

BC817DS

NPN/NPN general purpose double transistors

25 June 2019

Product data sheet

1. General description

NPN/NPN general-purpose double transistors in an SOT457 (SC-74) plastic package.

PNP/PNP complement: BC807DS

NPN/PNP complement: BC817DPN

2. Features and benefits

- Reduces component count
- Reduces pick and place costs
- AEC-Q101 qualified

3. Applications

General purpose switching and amplification

4. Quick reference data

Table 1. Quick	reference data						
Symbol	Parameter	Conditions		Min	Тур	Max	Unit
Per transistor	•						
V _{CEO}	collector-emitter voltage	open base		-	-	45	V
I _C	collector current			-	-	500	mA
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms		-	-	1	А
h _{FE}	DC current gain	V _{CE} = 1 V; I _C = 100 mA	[1]	160	-	400	

[1] Pulsed test: $t_p \le 300 \ \mu s$; $\delta \le 0.02$

5. Pinning information

Table 2. Pinning information							
Pin	Symbol	Description	Simplified outline	Graphic symbol			
1	E1	emitter TR1		C1 B2 E2			
2	B1	base TR1					
3	C2	collector TR2					
4	E2	emitter TR2	SC-74; TSOP6 (SOT457)				
5	B2	base TR2		E1 B1 C2			
6	C1	collector TR1		sym020			



6. Ordering information

Table 3. Ordering information							
Type number	Package						
	Name	Description	Version				
BC817DS	SC-74; TSOP6	plastic, surface-mounted package (SC-74; TSOP6); 6 leads	SOT457				

7. Marking

Table 4. Marking codes				
Type number	Marking code			
BC817DS	N3			

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
Per transiste	or					-
V _{CBO}	collector-base voltage	open emitter		-	50	V
V _{CEO}	collector-emitter voltage	open base		-	45	V
V _{EBO}	emitter-base voltage	open collector		-	5	V
I _C	collector current			-	500	mA
I _{CM}	peak collector current	single pulse; t _p ≤ 1 ms		-	1	А
I _{BM}	peak base current			-	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	370	mW
Tj	junction temperature			-	150	°C
T _{amb}	ambient temperature			-65	150	°C
T _{stg}	storage temperature			-65	150	°C
Per device			1			
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	600	mW

[1] 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 Unit Тур Max Per device thermal resistance from in free air K/W $\mathsf{R}_{\mathsf{th}(\mathsf{j-a})}$ [1] 208 _ _ junction to ambient

[1] Device mounted on an FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm².

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10. Characteristics

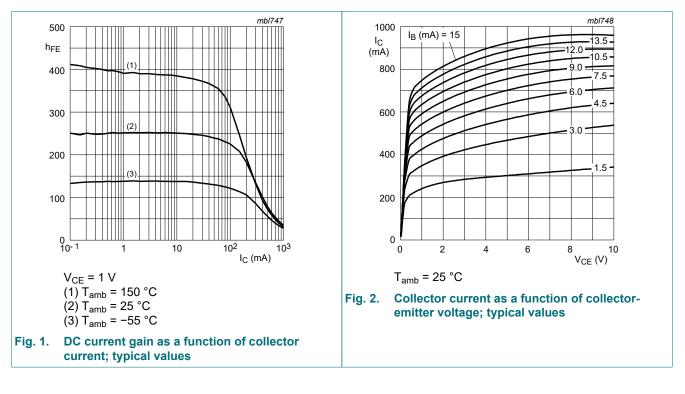
Table 7. Characteristics

 T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
Per transist	tor				_	_	
I _{CBO}	collector-base cut-off	V _{CB} = 20 V; I _E = 0 A		-	-	100	nA
	current	V _{CB} = 20 V; I _E = 0 A; T _j = 150 °C		-	-	5	μA
I _{EBO}	emitter-base cut-off current	V _{EB} = 5 V; I _C = 0 A		-	-	100	nA
h _{FE}	DC current gain	V _{CE} = 1 V; I _C = 100 mA	[1]	160	-	400	
		V _{CE} = 1 V; I _C = 500 mA	[1]	40	-	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = 500 mA; I _B = 50 mA	[1]	-	-	700	mV
V _{BE}	base-emitter voltage	V _{CE} = 1 V; I _C = 500 mA	[1] [2]	-	-	1.2	V
C _c	collector capacitance	V _{CB} = 10 V; I _E = 0 A; i _e = 0 A; f = 1 MHz		-	5	-	pF
f _T	transition frequency	V _{CE} = 5 V; I _C = 10 mA; f = 100 MHz		100	-	-	MHz

[1] Pulsed test: $t_p \le 300 \ \mu s$; $\delta \le 0.02$

[2] V_{BE} decreases by approximately -2 mV/k with increasing temperature.

