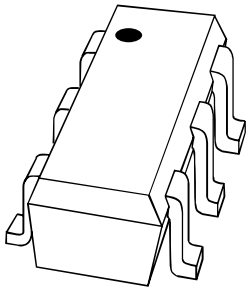
DATA SHEET



BC857BS
PNP general purpose double transistor

Product specification
Supersedes data of 1997 Jul 09

1999 Apr 26

Philips
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PNP general purpose double transistor BC857BS

FEATURES

- Low collector capacitance
- Low collector-emitter saturation voltage
- Closely matched current gain
- Reduces number of components and boardspace
- No mutual interference between the transistors.

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

PNP double transistor in an SC-88; SOT363 plastic package. NPN complement: BC847BS.

MARKING

TYPE NUMBER	MARKING CODE
BC857BS	3Ft

PINNING

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

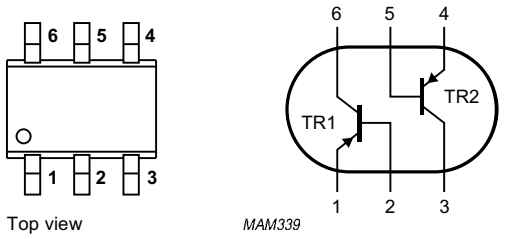


Fig.1 Simplified outline (SC-88; SOT363) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor					
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)		–	–100	mA
I_{CM}	peak collector current		–	–200	mA
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	200	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	300	mW

Note

1. Device mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
Per device				
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	416	K/W

Note

1. Device mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor						
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = -30$ V	–	–	–15	nA
		$I_E = 0$; $V_{CB} = -30$ V; $T_j = 150$ °C	–	–	–5	μA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = -5$ V	–	–	–100	nA
h_{FE}	DC current gain	$I_C = -2$ mA; $V_{CE} = -5$ V	200	–	450	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10$ mA; $I_B = -0.5$ mA	–	–	–100	mV
		$I_C = -100$ mA; $I_B = -5$ mA; note 1	–	–	–400	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -10$ mA; $I_B = -0.5$ mA	–	–755	–	mV
V_{BE}	base-emitter voltage	$I_C = -2$ mA; $V_{CE} = -5$ V	–600	–655	–750	mV
C_c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = -10$ V; f = 1 MHz	–	–	2.2	pF
C_e	emitter capacitance	$I_C = i_c = 0$; $V_{EB} = -500$ mV; f = 1 MHz	–	10	–	pF
f_T	transition frequency	$I_C = -10$ mA; $V_{CE} = -5$ V; f = 100 MHz	100	–	–	MHz

