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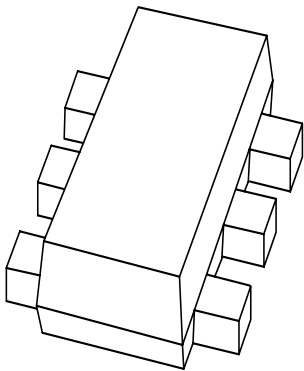
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Kind regards,

Team Nexperia

DATA SHEET



BC847BV

NPN general purpose double
transistor

Product data sheet

2001 Sep 10

NPN general purpose double transistor

BC847BV

FEATURES

- 300 mW total power dissipation
- Very small 1.6 mm × 1.2 mm × 0.55 mm ultra thin package
- Excellent coplanarity due to straight leads
- Low collector capacitance
- Improved thermal behaviour due to flat leads
- Reduces number of components as replacement of two SC-75/SC-89 packaged BISS transistors
- Reduces required board space
- Reduces pick and place costs.

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

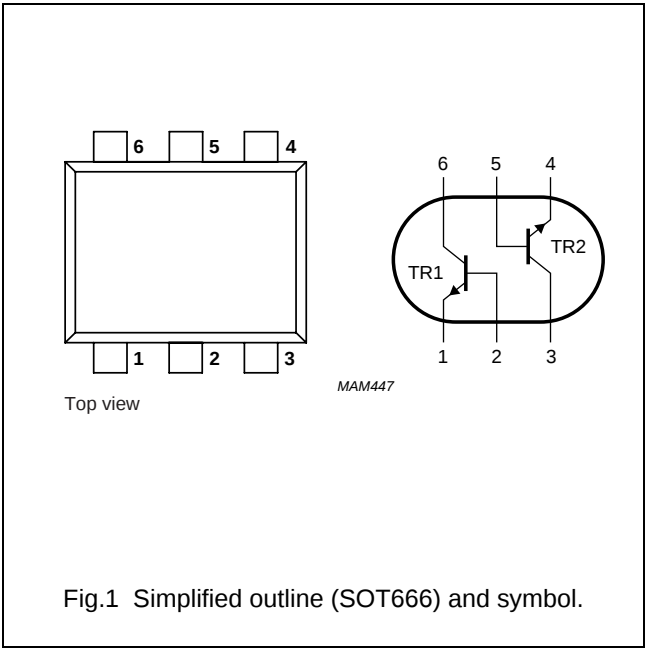
NPN double transistor in a SOT666 plastic package.
PNP complement: BC857BV.

MARKING

TYPE NUMBER	MARKING CODE
BC847BV	1F

PINNING

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



NPN general purpose double transistor

BC847BV

LIMITING VALUES

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

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	$T_{amb} \leq 25\text{ °C}$; note 1	–	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	$T_{amb} \leq 25\text{ °C}$; note 1	–	300	mW

Note

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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	notes 1 and 2	416	K/W

