



PBSS5160DS

60 V, 1 A PNP/PNP low V_{CEsat} transistor

12 August 2026

Product data sheet

1. General description

PNP/PNP low V_{CEsat} transistor pair in a small SOT457 (SC-74) Surface-Mounted Device (SMD) plastic package.

NPN complement: PBSS4160DS

2. Features and benefits

- Low collector-emitter saturation voltage V_{CEsat}
- High collector current capability I_C and I_{CM}
- High collector current gain (h_{FE}) at high I_C
- High efficiency due to less heat generation
- Smaller required Printed-Circuit Board (PCB) area than for conventional transistors

3. Applications

- Dual low power switches (e.g. motors, fans)
- Automotive applications

4. Quick reference data

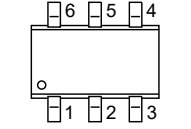
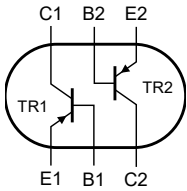
Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
V _{CEO}	collector-emitter voltage	open base		-	-	-60	V
I _C	collector current		[1]	-	-	-1	A
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms		-	-	-2	A
R _{CEsat}	collector-emitter saturation resistance	I _C = -1 A; I _B = -100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	250	330	mΩ

[1] Device mounted on a ceramic PCB, Al₂O₃, standard footprint.

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	E1	emitter TR1	 TSOP6 (SOT457)	 sym138
2	B1	base TR1		
3	C2	collector TR2		
4	E2	emitter TR2		
5	B2	base TR2		
6	C1	collector TR1		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PBSS5160DS	TSOP6	plastic, surface-mounted package (SC-74; TSOP6); 6 leads	SOT457

