



BCM56DS

80 V, 1 A NPN/NPN matched double transistors

12 August 2026

Product data sheet

1. General description

NPN/NPN matched double transistors in a small SOT457 (SC-74) Surface-Mounted Device (SMD) plastic package.

PNP/PNP complement: BCM53DS

2. Features and benefits

- High collector current capability I_C and I_{CM}
- Reduces component count
- Reduces pick and place costs
- Current gain matching 5%
- Application-optimized pinout

3. Applications

- Current mirror
- Differential amplifier
- Linear voltage regulators
- MOSFET drivers
- High-side switches
- Power management
- Amplifiers

4. Quick reference data

Table 1. Quick reference data

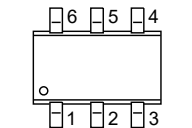
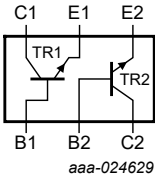
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
V_{CEO}	collector-emitter voltage	open base		-	-	80	V
I_C	collector current			-	-	1	A
I_{CM}	peak collector current	single pulse; $t_p \leq 1$ ms		-	-	2	A
h_{FE}	DC current gain	$V_{CE} = 2$ V; $I_C = 150$ mA; $T_{amb} = 25$ °C	[1]	63	-	250	
Per device							
h_{FE1}/h_{FE2}	DC current gain matching	$V_{CE} = 5$ V; $I_C = 2$ mA; $T_{amb} = 25$ °C		0.95	1	1.05	
$V_{BE1}-V_{BE2}$	base-emitter voltage matching		[2]	-	-	2	mV

[1] Pulse test: $t_p \leq 300$ μ s; $\delta \leq 0.02$

[2] The smaller of the two values is subtracted from the larger value.

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B1	base TR1	 TSOP6 (SOT457)	 aaa-024629
2	B2	base TR2		
3	C2	collector TR2		
4	E2	emitter TR2		
5	E1	emitter TR1		
6	C1	collector TR1		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BCM56DS	TSOP6	plastic, surface-mounted package (SC-74; TSOP6); 6 leads	SOT457

7. Marking

Table 4. Marking codes

Type number	Marking code
BCM56DS	3D

8. Limiting values

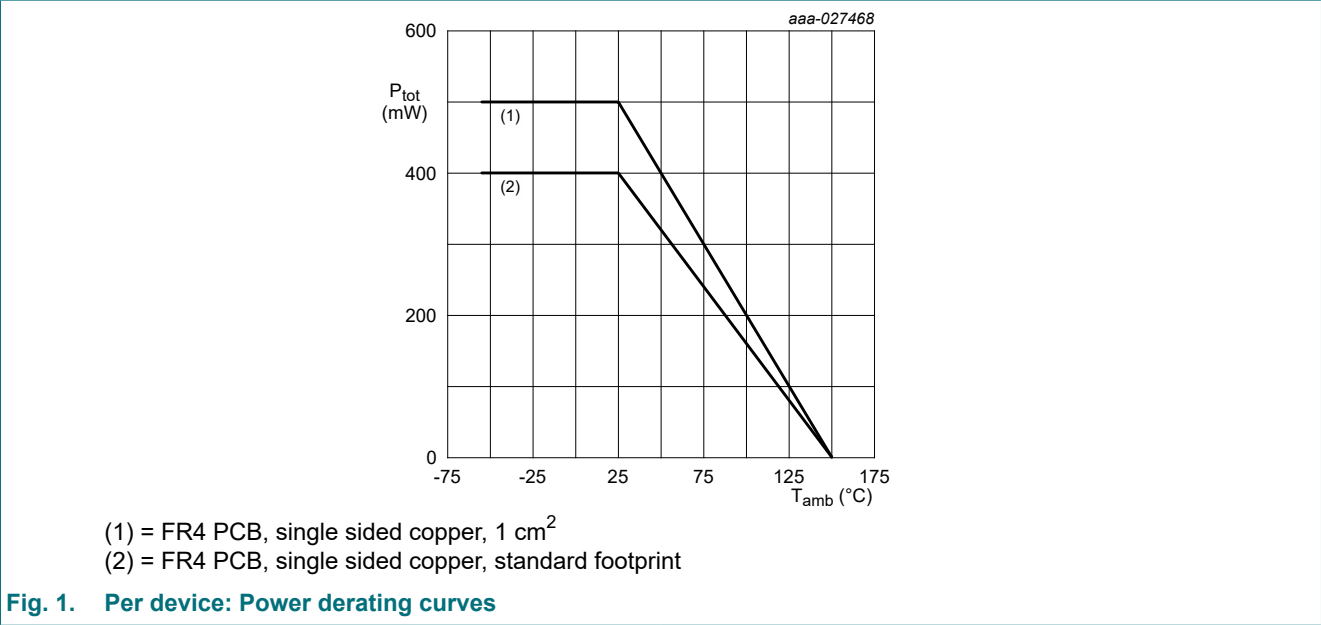
Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC60134).