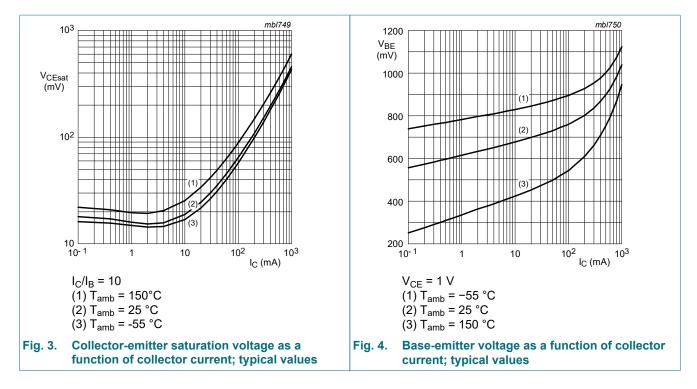


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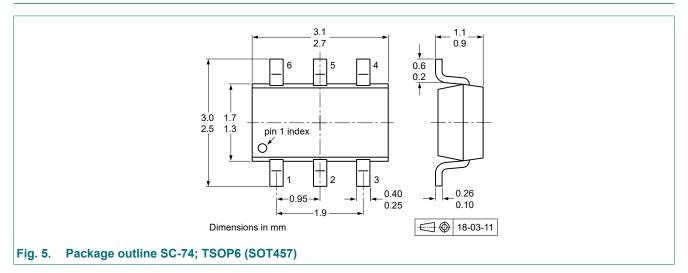


11. Test information

Quality information

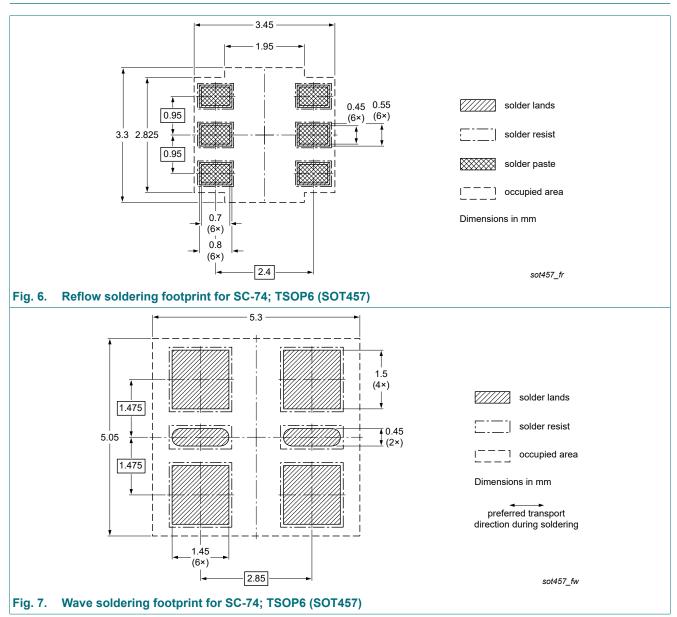
This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline



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13. Soldering



14. Revision history

Table 8. Revision history

able of Revision history						
Data sheet ID	Release date	Data sheet status	Change notice	Supersedes		
BC817DS v.3	20190625	Product data sheet	-	BC817DS v.2		
Modifications:	 cations: The format of this data sheet has been redesigned to comply with the identity guidelines on Nexperia. Legal texts have been adapted to the new company name where appropriate. 					
BC817DS v.2	20021122	Product data sheet	-	BC817DS v.1		
BC817DS v.1	20020809	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.

 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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