7. Marking

Table 4. Marking codes

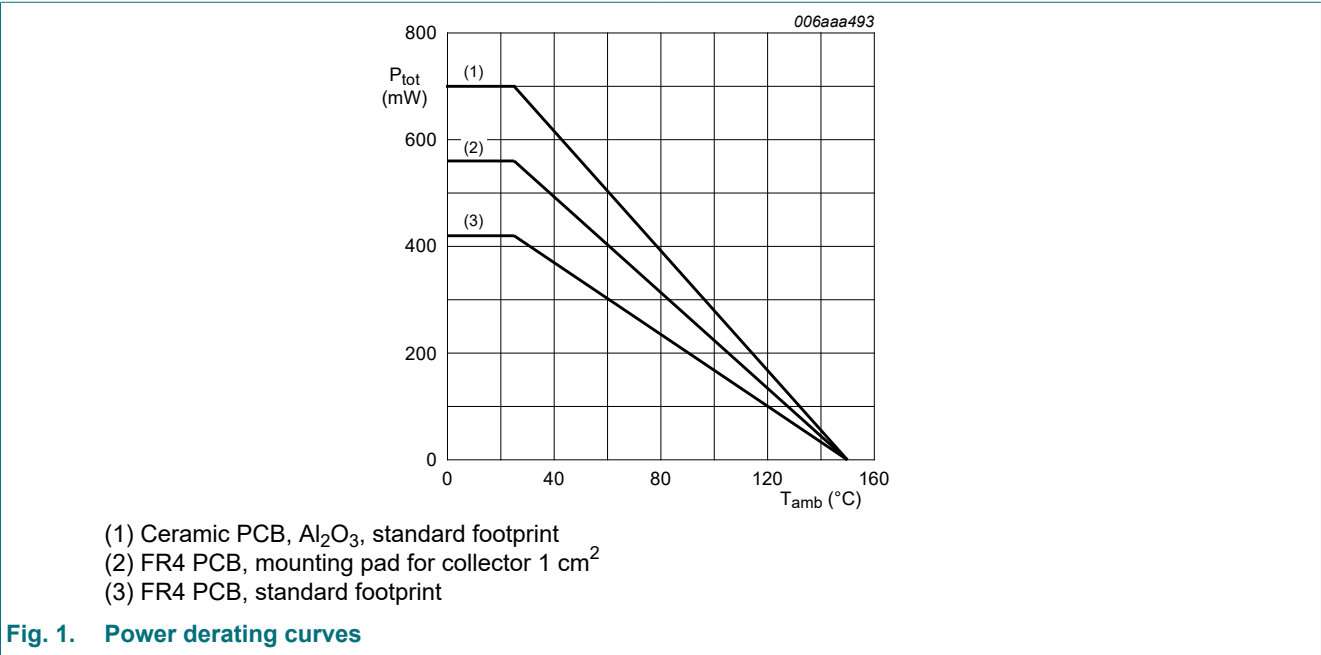
Type number	Marking code
PBSS5160DS	A5

8. Limiting values

Table 5. Limiting values
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
Per transistor						
V _{CBO}	collector-base voltage	open emitter		-	-80	V
V _{CEO}	collector-emitter voltage	open base		-	-60	V
V _{EBO}	emitter-base voltage	open collector		-	-5	V
I _C	collector current		[1]	-	-0.77	A
			[2]	-	-0.9	A
			[3]	-	-1	A
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms		-	-2	A
I _B	base current			-	-300	mA
I _{BM}	peak base current	single pulse; t _p ≤ 1 ms		-	-1	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	290	mW
			[2]	-	370	mW
			[3]	-	450	mW
Per device						
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	420	mW
			[2]	-	560	mW
			[3]	-	700	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 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
Per transistor							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	431	K/W
			[2]	-	-	338	K/W
			[3]	-	-	278	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point			-	-	105	K/W
Per device							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	298	K/W
			[2]	-	-	223	K/W
			[3]	-	-	179	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.

