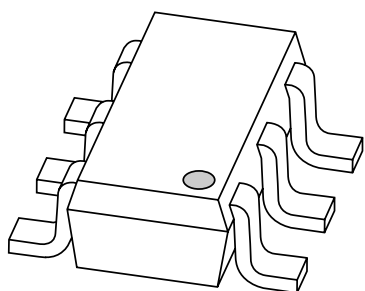


# DATA SHEET



**BC807DS**

PNP general purpose double  
transistor

Product specification  
Supersedes data of 2002 Aug 09

2002 Nov 22

PNP general purpose double transistor

BC807DS

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

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

MARKING

TYPE NUMBER	MARKING CODE
BC807DS	N2

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

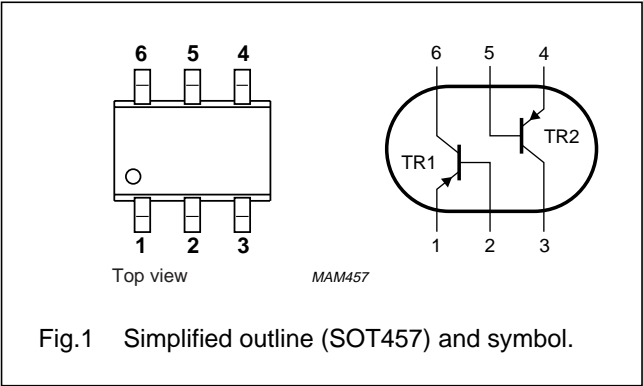


Fig.1 Simplified outline (SOT457) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
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	A
$I_{BM}$	peak base current		-	-200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$ ; note 1	-	370	mW
$T_{stg}$	storage temperature		-65	+150	$^{\circ}\text{C}$
$T_j$	junction temperature		-	150	$^{\circ}\text{C}$
$T_{amb}$	operating ambient temperature		-65	+150	$^{\circ}\text{C}$
Per device					
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$ ; 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>.

## PNP general purpose double transistor

## BC807DS

## 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.

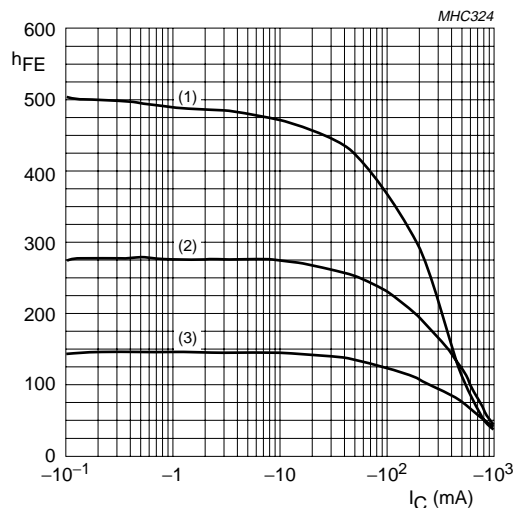
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per transistor</b>						
$I_{CBO}$	collector-base cut-off current	$V_{CB} = -20\text{ V}; I_E = 0$	–	–	–100	nA
		$V_{CB} = -20\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	–5	μA
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–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	$V_{CB} = -10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$	–	9	–	pF
$f_T$	transition frequency	$V_{CE} = -5\text{ V}; I_C = -10\text{ mA}; f = 100\text{ MHz}$	80	–	–	MHz

## Notes

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

## PNP general purpose double transistor

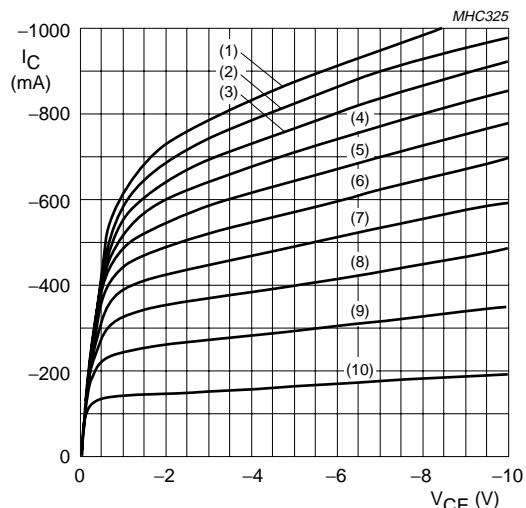
## BC807DS



$V_{CE} = 1\text{ V}$ .

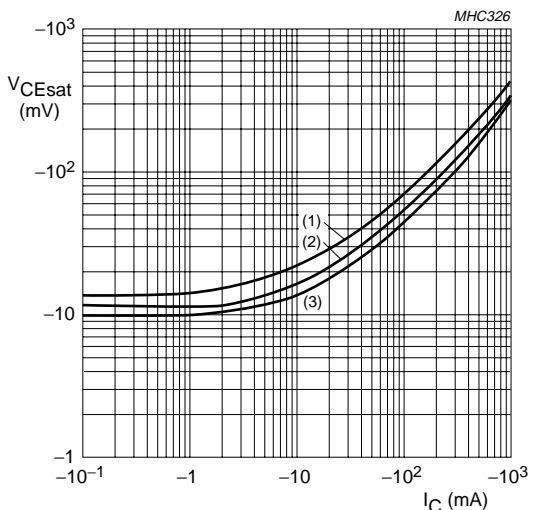
- (1)  $T_{amb} = 150^\circ\text{C}$ .  
 (2)  $T_{amb} = 25^\circ\text{C}$ .  
 (3)  $T_{amb} = -55^\circ\text{C}$ .

