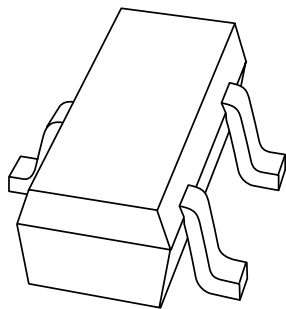


# DATA SHEET



## **BC856T; BC857T series** PNP general purpose transistors

Product specification  
Supersedes data of 1999 Apr 26

2000 Nov 15

## PNP general purpose transistors

## BC856T; BC857T series

## FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

## APPLICATIONS

- General purpose switching and amplification, especially in portable equipment.

## DESCRIPTION

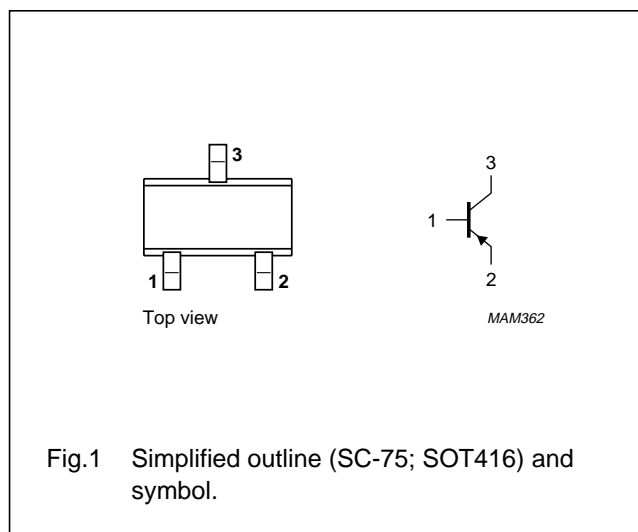
PNP transistor in an SC-75 (SOT416) plastic package.  
NPN complements: BC846T; BC847T series.

## MARKING

TYPE NUMBER	MARKING CODE
BC856AT	3A
BC856BT	3B
BC857AT	3E
BC857BT	3F
BC857CT	3G

## PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	–80	V
	BC856AT; BC856BT BC857AT; BC857BT; BC857CT		–	–50	V
$V_{CEO}$	collector-emitter voltage	open base	–	–65	V
	BC856AT; BC856BT BC857AT; BC857BT; BC857CT		–	–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		–	–100	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	150	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C

## Note

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

## PNP general purpose transistors

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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	833	K/W

## Note

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

## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector-base cut-off current	$V_{CB} = -30\text{ V}; I_E = 0$	–	–	–15	nA
		$V_{CB} = -30\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	–5	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–100	nA
$h_{FE}$	DC current gain BC856AT; BC857AT BC856BT; BC857BT BC857CT	$V_{CE} = -5\text{ V}; I_C = -2\text{ mA}$				
			125	–	250	
			220	–	475	
			420	–	800	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$	–	–	–200	mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA}; \text{note 1}$	–	–	–400	mV
$V_{BE}$	base-emitter voltage	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	–580	–	–700	mV
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$	–	–	–770	mV
$C_c$	collector capacitance	$V_{CB} = -10\text{ V}; f = 1\text{ MHz}; I_E = i_e = 0$	–	–	2.5	pF
$C_e$	emitter capacitance	$V_{EB} = -0.5\text{ V}; f = 1\text{ MHz}; I_C = i_c = 0$	–	10	–	pF
$f_T$	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega; f = 1\text{ kHz}; B = 200\text{ Hz}$	–	–	10	dB