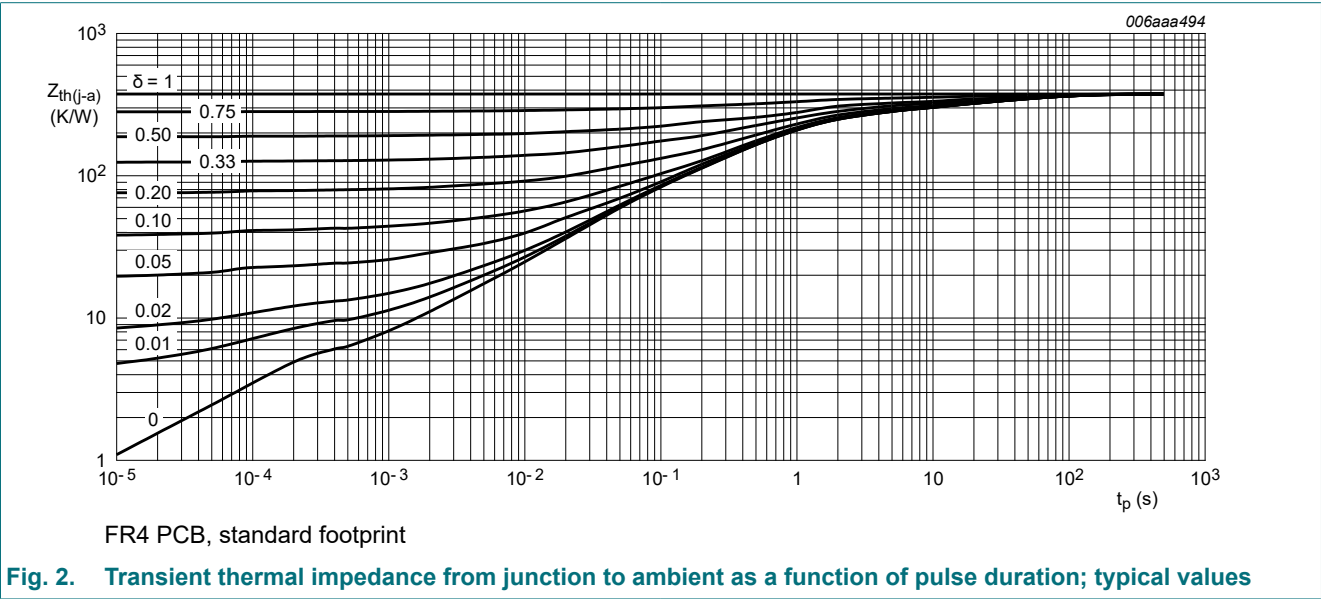


Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

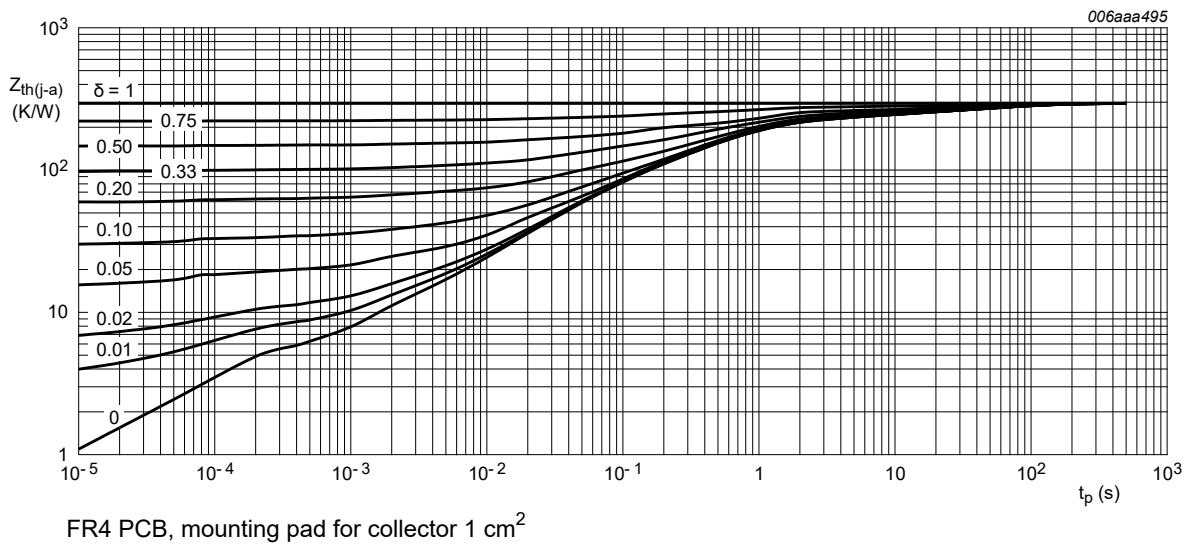


Fig. 3. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

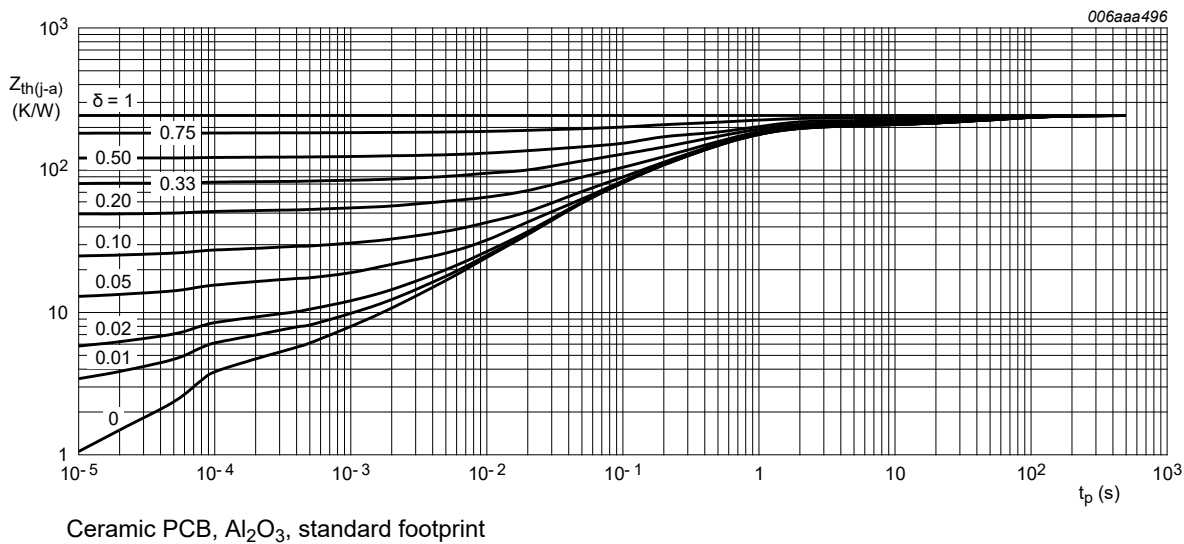


Fig. 4. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
I _{CBO}	collector-base cut-off current	V _{CB} = -60 V; I _E = 0 A; T _{amb} = 25 °C		-	-	-100	nA
		V _{CB} = -60 V; I _E = 0 A; T _j = 150 °C		-	-	-50	µA
I _{CES}	collector-emitter cut-off current	V _{CE} = -60 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} = -5 V; I _C = -1 mA; T _{amb} = 25 °C		200	350	-	
		V _{CE} = -5 V; I _C = -500 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		150	250	-	
		V _{CE} = -5 V; I _C = -1 A; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		100	160	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = -100 mA; I _B = -1 mA; T _{amb} = 25 °C		-	-110	-165	mV
		I _C = -500 mA; I _B = -50 mA; T _{amb} = 25 °C		-	-120	-175	mV
		I _C = -1 A; I _B = -100 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-250	-330	mV
R _{CEsat}	collector-emitter saturation resistance			-	250	330	mΩ
V _{BEsat}	base-emitter saturation voltage	I _C = -1 A; I _B = -50 mA; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-0.95	-1.1	V
V _{BEon}	base-emitter turn-on voltage	V _{CE} = -5 V; I _C = -1 A; pulsed; t _p ≤ 300 µs; δ ≤ 0.02; T _{amb} = 25 °C		-	-0.82	-0.9	V
t _d	delay time	I _C = -0.5 A; I _{Bon} = -25 mA; I _{Boff} = 25 mA; T _{amb} = 25 °C		-	11	-	ns
t _r	rise time			-	30	-	ns
t _{on}	turn-on time			-	41	-	ns
t _s	storage time			-	205	-	ns
t _f	fall time			-	55	-	ns
t _{off}	turn-off time			-	260	-	ns
f _T	transition frequency	V _{CE} = -10 V; I _C = -50 mA; f = 100 MHz; T _{amb} = 25 °C		150	185	-	MHz
C _c	collector capacitance	V _{CB} = -10 V; I _E = 0 A; i _e = 0 A; f = 1 MHz; T _{amb} = 25 °C		-	9	15	pF