Symbol	Parameter	Conditions		Min	Max	Unit
Per transistor						
V _{CBO}	collector-base voltage	open emitter		-	100	V
V _{CEO}	collector-emitter voltage	open base		-	80	V
V _{EBO}	emitter-base voltage	open collector		-	5	V
I _C	collector current			-	1	A
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms		-	2	A
I _B	base current			-	0.2	A
I _{BM}	peak base current	single pulse; t _p ≤ 1 ms		-	0.3	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	270	mW
			[2]	-	320	mW
Per device						
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	400	mW
			[2]	-	500	mW
T _j	junction temperature			-	150	°C
T _{amb}	ambient temperature			-55	150	°C

Symbol	Parameter	Conditions		Min	Max	Unit
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 cm².

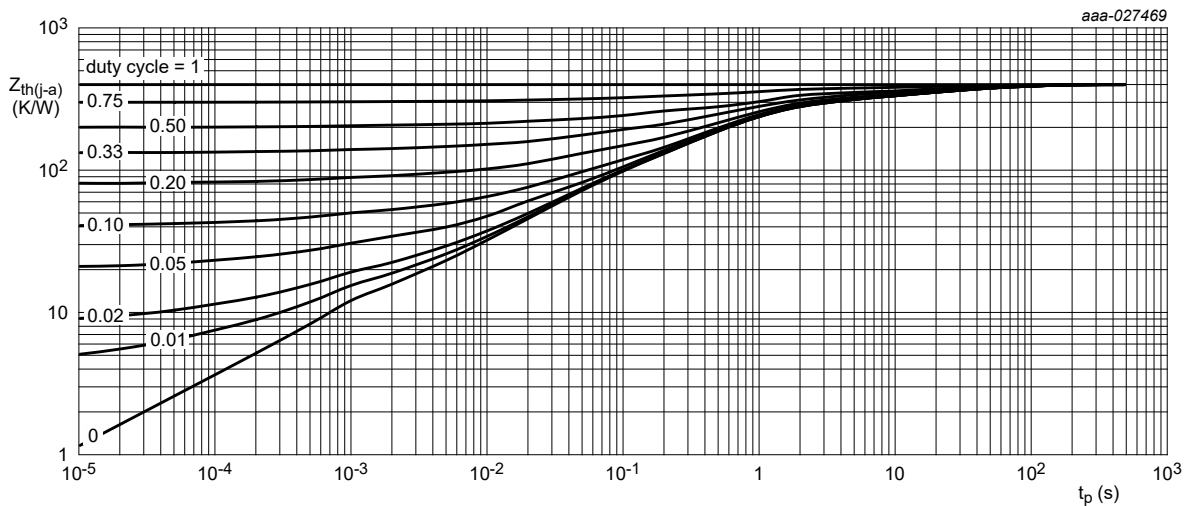


9. Thermal characteristics

Table 6. Thermal characteristics

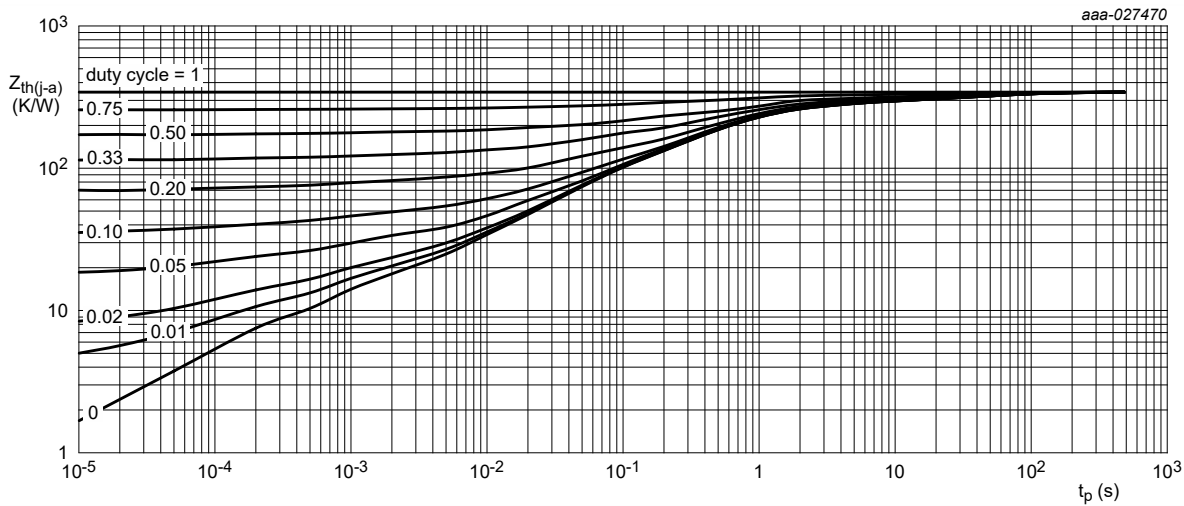
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	463	K/W
			[2]	-	-	391	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point			-	-	150	K/W
Per device							
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	313	K/W
			[2]	-	-	250	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.



FR4 PCB, single sided copper, tin-plated and standard footprint

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



FR4 PCB, single sided copper, tin-plated, mounting pad for collector 1 cm²

Fig. 3. Per transistor: 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							
