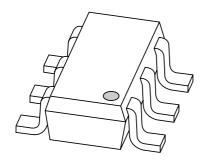
DISCRETE SEMICONDUCTORS

DATA SHEET



BC817DS NPN general purpose double transistor

Product specification Supersedes data of 2002 Aug 09 2002 Nov 22





NPN general purpose double transistor

BC817DS

FEATURES

- High current (500 mA)
- 600 mW total power dissipation
- Replaces two SOT23 packaged transistors on same PCB area.

APPLICATIONS

- · General purpose switching and amplification
- · Push-pull amplifiers
- Multi-phase stepper motor drivers.

DESCRIPTION

NPN transistor pair in a SOT457 (SC-74) plastic package.

MARKING

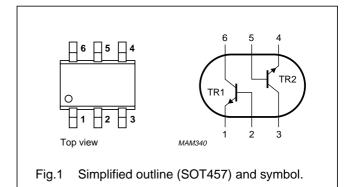
TYPE NUMBER	MARKING CODE
BC817DS	N3

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	45	V
I _C	collector current (DC)	500	mA
I _{CM}	peak collector current	1	Α

PINNING

PIN	DESCRIPTION	
1, 4	emitter	TR1; TR2
2, 5	base	TR1; TR2
6, 3	collector	TR1; TR2



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT	
Per transis	Per transistor unless otherwise specified					
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 (DC)		-	500	mA	
I _{CM}	peak collector current		-	1	Α	
I _{BM}	peak base current		-	200	mA	
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	-	370	mW	
T _{stg}	storage temperature		-65	+150	°C	
Tj	junction temperature		-	150	°C	
T _{amb}	operating ambient temperature -65 +150		+150	°C		
Per device	Per device					
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	_	600	mW	

Note

1. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm².

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to	note 1	208	K/W
	ambient			

Note

1. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm².

CHARACTERISTICS

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

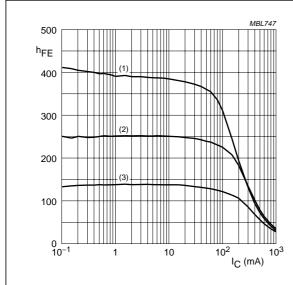
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transis	stor		•	•	•	
I _{CBO}	collector-base cut-off current	V _{CB} = 20 V; I _E = 0	_	_	100	nA
		V _{CB} = 20 V; I _E = 0; T _j = 150 °C	_	_	5	μΑ
I _{EBO}	emitter-base cut-off current	$V_{EB} = 5 \text{ V}; I_{C} = 0$	_	_	100	nA
h _{FE}	DC current gain	V _{CE} = 1 V; I _C = 100 mA; note 1	160	_	400	
		V _{CE} = 1 V; I _C = 500 mA; note 1	40	_	_	
V _{CEsat}	collector-emitter saturation voltage	$I_C = 500 \text{ mA}$; $I_B = 50 \text{ mA}$; note 1	_	_	700	mV
V _{BE}	base-emitter voltage	V _{CE} = 1 V; I _C = 500 mA; notes 1 and 2	_	_	1.2	V
C _c	collector capacitance	$V_{CB} = 10 \text{ V}; I_E = I_e = 0; f = 1 \text{ MHz}$	_	5	_	pF
f _T	transition frequency	V _{CE} = 5 V; I _C = 10 mA; f = 100 MHz	100	_	_	MHz

Notes

- 1. Pulse test: $t_p \le 300 \ \mu s; \ \delta \le 0.02.$
- 2. V_{BE} decreases by approximately -2 mV/K with increasing temperature.

NPN general purpose double transistor

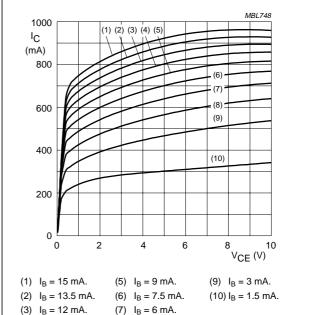
BC817DS



 $V_{CE} = 1 V$.

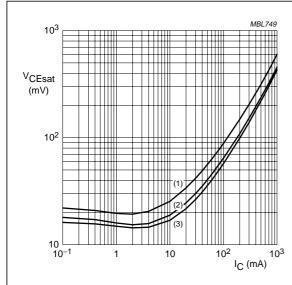
- (1) $T_{amb} = 150 \, ^{\circ}C$.
- (2) T_{amb} = 25 °C.
- (3) $T_{amb} = -55$ °C.

Fig.2 DC current gain as a function of collector current; typical values.



- (4) $I_B = 10.5 \text{ mA}.$
- (7) $I_B = 6 \text{ mA}.$
- (8) $I_B = 4.5 \text{ mA}.$

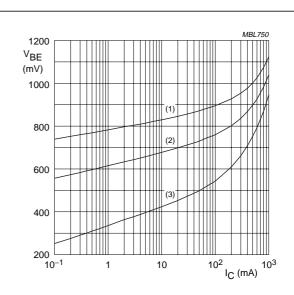
Collector current as a function of collector-emitter voltage; typical values.



 $I_{\rm C}/I_{\rm B} = 10.$

- (1) $T_{amb} = 150 \, ^{\circ}C$.
- (2) $T_{amb} = 25 \, ^{\circ}C$.
- (3) $T_{amb} = -55 \, ^{\circ}C$.

Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.



 $V_{CE} = 1 V.$

- (1) $T_{amb} = -55 \, ^{\circ}C$.
- (2) $T_{amb} = 25 \, ^{\circ}C$.
- (3) $T_{amb} = 150 \, ^{\circ}C$.

Fig.5 Base-emitter voltage as a function of collector current; typical values.

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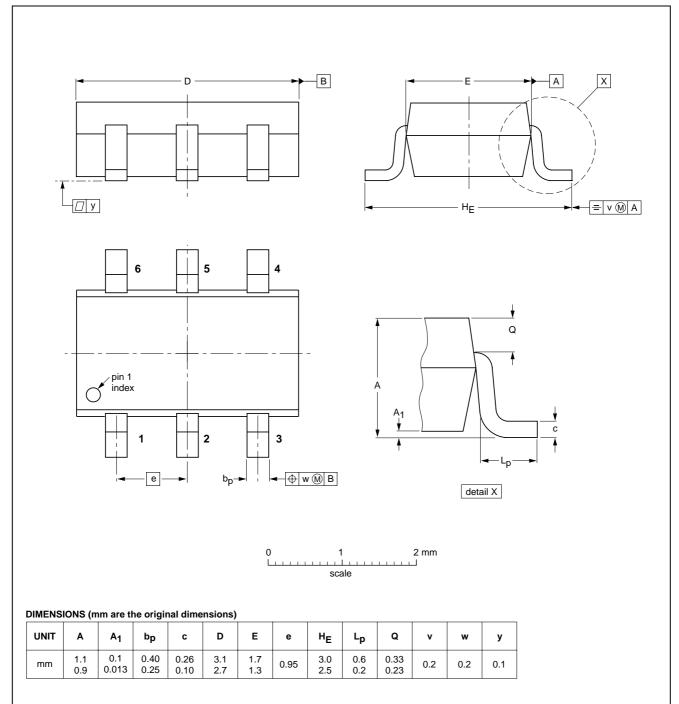
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



REFERENCES

EIAJ

SC-74

JEDEC

EUROPEAN

PROJECTION

ISSUE DATE

97-02-28

01-05-04

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IEC

OUTLINE VERSION

SOT457

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS(2)(3)	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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