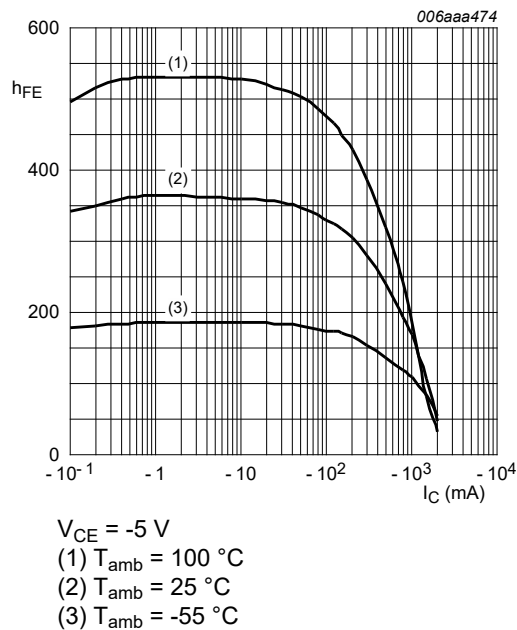


Fig. 5. DC current gain as a function of collector current; typical values

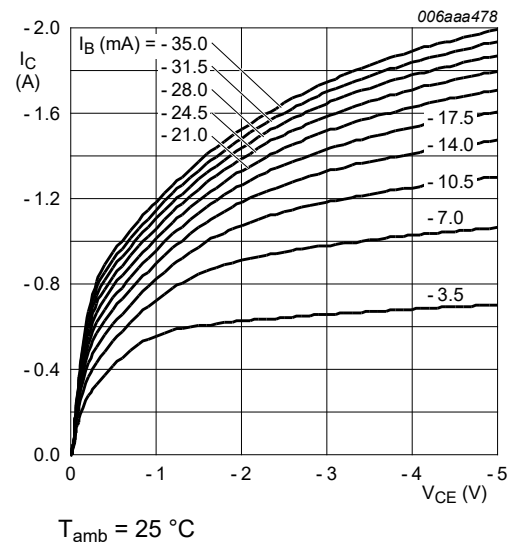


Fig. 6. Collector current as a function of collector-emitter voltage; typical values

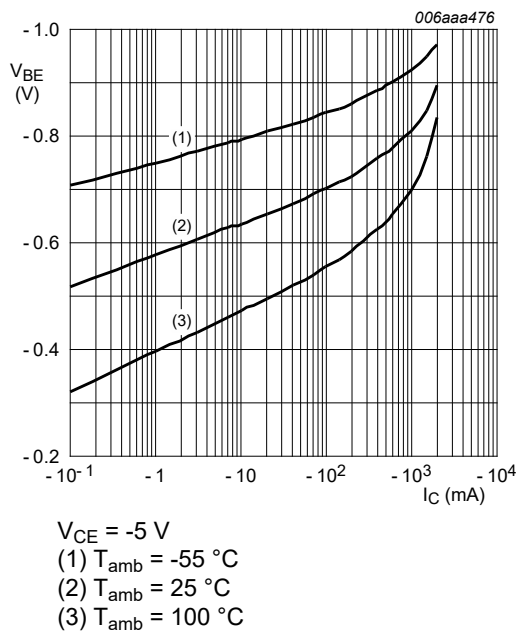


Fig. 7. Base-emitter voltage as a function of collector current; typical values

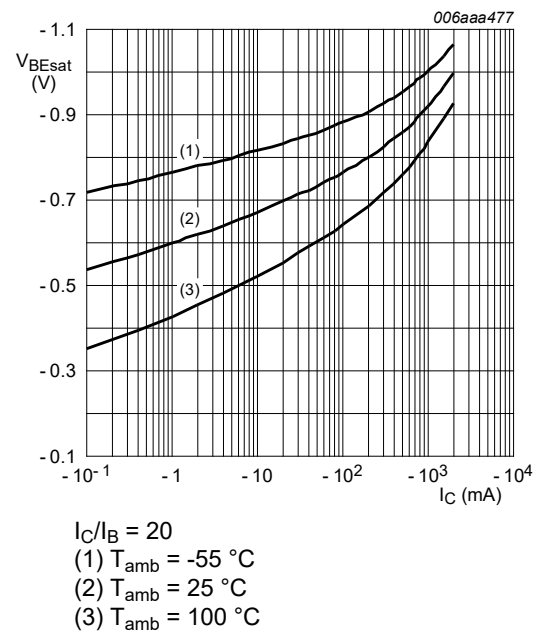


Fig. 8. Base-emitter saturation voltage as a function of collector current; typical values

