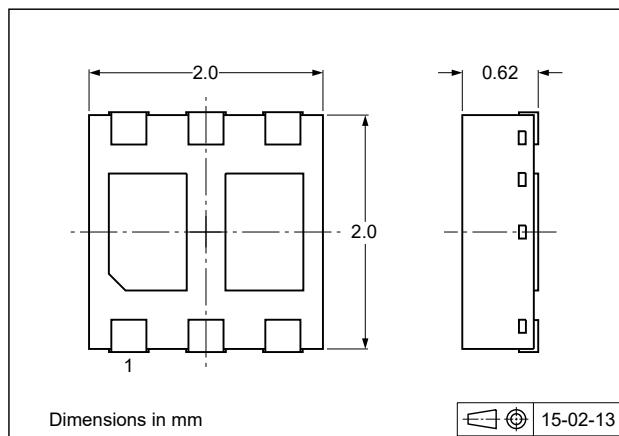


Fig. 16. Package outline DFN2020D-6 (SOT1118D)

## 13. Soldering

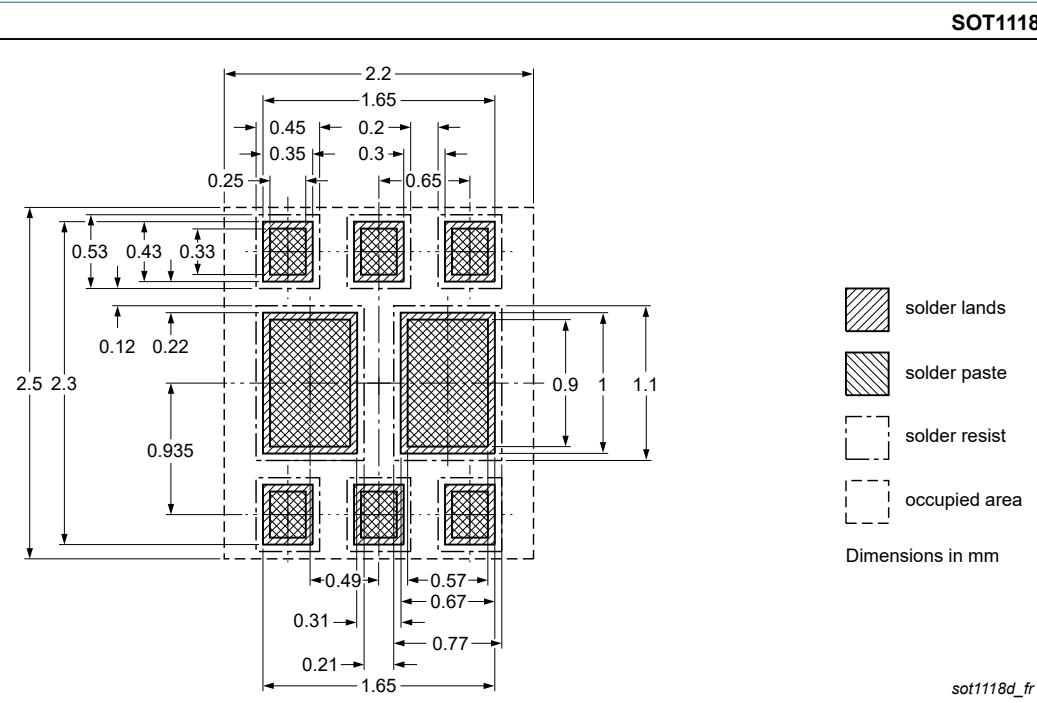


Fig. 17. Reflow soldering footprint for DFN2020D-6 (SOT1118D)

## 14. Revision history

**Table 8. Revision history**

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PBSS4260PANS v.2	20250930	Product data sheet	-	PBSS4260PANS v.1
Modifications:	<ul style="list-style-type: none"><li>Product(s) changed to non-automotive qualification. Please refer to <a href="http://nexperia.com">nexperia.com</a> for automotive (-Q) product alternative(s).</li></ul>			
PBSS4260PANS v.1	20151215	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".
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Date of release: 30 September 2025

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