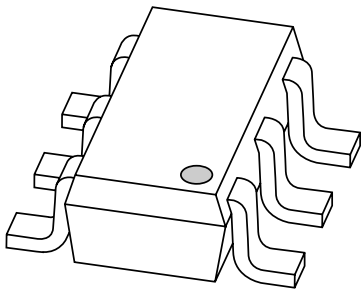


# DATA SHEET



**BC817DS**

NPN general purpose double  
transistor

Product data sheet  
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

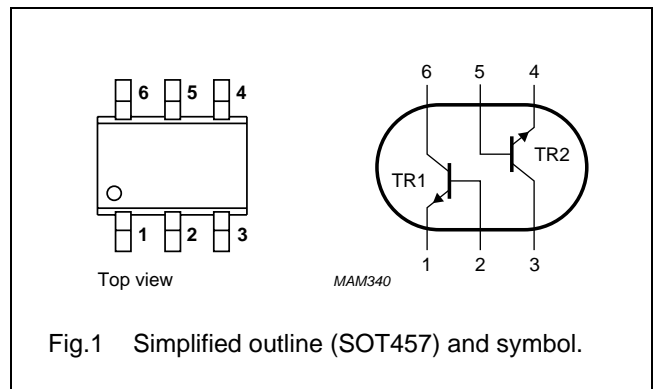
TYPE NUMBER	MARKING CODE
BC817DS	N3

### 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	A

### 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
<b>Per transistor unless otherwise specified</b>					
$V_{CBO}$	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	A
$I_{BM}$	peak base current		–	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	370	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C
<b>Per device</b>					
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	600	mW

### Note

1. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm<sup>2</sup>.

## NPN general purpose double transistor

BC817DS

## THERMAL CHARACTERISTICS

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

## Note

1. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm<sup>2</sup>.