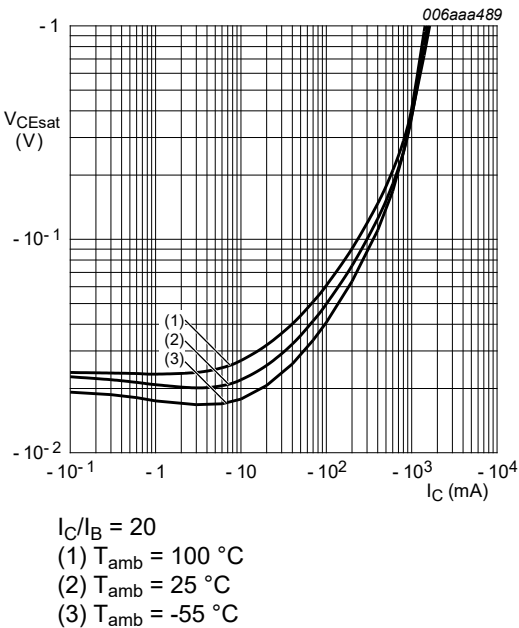


Fig. 9. Collector-emitter saturation voltage as a function of collector current; typical values

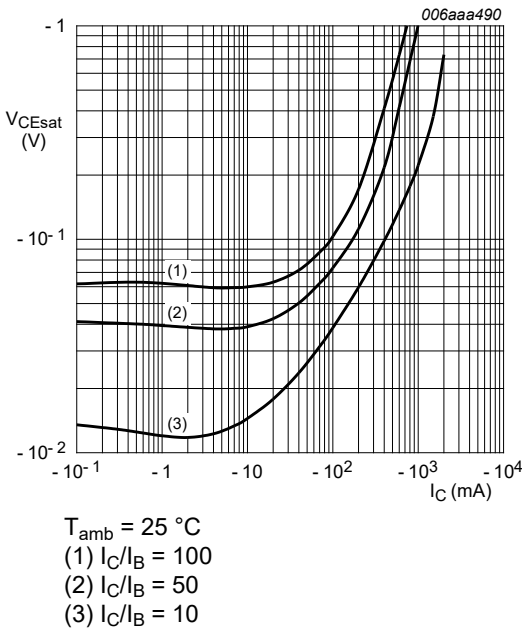


Fig. 10. Collector-emitter saturation voltage as a function of collector current; typical values

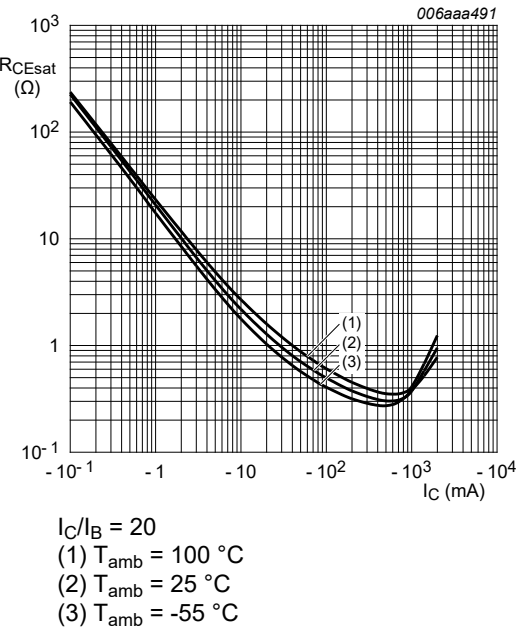


Fig. 11. Collector-emitter saturation resistance as a function of collector current; typical values

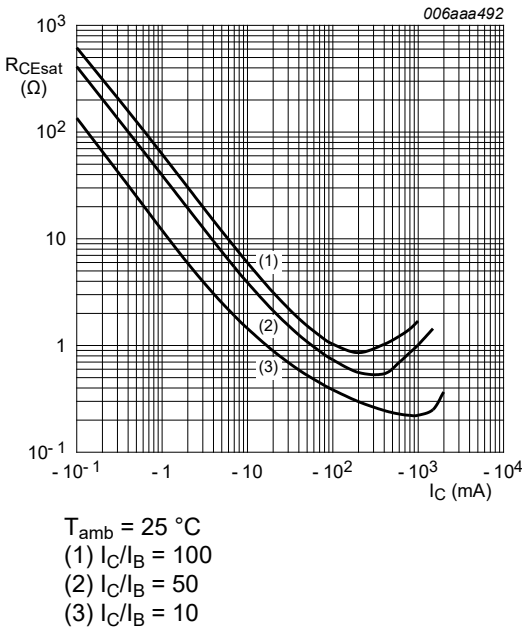


Fig. 12. Collector-emitter saturation resistance as a function of collector current; typical values