Notes

1. Transistor mounted on an FR4 printed-circuit board.
2. The only recommended soldering method is reflow soldering.

NPN general purpose double transistor

BC847BV

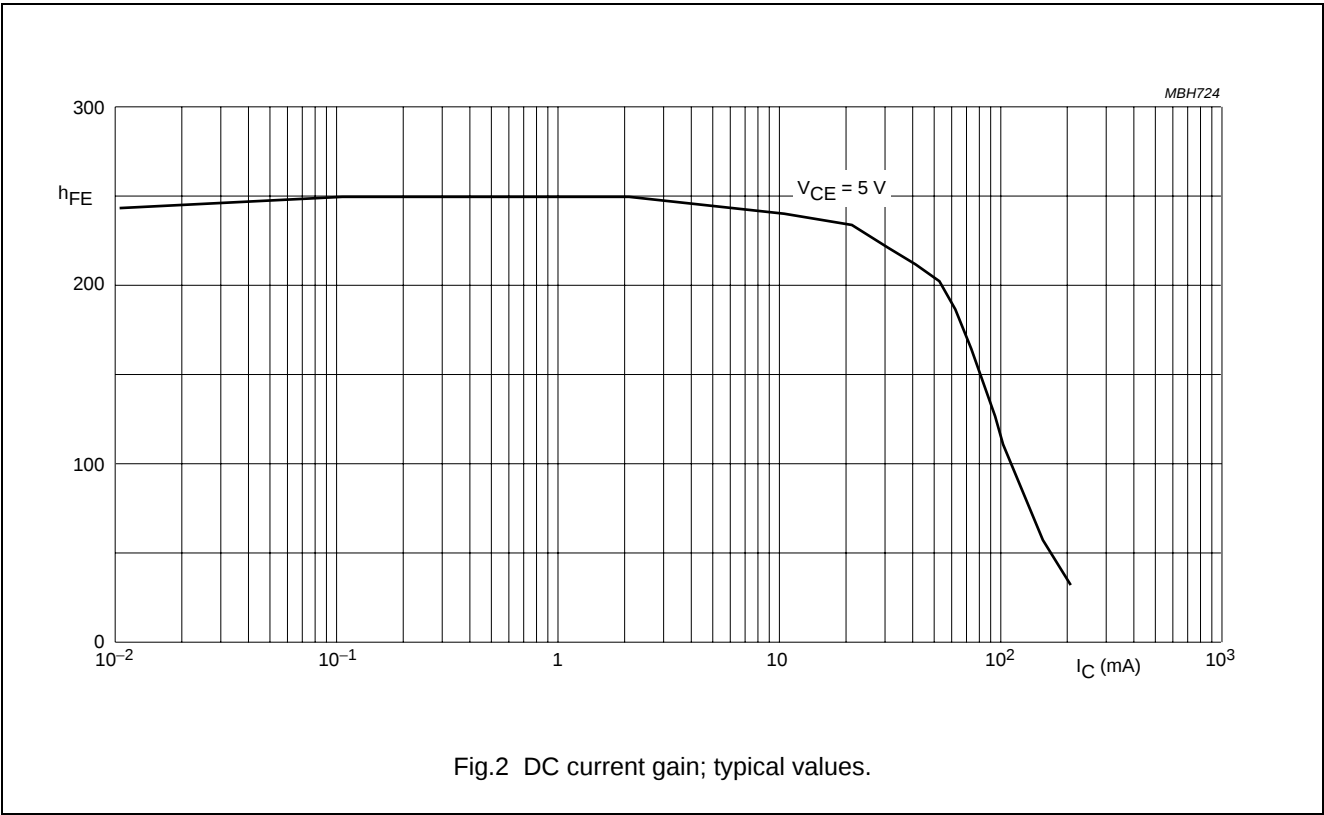
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor						
I _{CBO}	collector-base 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-base 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 _{BE}	base-emitter voltage	I _C = 2 mA; V _{CE} = 5 V	580	655	700	mV
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	–	–	300	mV
V _{BEsat}	base-emitter saturation voltage	I _C = 10 mA; I _B = 0.5 mA	–	755	–	mV
C _c	collector capacitance	I _E = I _e = 0; V _{CB} = 10 V; f = 1 MHz	–	–	1.5	pF
C _e	emitter capacitance	I _C = I _c = 0; V _{EB} = 500 mV; f = 1 MHz	–	11	–	pF
f _T	transition frequency	I _C = 10 mA; V _{CE} = 5 V; f = 100 MHz	100	–	–	MHz