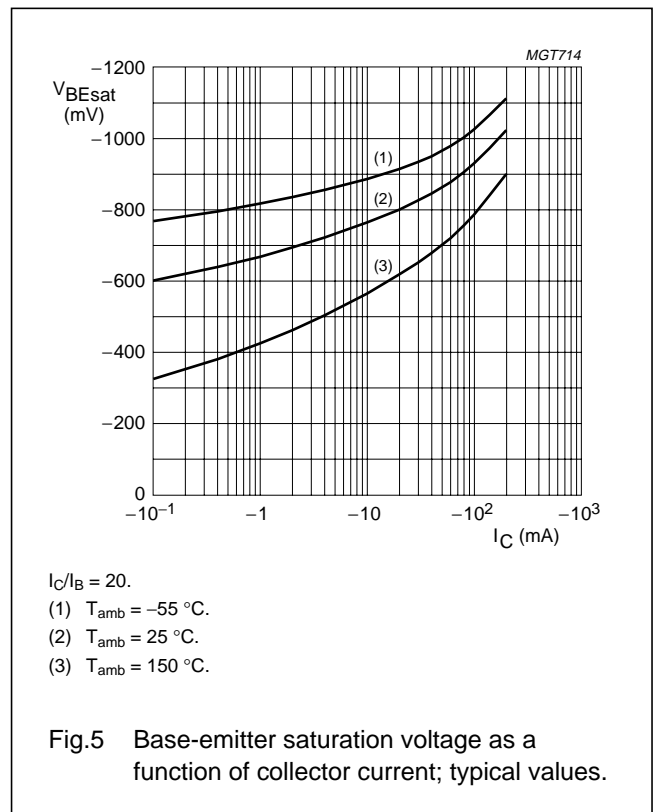
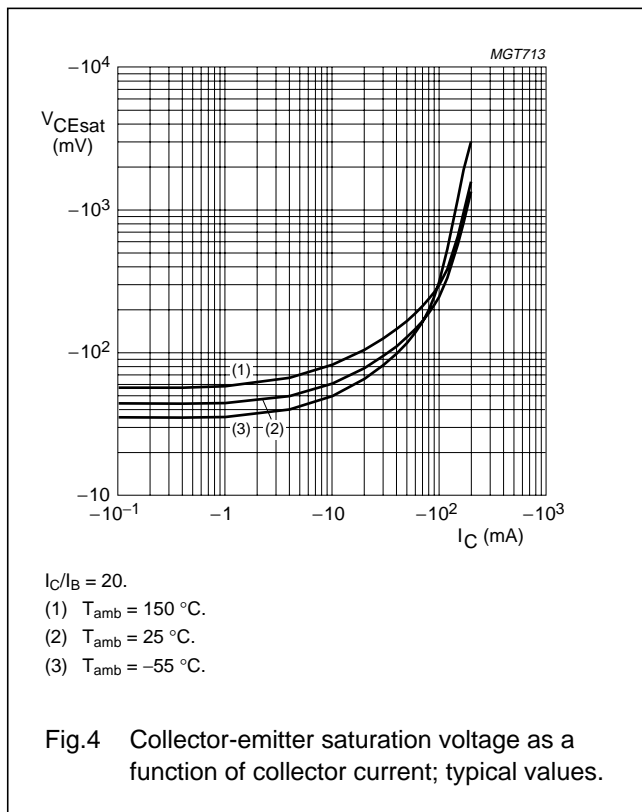
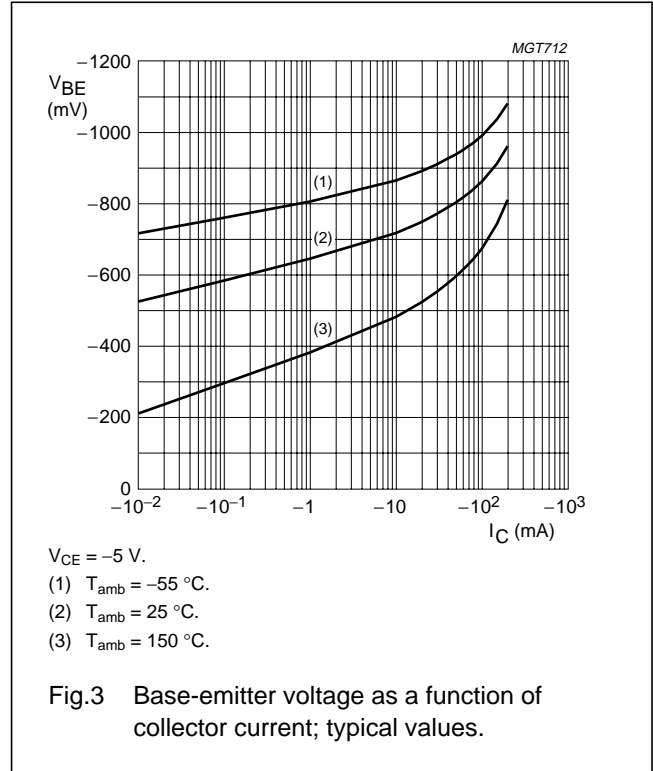
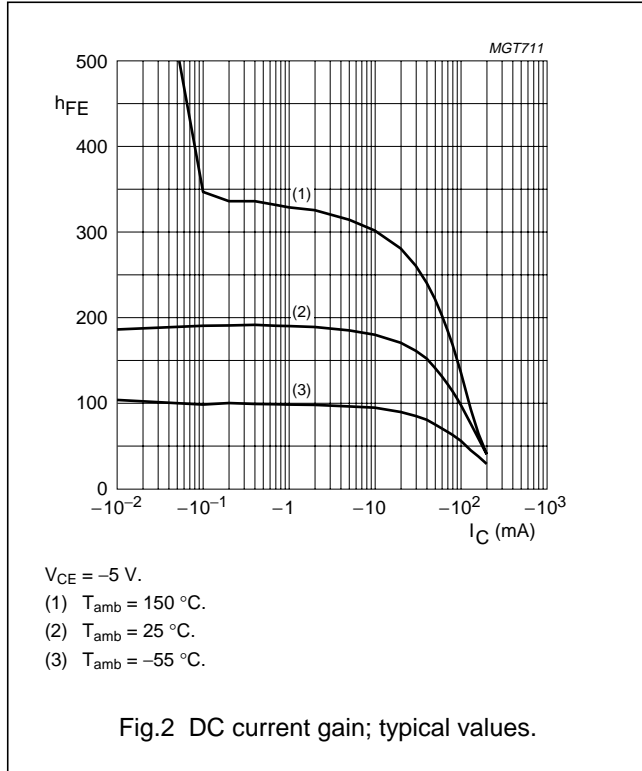
## Note