## CHARACTERISTICS

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

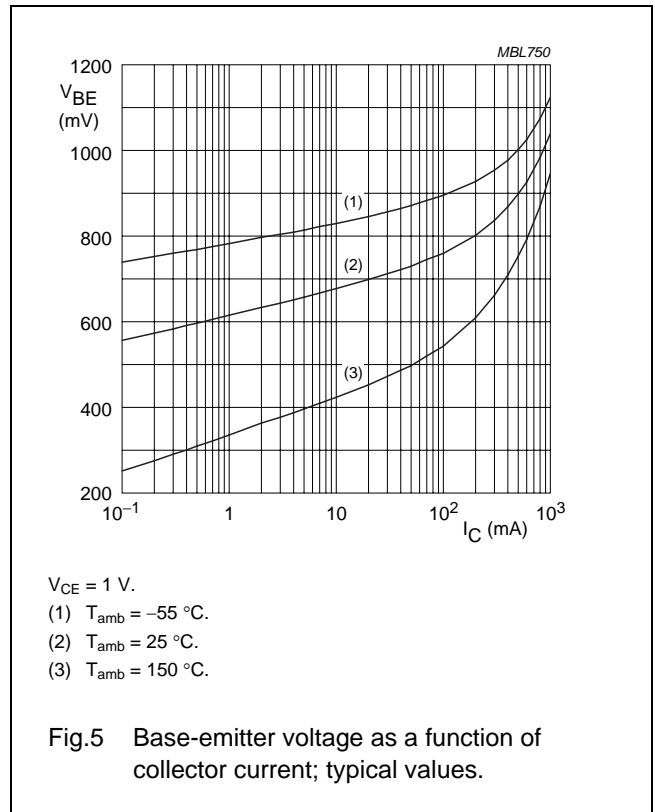
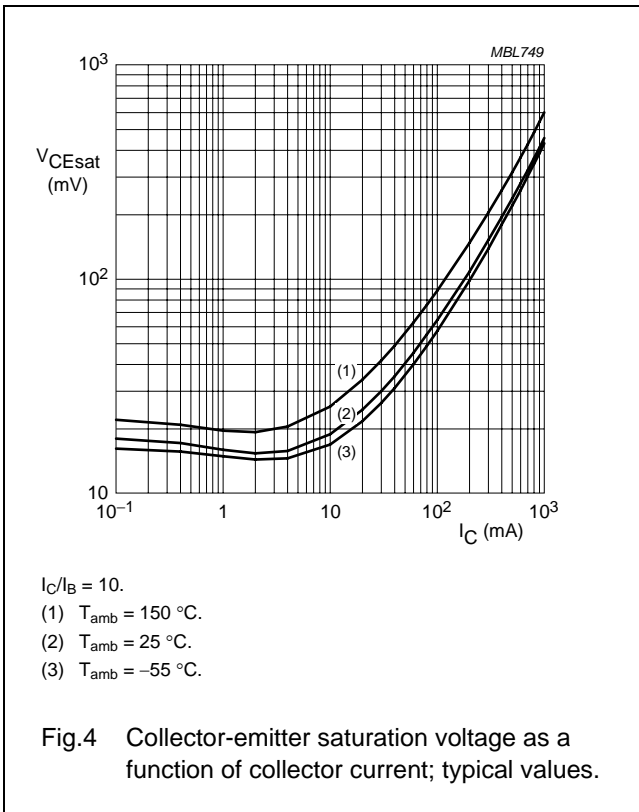
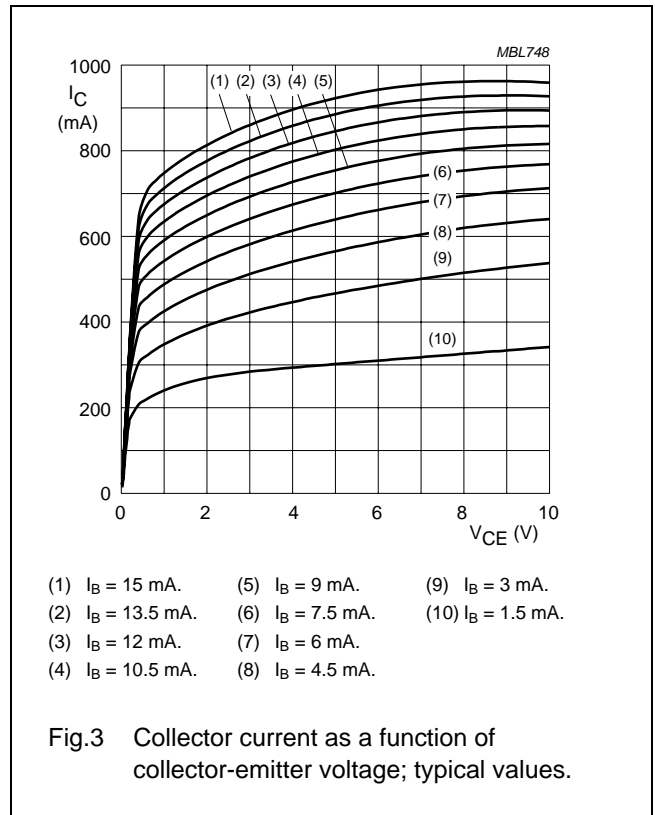
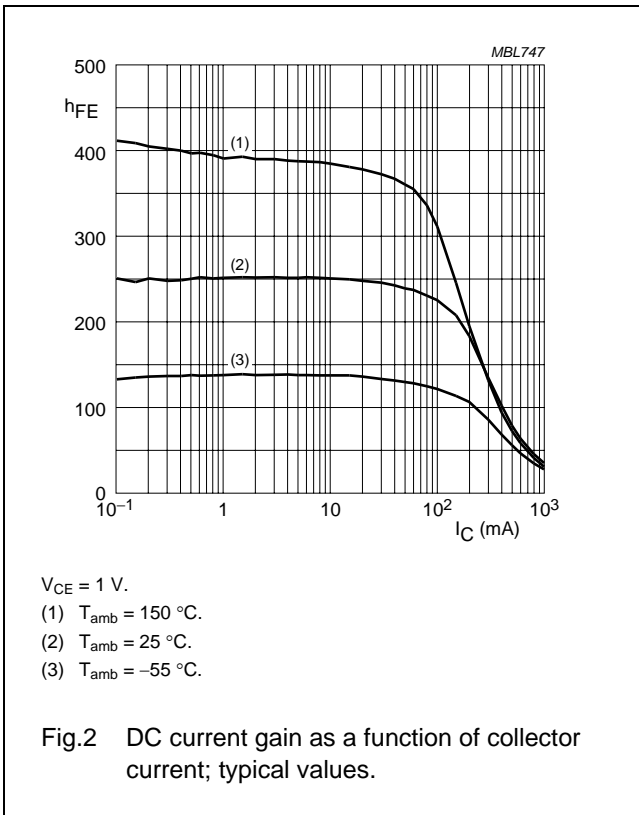
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per transistor</b>						
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 20\text{ V}; I_E = 0$	–	–	100	nA
		$V_{CB} = 20\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	5	$\mu\text{A}$
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0$	–	–	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}; \text{note 1}$	160	–	400	
		$V_{CE} = 1\text{ V}; I_C = 500\text{ mA}; \text{note 1}$	40	–	–	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	–	700	mV
$V_{BE}$	base-emitter voltage	$V_{CE} = 1\text{ V}; I_C = 500\text{ mA}; \text{notes 1 and 2}$	–	–	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	$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}$	100	–	–	MHz

