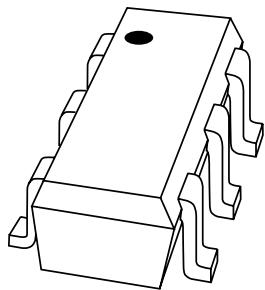


DATA SHEET



BC847BPN

NPN/PNP general purpose transistor

Product specification
Supersedes data of 1999 Apr 26

2001 Oct 26

NPN/PNP general purpose transistor**BC847BPN****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

NPN/PNP transistor pair in an SC-88; SOT363 plastic package.

MARKING

TYPE NUMBER	MARKING CODE
BC847BPN	13t

PINNING

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

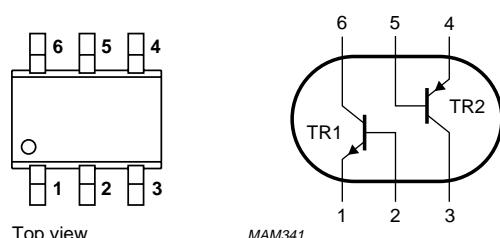


Fig.1 Simplified outline (SC-88; SOT363) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor; for the PNP transistor with negative polarity					
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	$T_{amb} \leq 25^\circ\text{C}$	–	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	$T_{amb} \leq 25^\circ\text{C}$; note 1	–	300	mW

Note

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

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THERMAL CHARACTERISTICS

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

Note

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

CHARACTERISTICS

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

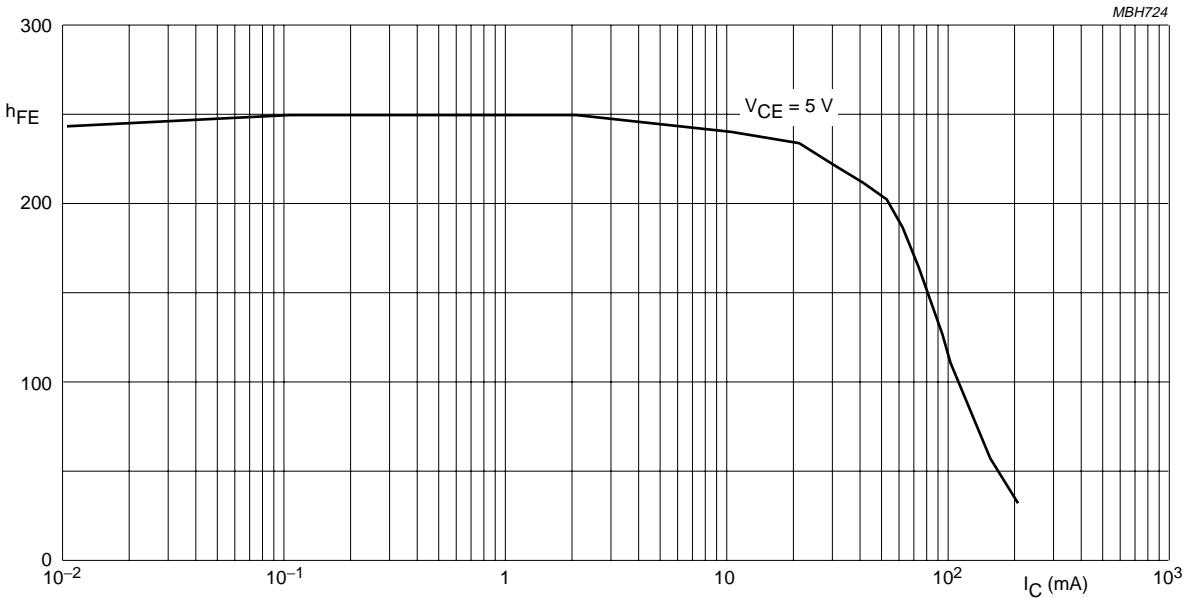
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor unless otherwise specified; for the PNP transistor with negative polarity						
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	—	—	15	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150^\circ\text{C}$	—	—	5	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	—	—	100	nA
h_{FE}	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	200	—	450	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	—	—	100	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$	—	—	300	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	—	755	—	mV
V_{BE}	base-emitter voltage TR1 NPN TR2 PNP	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	580	655	700	mV
			600	655	750	mV
C_c	collector capacitance TR1 NPN TR2 PNP	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	—	—	1.5	pF
			—	—	2.2	pF
C_e	emitter capacitance TR1 NPN TR2 PNP	$I_C = i_c = 0; V_{EB} = 500\text{ mV}; f = 1\text{ MHz}$	—	11	—	pF
			—	10	—	pF
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	—	—	MHz