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 100\text{ }\mu\text{A}$; $I_E = 0\text{ A}$		100	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = 2\text{ mA}$; $I_B = 0\text{ A}$		80	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_C = 0\text{ A}$; $I_E = 100\text{ }\mu\text{A}$		5	-	-	V
I_{CBO}	collector-base cut-off current	$V_{CB} = 30\text{ V}$; $I_E = 0\text{ A}$; $T_{amb} = 25\text{ }^\circ\text{C}$		-	-	100	nA
		$V_{CB} = 30\text{ V}$; $I_E = 0\text{ A}$; $T_j = 150\text{ }^\circ\text{C}$		-	-	10	μA
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	$V_{CE} = 5\text{ V}$; $I_C = 2\text{ mA}$; $T_{amb} = 25\text{ }^\circ\text{C}$		63	-	-	
		$V_{CE} = 2\text{ V}$; $I_C = 150\text{ mA}$; $T_{amb} = 25\text{ }^\circ\text{C}$	[1]	63	-	250	
		$V_{CE} = 2\text{ V}$; $I_C = 500\text{ mA}$; $T_{amb} = 25\text{ }^\circ\text{C}$	[1]	40	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}$; $I_B = 50\text{ mA}$; $T_{amb} = 25\text{ }^\circ\text{C}$	[1]	-	-	500	mV
V_{BE}	base-emitter voltage	$V_{CE} = 2\text{ V}$; $I_C = 500\text{ mA}$; $T_{amb} = 25\text{ }^\circ\text{C}$	[1]	-	-	1	V
C_c	collector capacitance	$V_{CB} = 10\text{ V}$; $I_E = 0\text{ A}$; $i_e = 0\text{ A}$; $f = 1\text{ MHz}$; $T_{amb} = 25\text{ }^\circ\text{C}$		-	4.5	-	pF
f_T	transition frequency	$V_{CE} = 5\text{ V}$; $I_C = 50\text{ mA}$; $f = 100\text{ MHz}$; $T_{amb} = 25\text{ }^\circ\text{C}$		100	155	-	MHz
Per device							
h_{FE1}/h_{FE2}	DC current gain matching	$V_{CE} = 5\text{ V}$; $I_C = 2\text{ mA}$; $T_{amb} = 25\text{ }^\circ\text{C}$		0.95	1	1.05	
$V_{BE1}-V_{BE2}$	base-emitter voltage matching		[2]	-	-	2	mV

[1] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$
[2] The smaller of the two values is subtracted from the larger value.