11. Test information

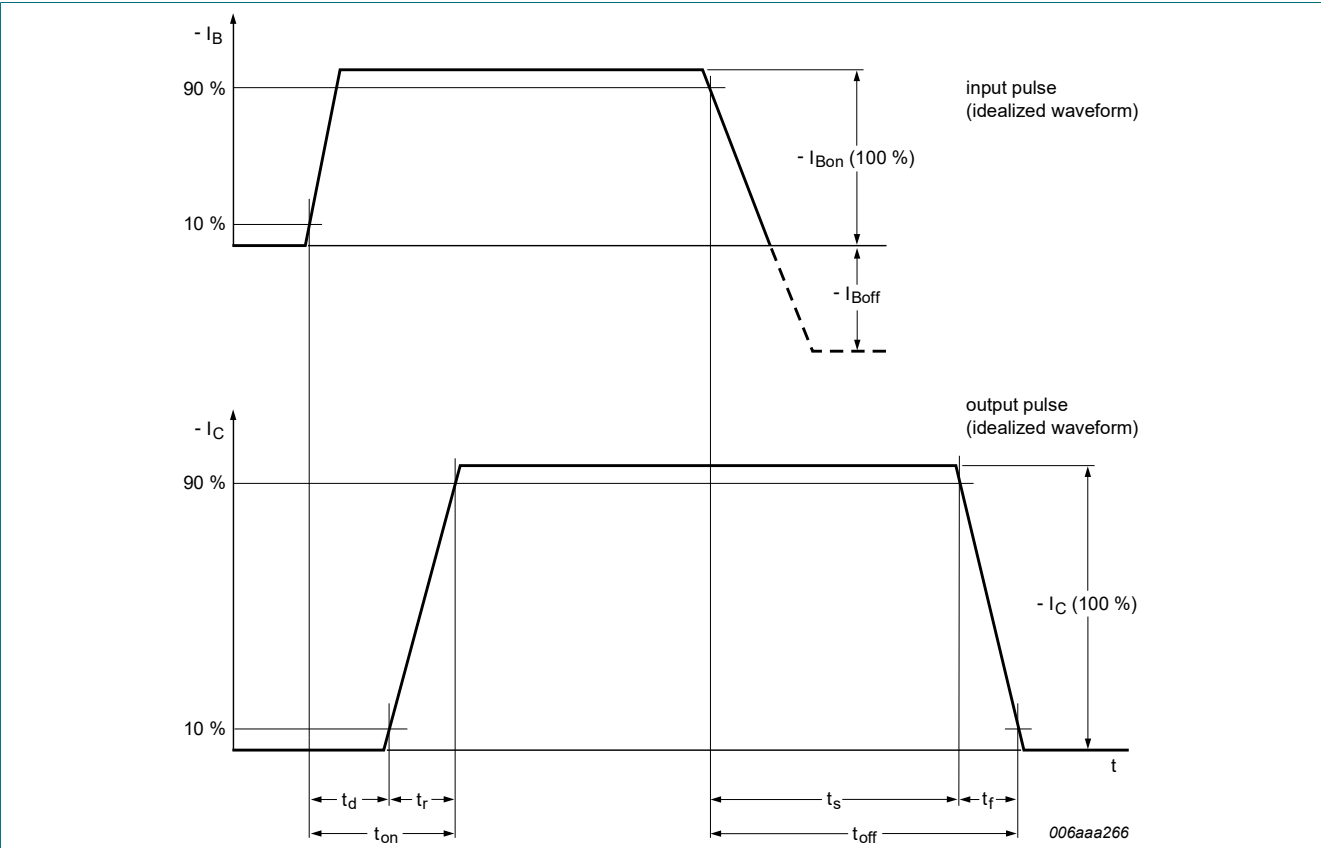
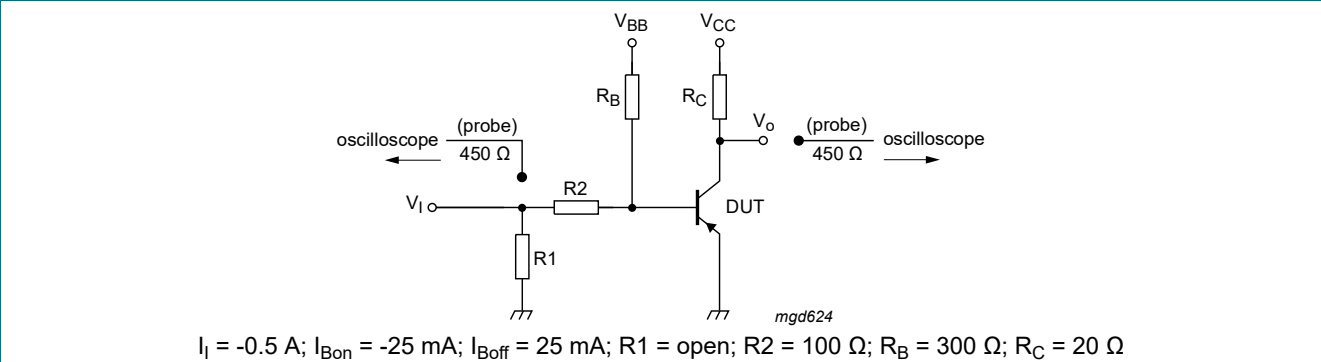