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

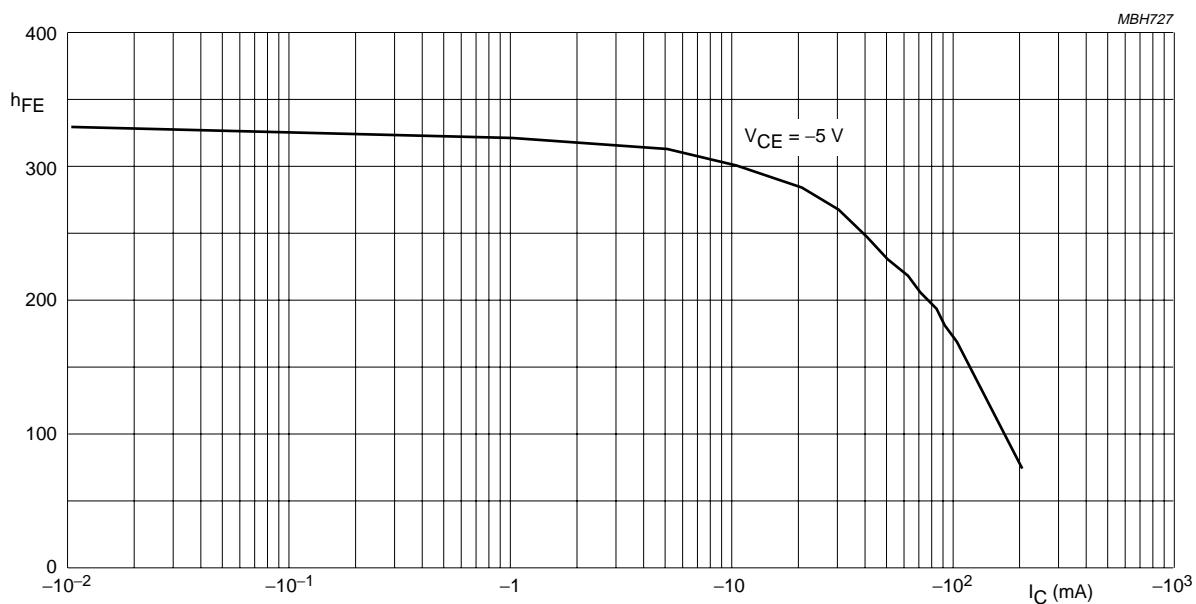
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TR1: NPN.

Fig.2 DC current gain; typical values.



TR2: PNP.

Fig.3 DC current gain, typical values.

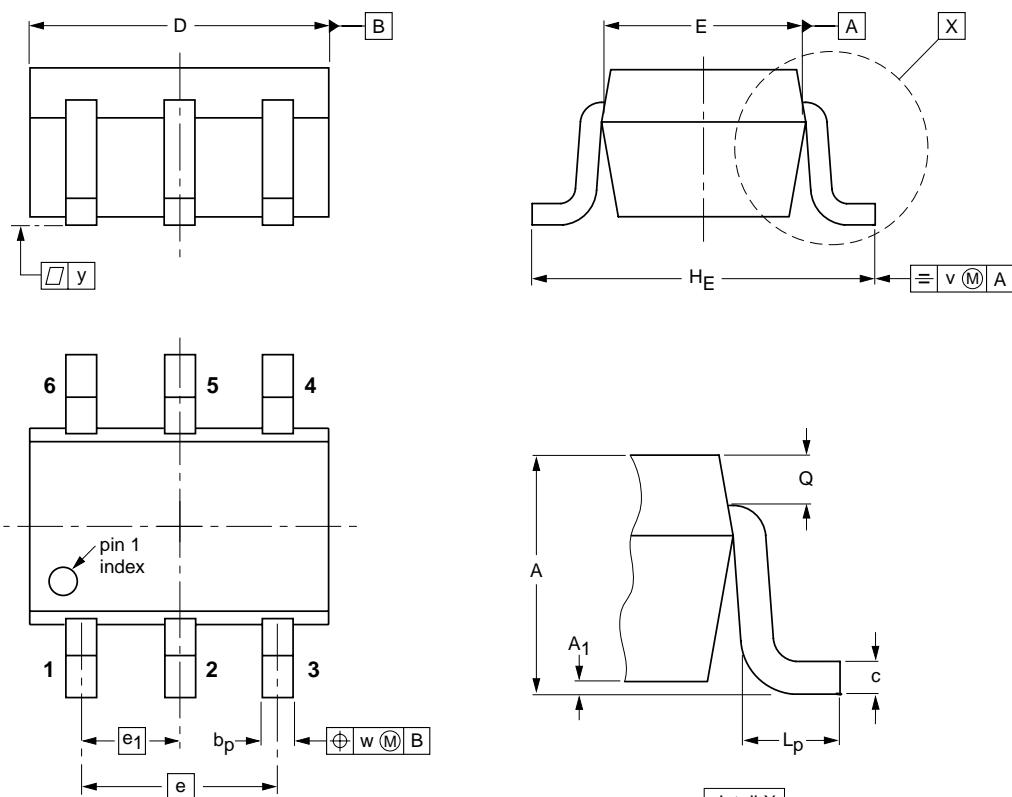
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



0 1 2 mm
scale

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

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DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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