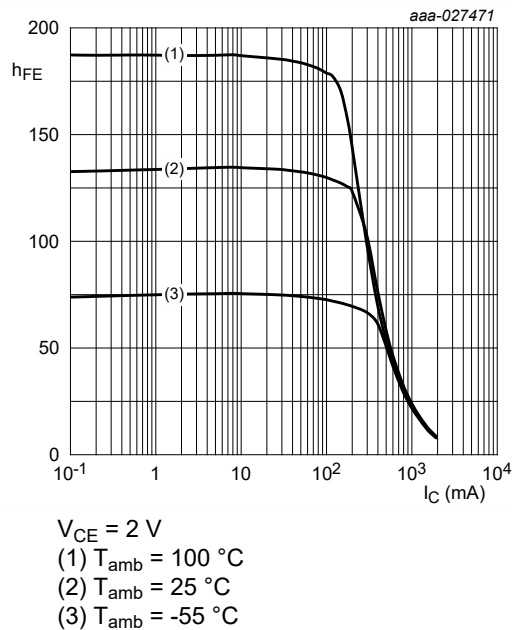


Fig. 4. DC current gain as a function of collector current; typical values

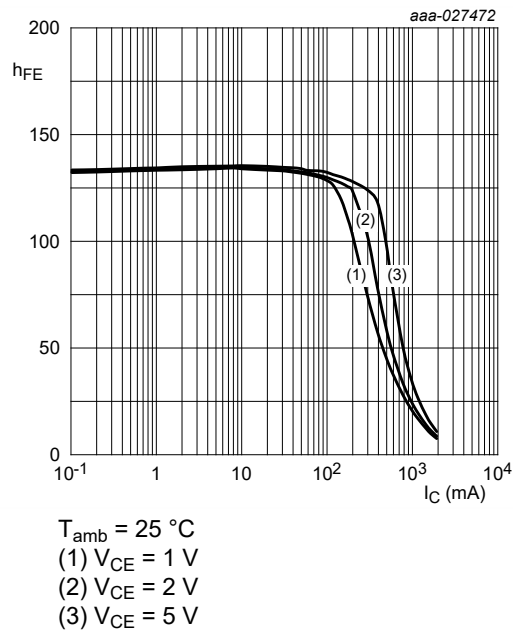


Fig. 5. DC current gain as a function of collector current; typical values

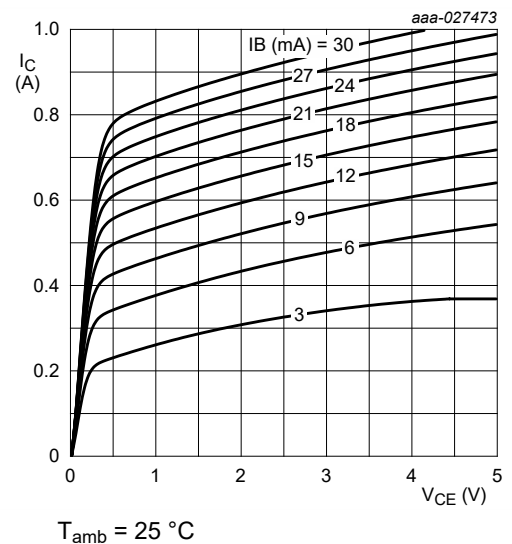


Fig. 6. Collector current as a function of collector-emitter voltage; typical values