Note

1. Pulse test: $t_p \leq 300$ μs; $\delta \leq 0.02$.

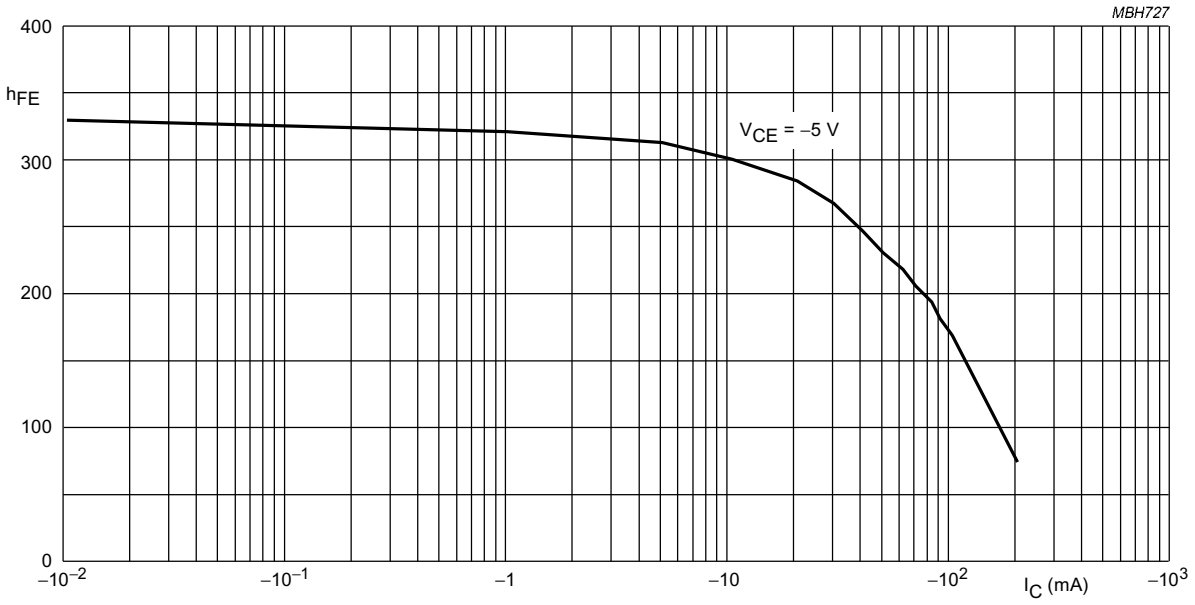
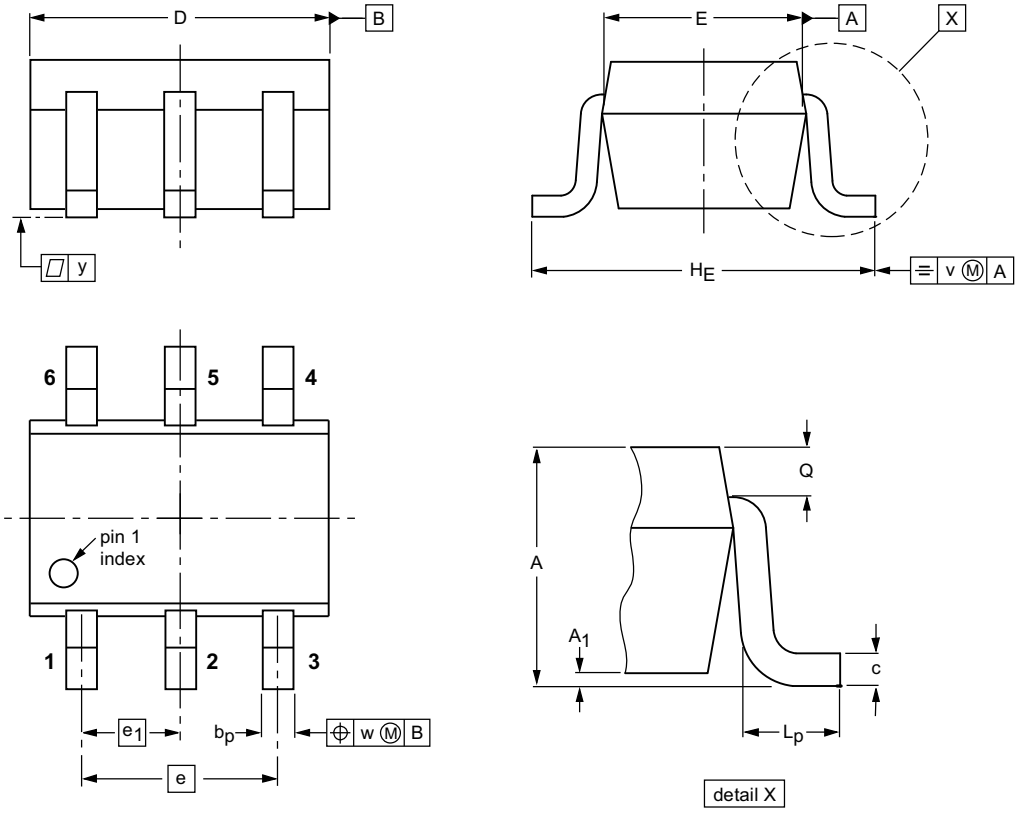


Fig.2 DC current gain; typical values

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads **SOT363**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT363			SC-88			97-02-28

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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