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

PNP general purpose transistors

BC856T; BC857T series

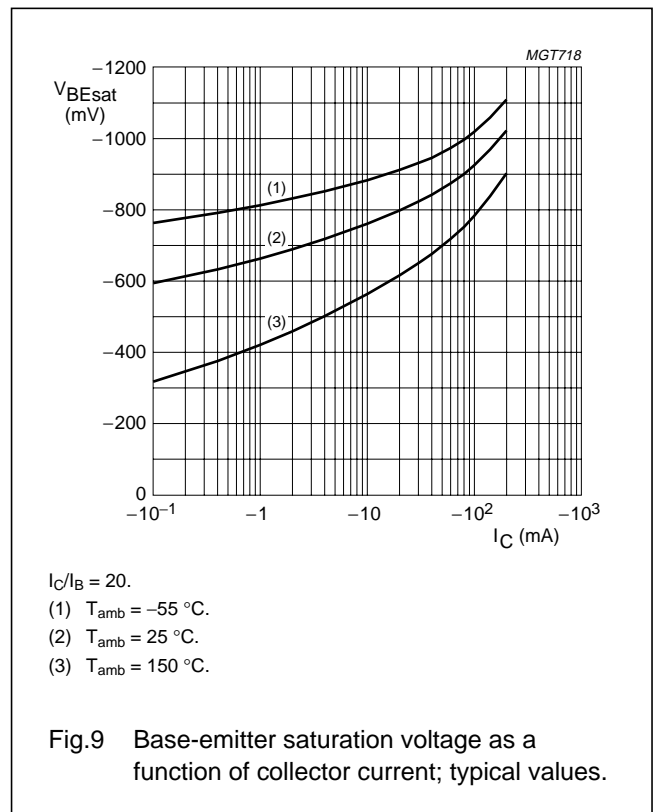