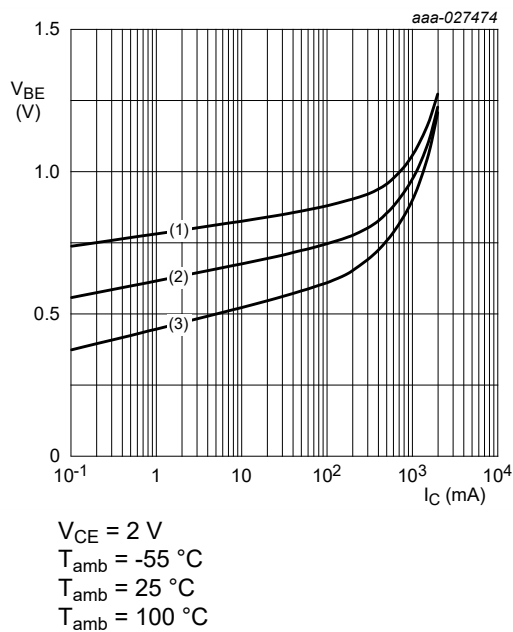


Fig. 7. Base-emitter voltage as a function of collector current; typical values

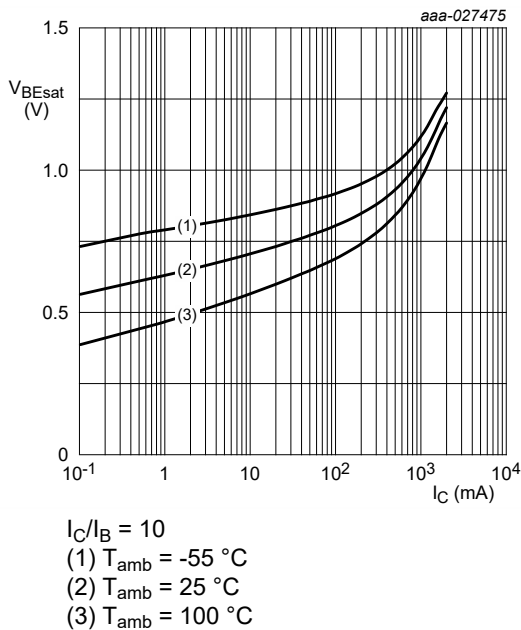


Fig. 8. Base-emitter saturation voltage as a function of collector current; typical values

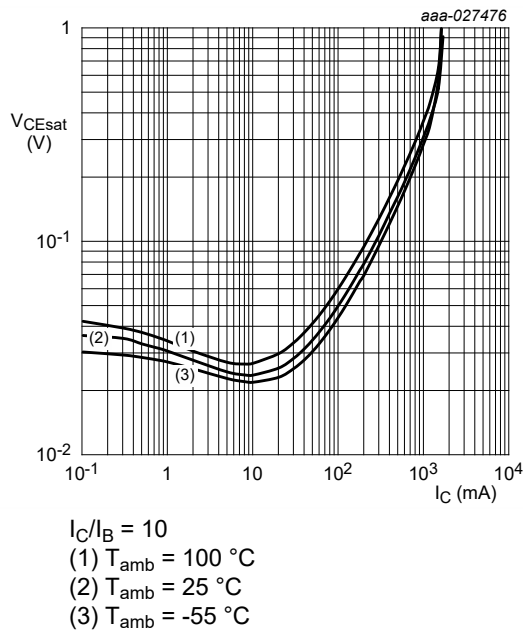


Fig. 9. Collector-emitter saturation voltage as a function of collector current; typical values

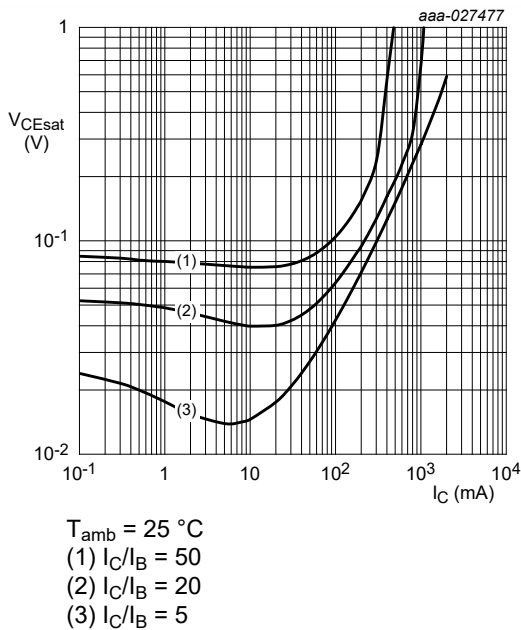


Fig. 10. Collector-emitter saturation voltage as a function of collector current; typical values

