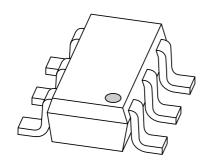
DISCRETE SEMICONDUCTORS

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	Α

PINNING

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

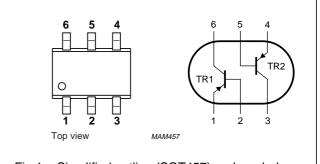


Fig.1 Simplified outline (SOT457) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT	
Per 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	°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.

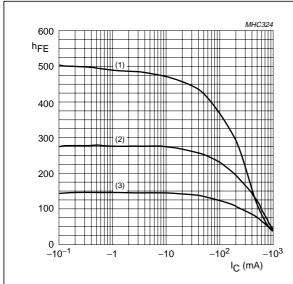
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transis	stor		•	•		•
I _{CBO}	collector-base cut-off current	$V_{CB} = -20 \text{ V}; I_E = 0$	_	_	-100	nA
		$V_{CB} = -20 \text{ V}; I_E = 0; T_j = 150 ^{\circ}\text{C}$	_	_	- 5	μΑ
I _{EBO}	emitter-base cut-off current	$V_{EB} = -5 \text{ V}; I_C = 0$	_	_	-100	nA
h _{FE}	DC current gain	$V_{CE} = -1 \text{ V; } I_{C} = -100 \text{ mA; note 1}$	160	_	400	
		$V_{CE} = -1 \text{ V; } I_{C} = -500 \text{ mA; note 1}$	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	$V_{CE} = -1 \text{ V; } I_{C} = -500 \text{ mA;}$ 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⊤	transition frequency	$V_{CE} = -5 \text{ V; } I_{C} = -10 \text{ mA;}$ f = 100 MHz	80	_	_	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.

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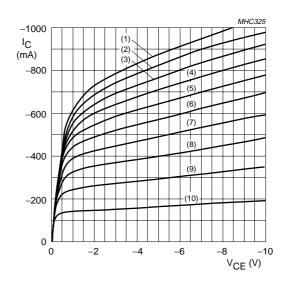
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 $V_{CE} = 1 V.$

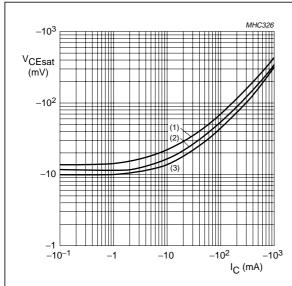
- (1) $T_{amb} = 150 \, ^{\circ}C$.
- (2) T_{amb} = 25 °C.
- (3) $T_{amb} = -55 \, ^{\circ}C$.

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



- (1) $I_B = -7 \text{ mA}.$
- (5) $I_B = -4.2 \text{ mA}.$ $I_B = -3.5 \text{ mA}.$ (6)
- (9) $I_B = -1.4 \text{ mA}.$
- (2) $I_B = -6.3 \text{ mA}.$
- (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) $I_B = -2.1 \text{ mA}.$

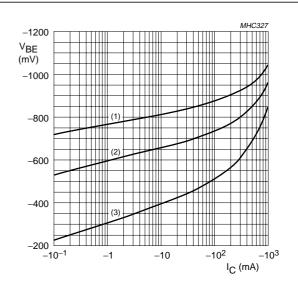
Collector current as a function of collector-emitter voltage; typical values.



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

- (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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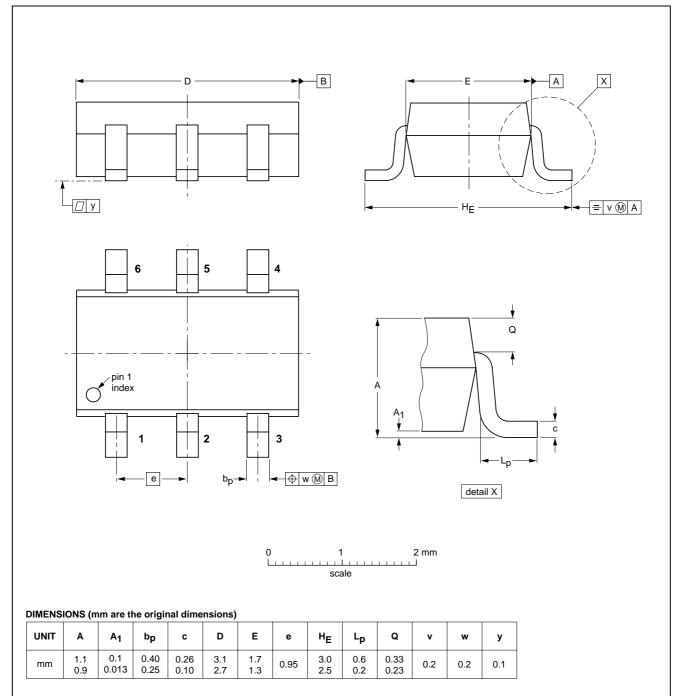
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



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

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