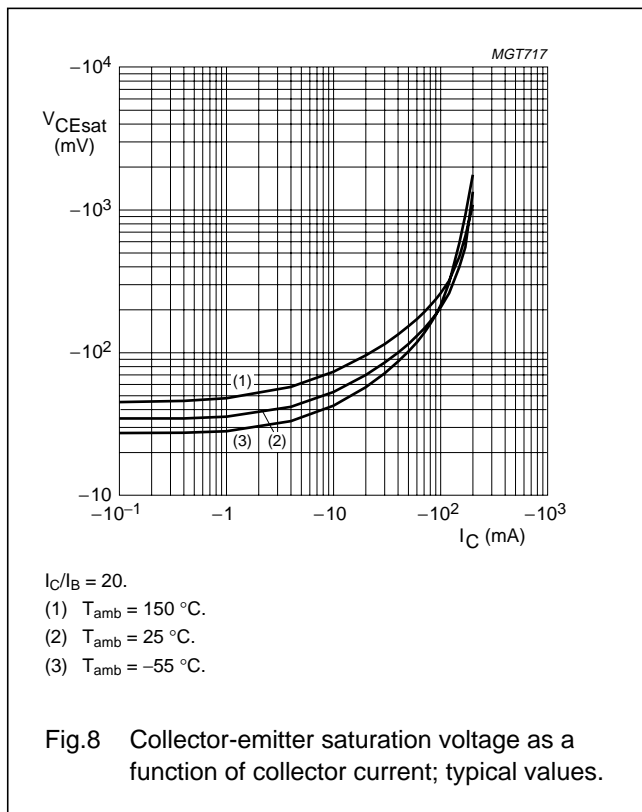
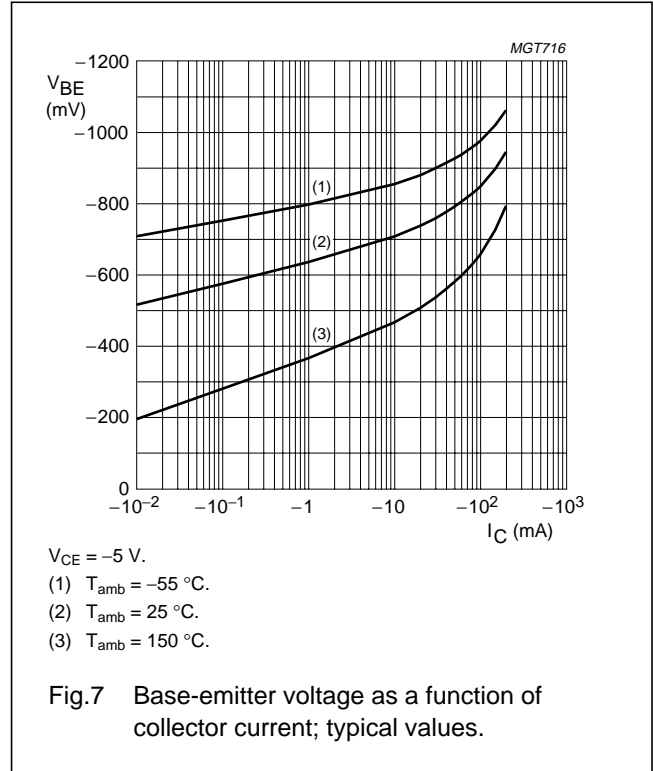
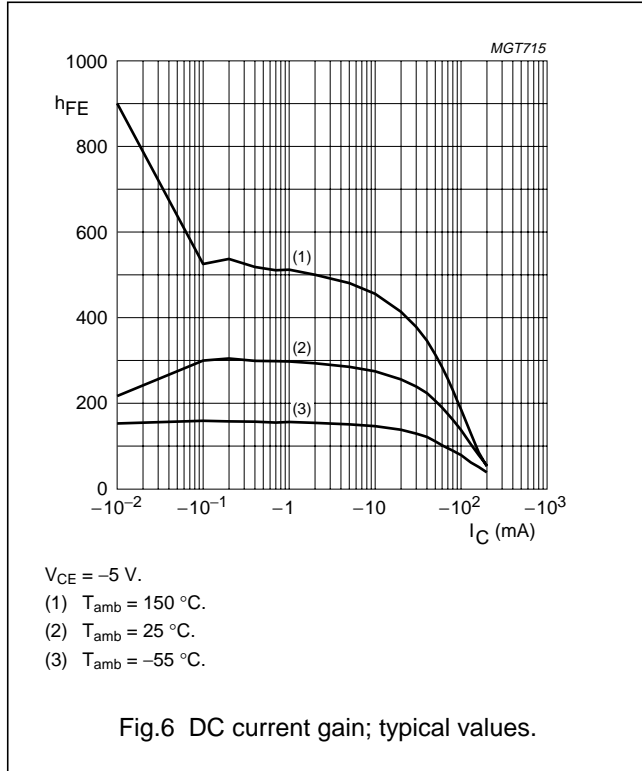
GRAPHICAL INFORMATION BC857AT