## Notes

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

NPN general purpose double transistor

BC817DS



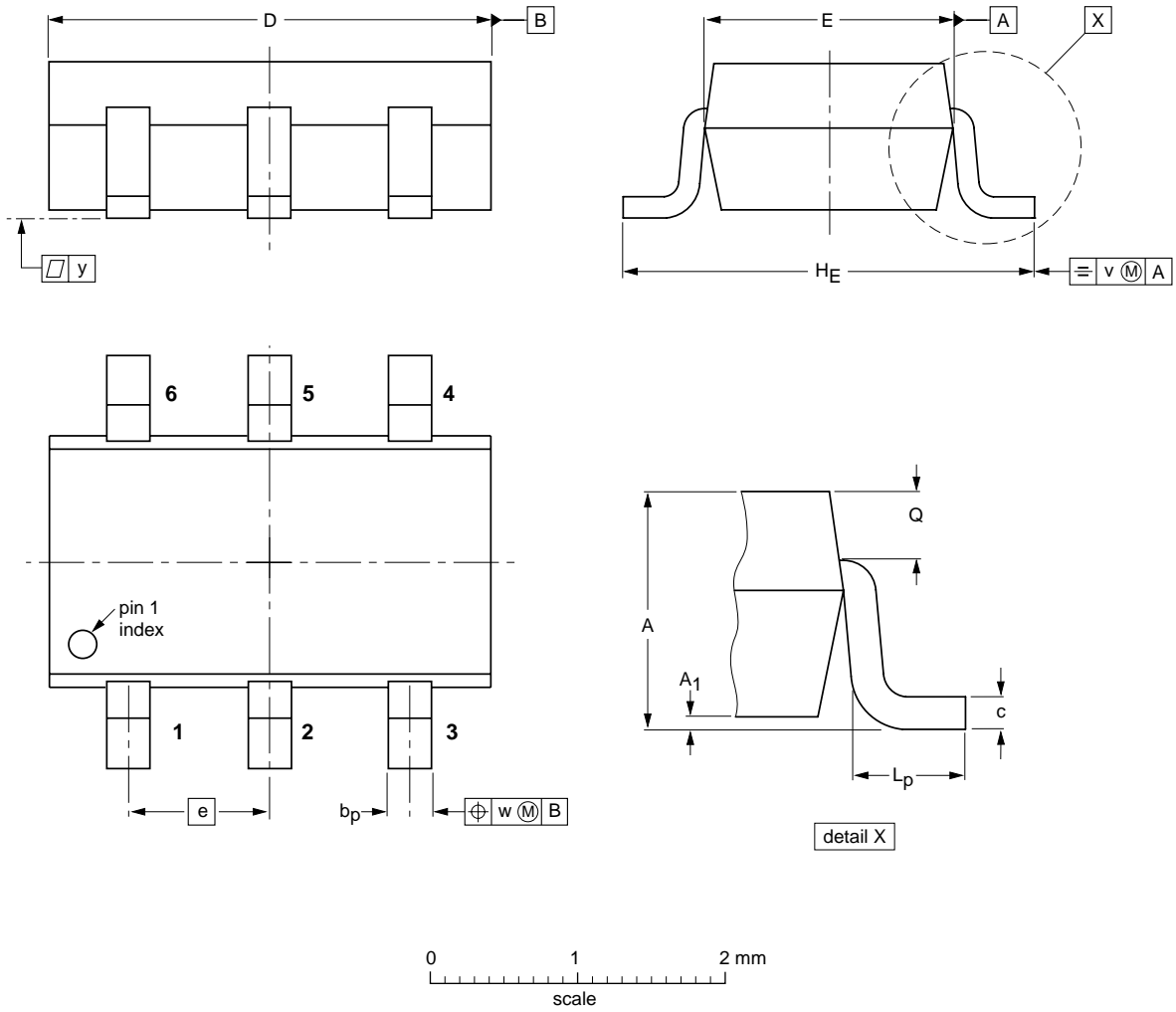
NPN general purpose double transistor

BC817DS

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b <sub>p</sub>	c	D	E	e	H <sub>E</sub>	L <sub>p</sub>	Q	v	w	y
mm	1.1 0.9	0.1 0.013	0.40 0.25	0.26 0.10	3.1 2.7	1.7 1.3	0.95	3.0 2.5	0.6 0.2	0.33 0.23	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT457			SC-74			97-02-28 01-05-04

## NPN general purpose double transistor

BC817DS

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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**Адрес:** 198099, Санкт-Петербург,  
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помещение 100-Н Офис 331