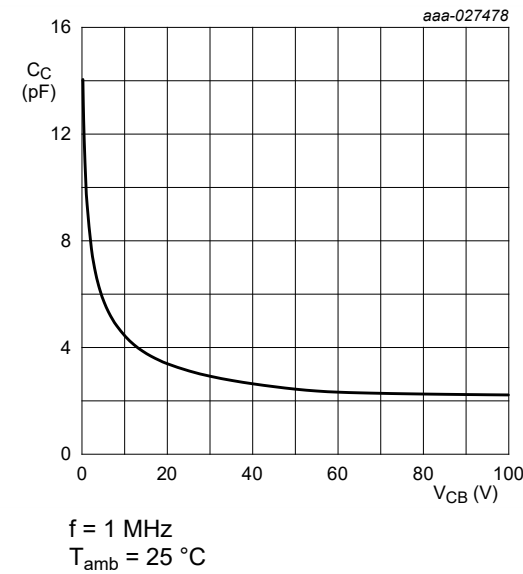


Fig. 11. Collector capacitance as a function of collector-base voltage; typical values

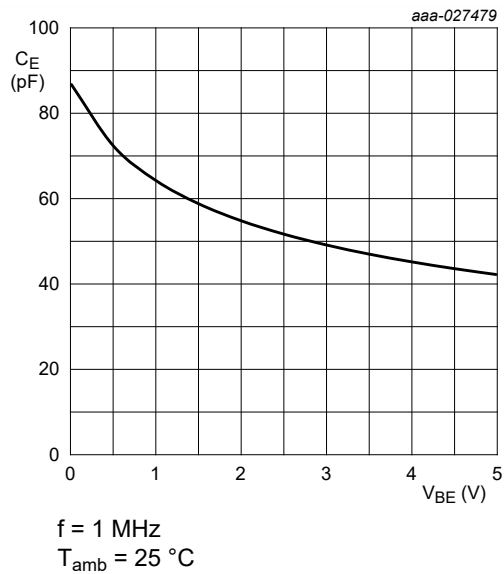


Fig. 12. Emitter capacitance as a function of emitter-base voltage; typical values