PNP general purpose transistors

BC856T; BC857T series

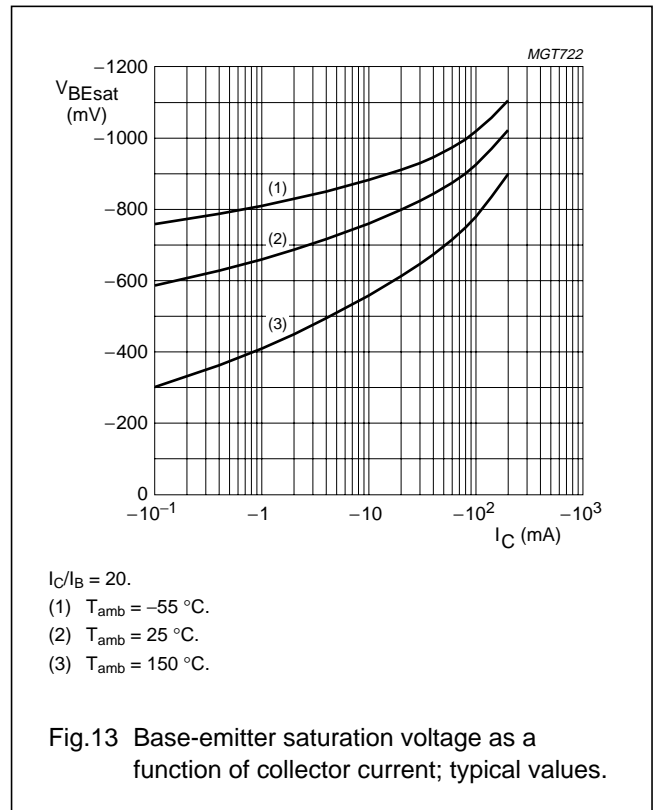
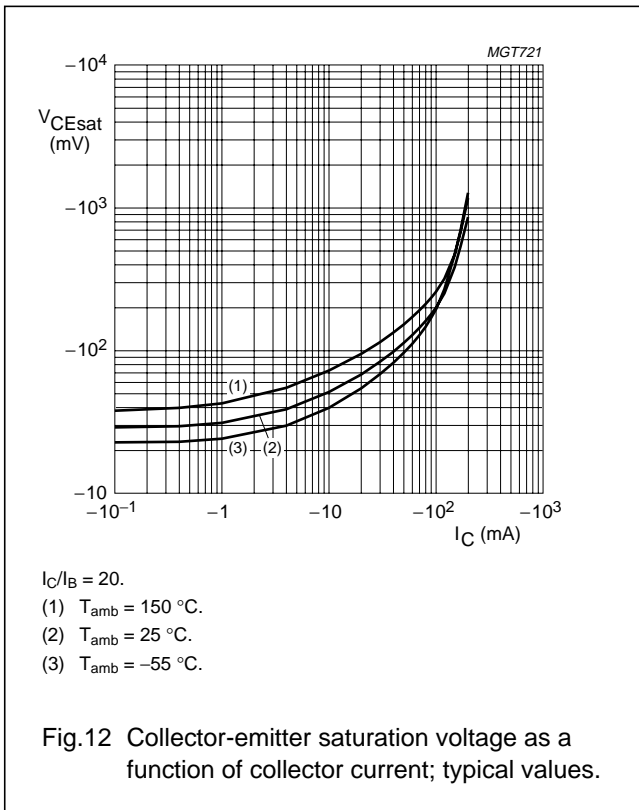