Note

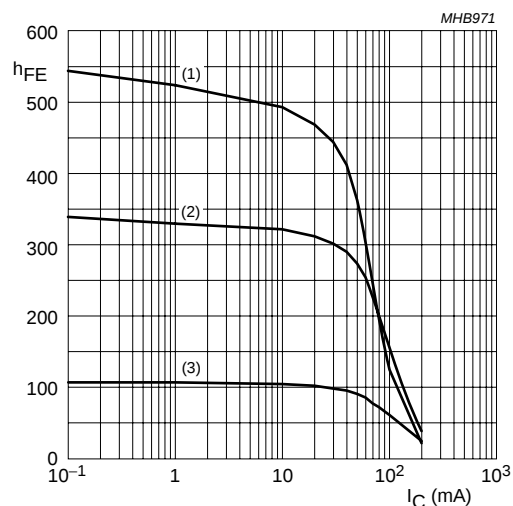
1. Pulse test: t_p ≤ 300 µs; δ ≤ 0.02.



NPN general purpose double transistor

BC847BV

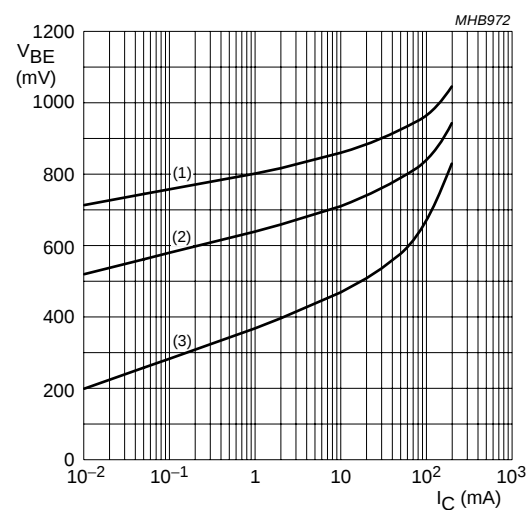
Graphical information BC847BV



$V_{CE} = 5 \text{ V.}$

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

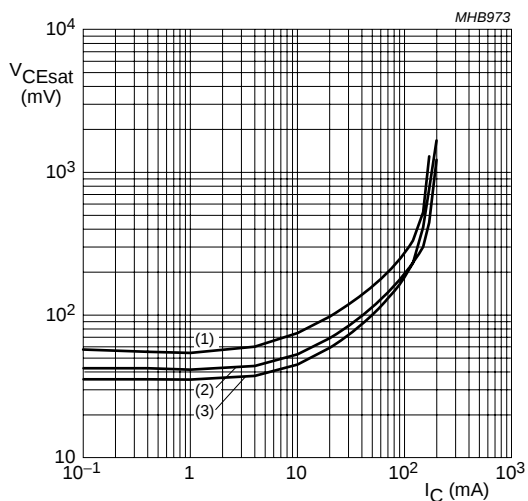
Fig.3 DC current gain; typical values.



$V_{CE} = 5 \text{ V.}$

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

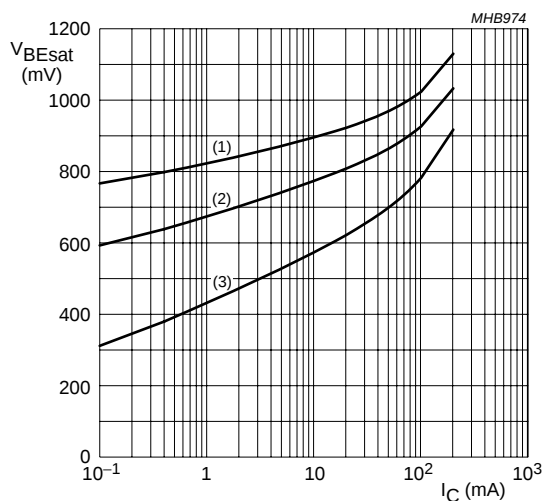
Fig.4 Base-emitter voltage as a function of collector current; typical values.



$I_C/I_B = 20.$

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

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



$I_C/I_B = 20.$

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

Fig.6 Base-emitter saturation voltage as a function of collector current; typical values.