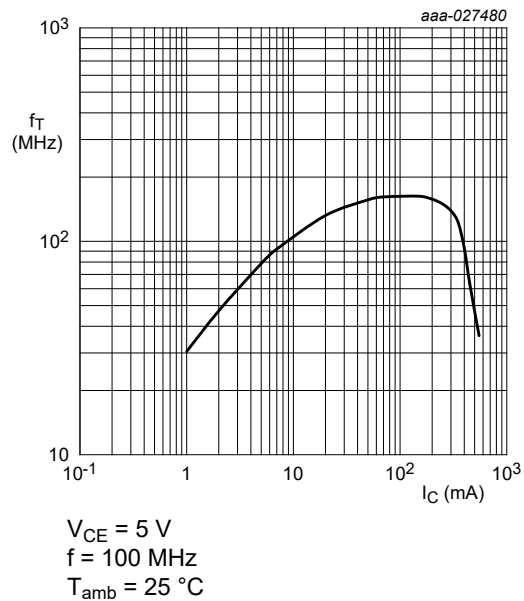


Fig. 13. Transition frequency as a function of collector current; typical values

11. Package outline

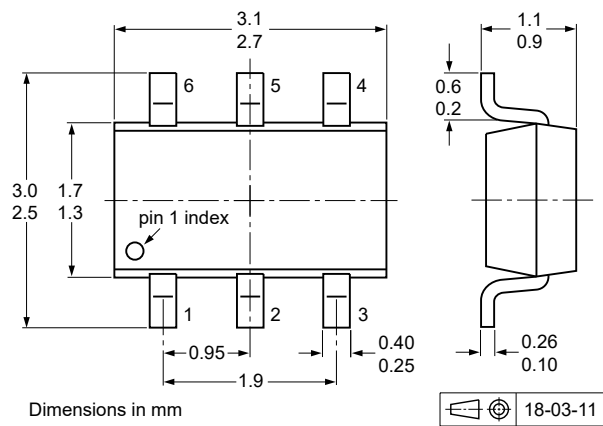
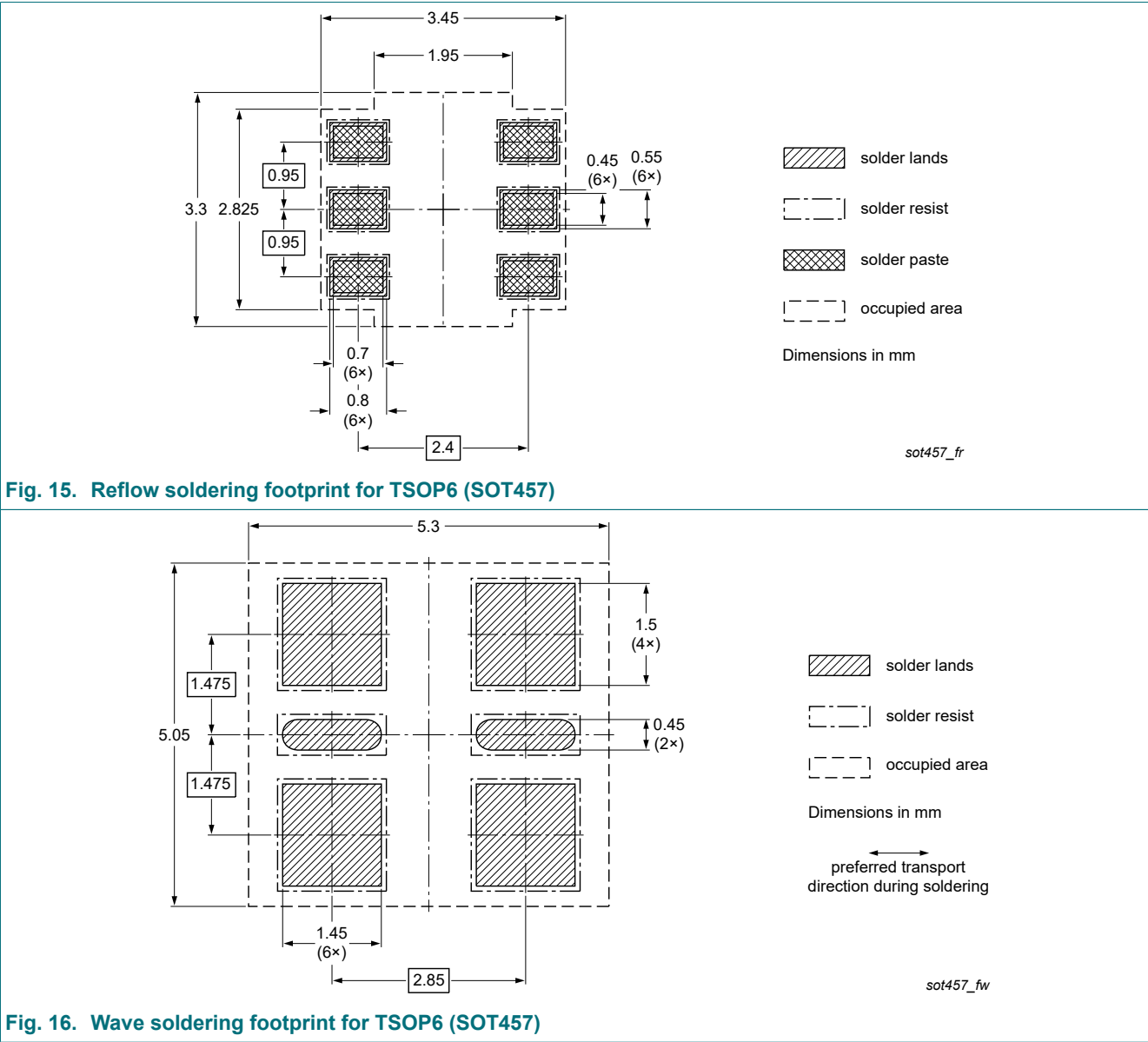


Fig. 14. Package outline TSOP6 (SOT457)

12. Soldering



13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BCM56DS v.2	20260812	Product data sheet	-	BCM56DS v.1
Modifications:	Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
BCM56DS v.1	20180410	Product data sheet	-	-

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: 12 August 2026