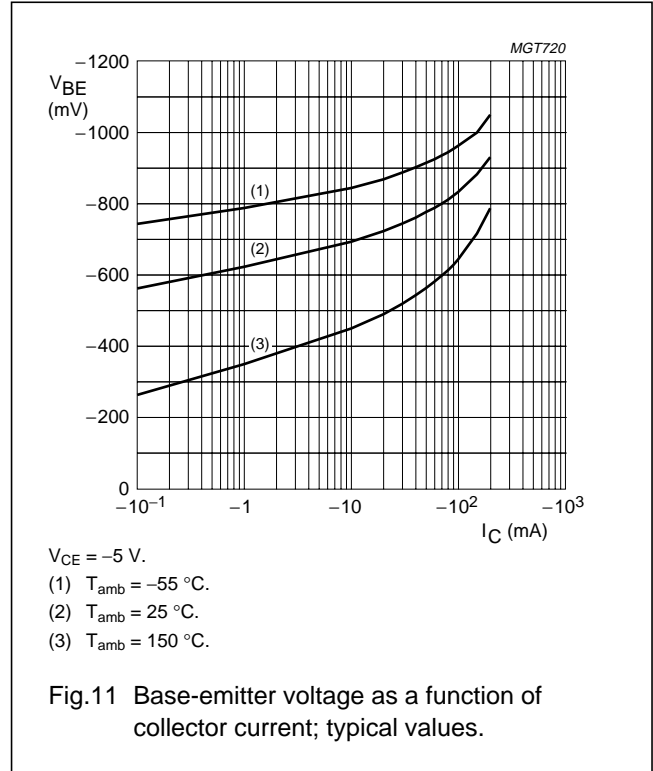
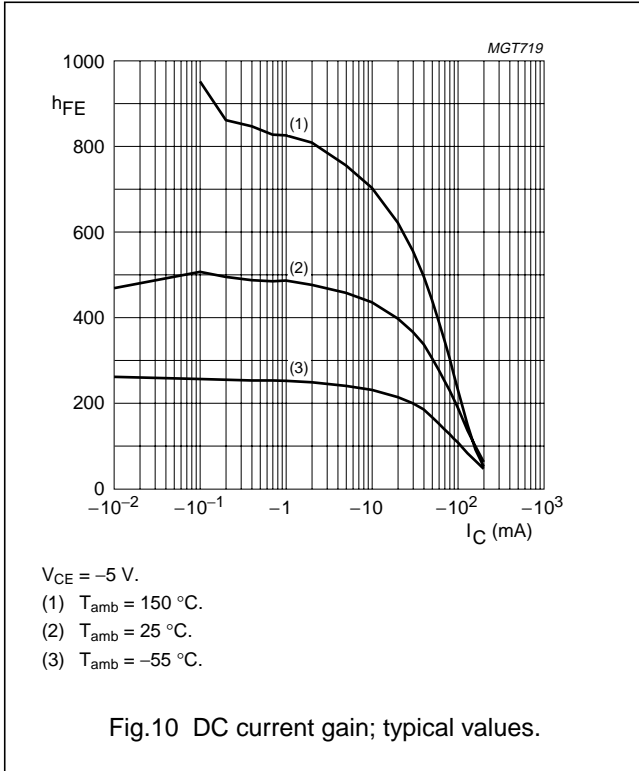
GRAPHICAL INFORMATION BC857BT