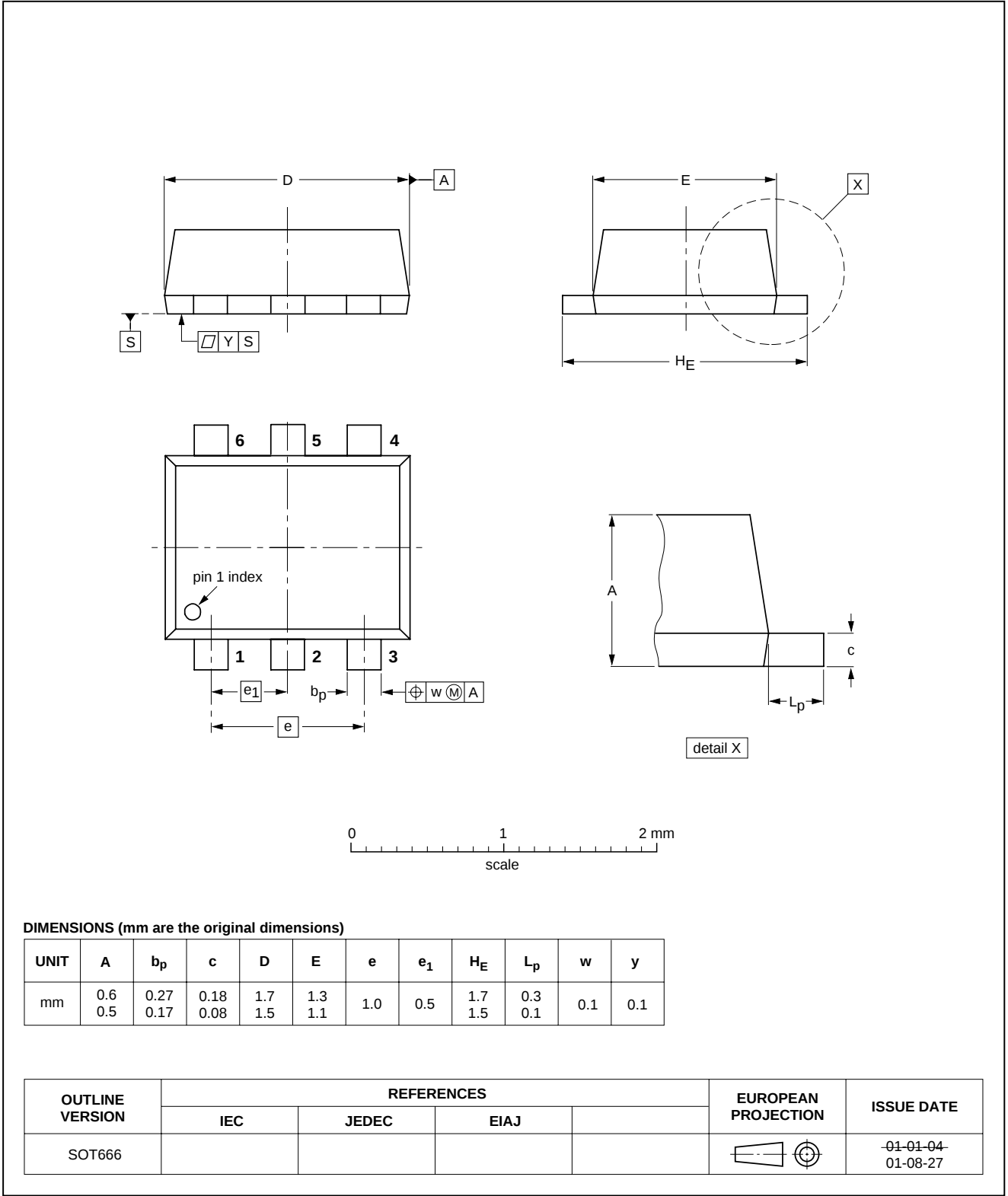
NPN general purpose double transistor

BC847BV

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



NPN general purpose double transistor

BC847BV

DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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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NXP Semiconductors

Customer notification

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Contact information

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