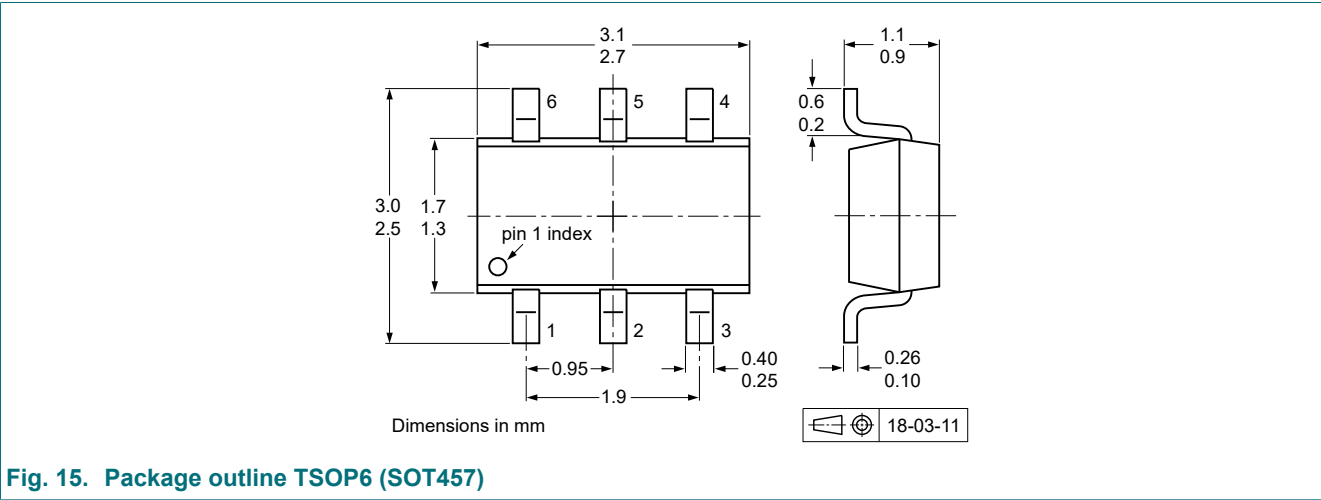
Fig. 13. Transistor switching time definition