PNP general purpose transistors

BC856T; BC857T series

GRAPHICAL INFORMATION BC857CT



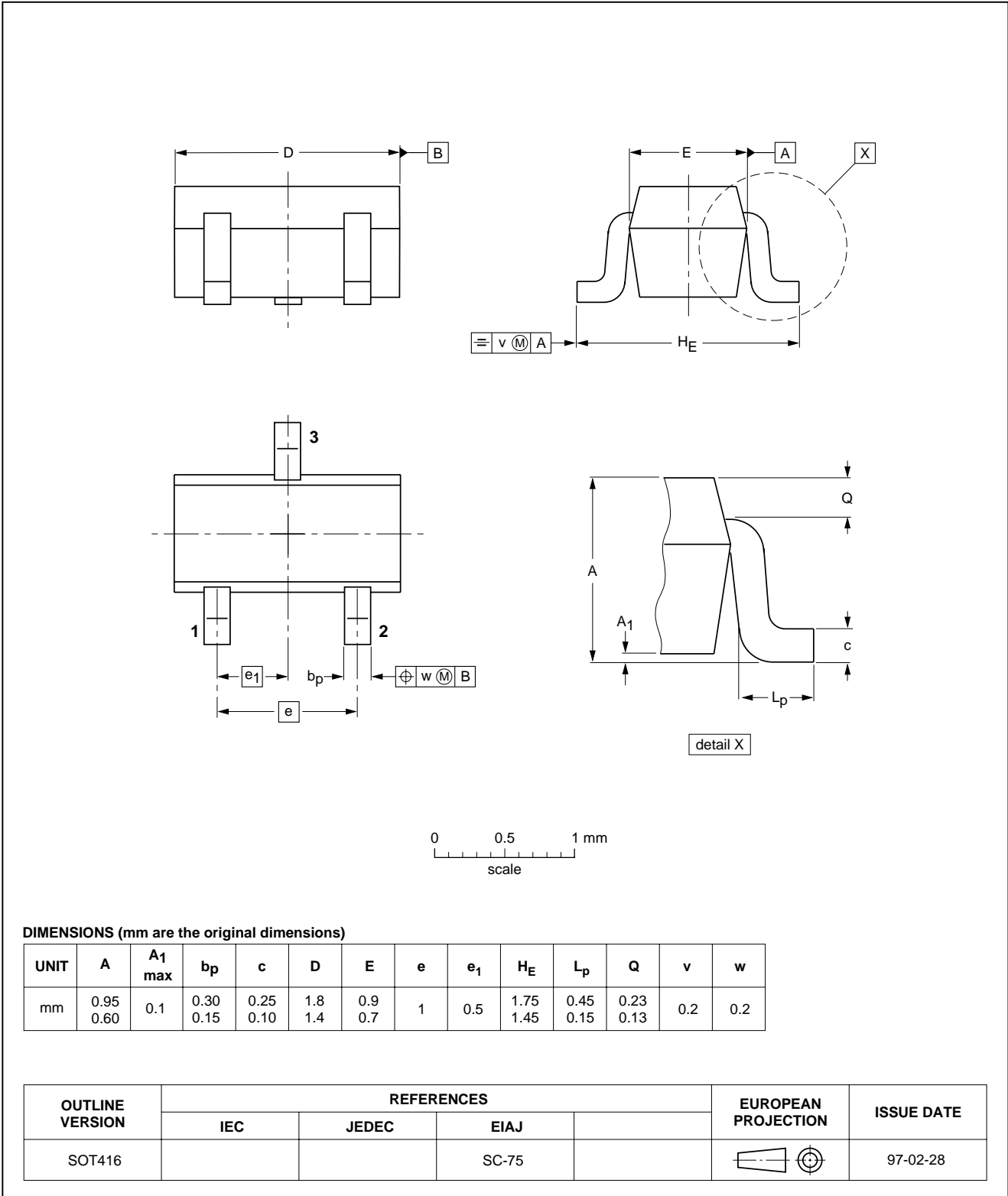
PNP general purpose transistors

BC856T; BC857T series

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT416



## PNP general purpose transistors

## BC856T; BC857T series

## DATA SHEET STATUS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS <sup>(1)</sup>
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

## Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

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**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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PNP general purpose transistors

BC856T; BC857T series

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**NOTES**

PNP general purpose transistors

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PNP general purpose transistors

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**NOTES**

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