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



- (1)  $I_B = -7\text{ mA}$ . (5)  $I_B = -4.2\text{ mA}$ . (9)  $I_B = -1.4\text{ mA}$ .  
 (2)  $I_B = -6.3\text{ mA}$ . (6)  $I_B = -3.5\text{ mA}$ . (10)  $I_B = -0.7\text{ mA}$ .  
 (3)  $I_B = -5.6\text{ mA}$ . (7)  $I_B = -2.8\text{ mA}$ .  
 (4)  $I_B = -4.9\text{ mA}$ . (8)  $I_B = -2.1\text{ mA}$ .

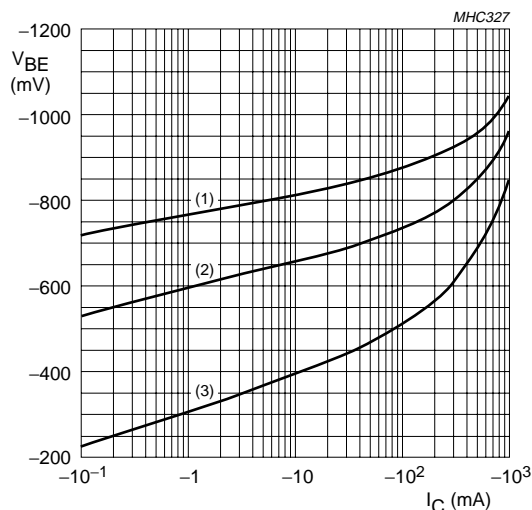
Fig.3 Collector current as a function of collector-emitter voltage; typical values.



$I_C/I_B = 10$ .

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

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



$V_{CE} = 1\text{ V}$ .

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

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

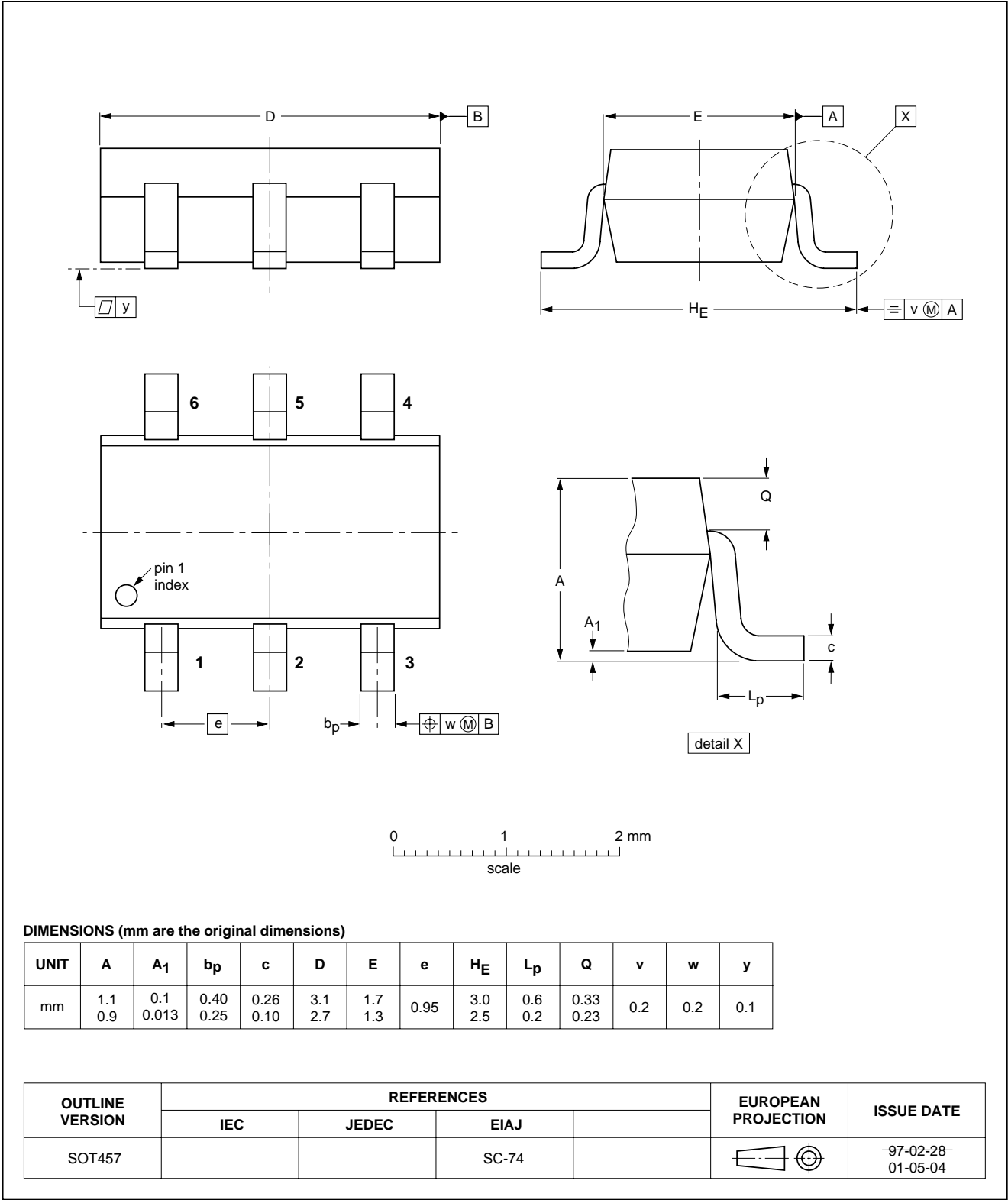
PNP general purpose double transistor

BC807DS

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



## PNP general purpose double transistor

BC807DS

## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	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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**NOTES**

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