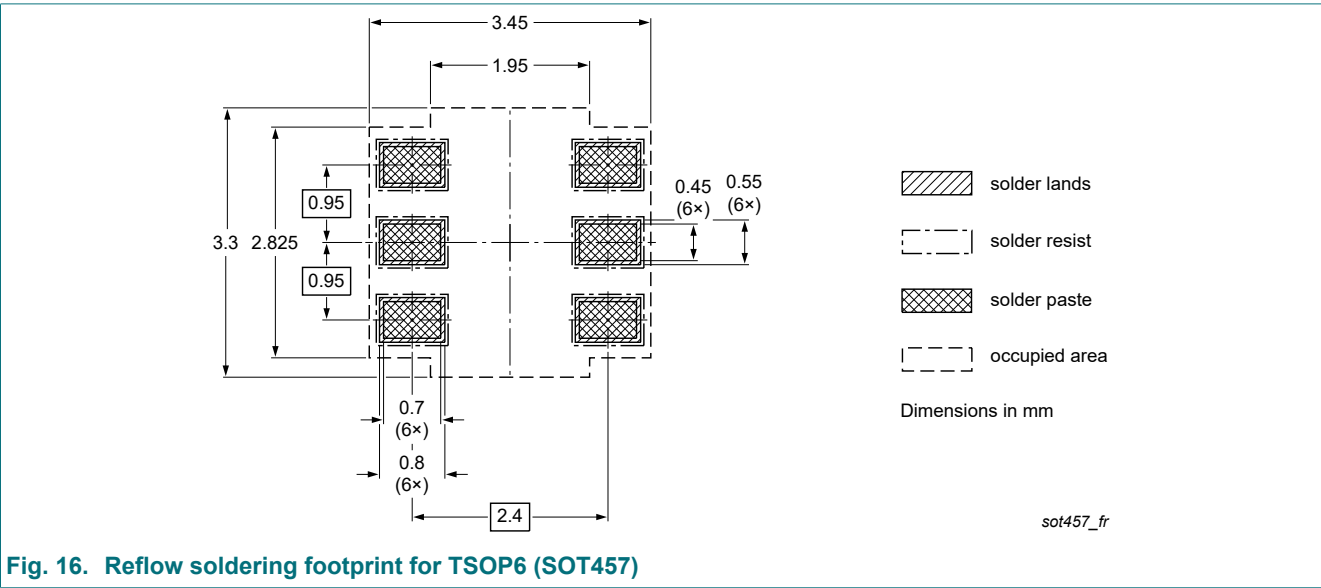
$I_I = -0.5\text{ A}$; $I_{B\text{on}} = -25\text{ mA}$; $I_{B\text{off}} = 25\text{ mA}$; $R_1 = \text{open}$; $R_2 = 100\text{ }\Omega$; $R_B = 300\text{ }\Omega$; $R_C = 20\text{ }\Omega$

Fig. 14. Test circuit for switching times

12. Package outline



13. Soldering



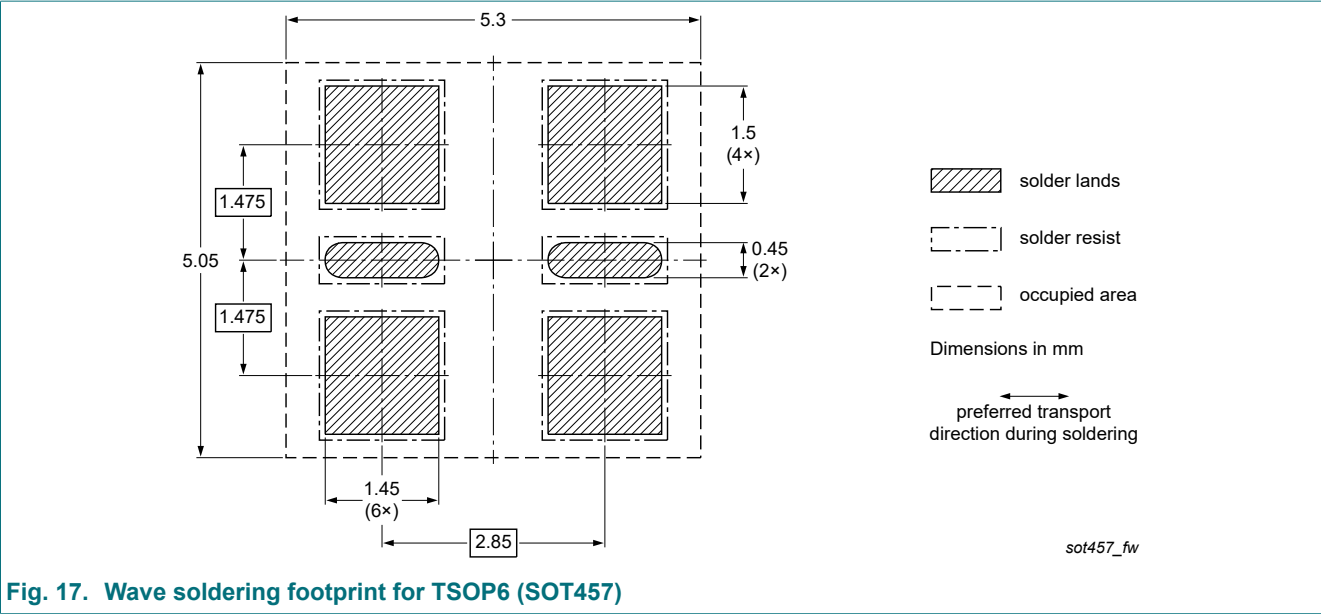


Fig. 17. Wave soldering footprint for TSOP6 (SOT457)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PBSS5160DS v.5	20260812	Product data sheet	-	PBSS5160DS v.4
Modifications:	Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
PBSS5160DS v.4	20231106	Product data sheet	-	PBSS5160DS_3
PBSS5160DS_3	20081009	Product data sheet	-	PBSS5160DS_2
PBSS5160DS_2	20050628	Product data sheet	-	PBSS5160DS_1
PBSS5160DS_1	20040716	Objective 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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