

# DATA SHEET



## **BC856; BC857; BC858** PNP general purpose transistors

Product specification  
Supersedes data of 1999 Apr 12

2002 Feb 04

# PNP general purpose transistors

# BC856; BC857; BC858

### FEATURES

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

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

PNP transistor in a SOT23 plastic package.  
 NPN complements: BC846, BC847 and BC848.

### MARKING

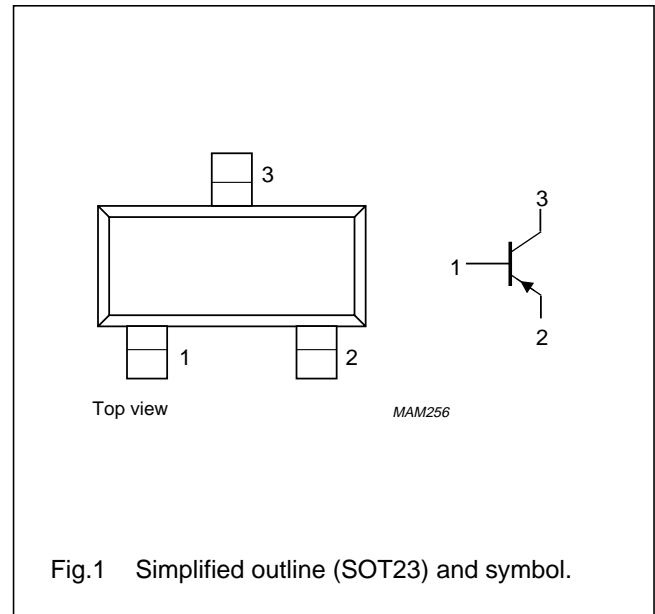
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BC856	3D*
BC856A	3A*
BC856B	3B*
BC857	3H*
BC857A	3E*
BC857B	3F*
BC857C	3G*
BC858B	3K*

### Note

1. \* = -: made in Hong Kong.  
 \* = t: made in Malaysia.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



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**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BC856		–	–80	V
	BC857		–	–50	V
	BC858	–	–30	V	
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BC856		–	–65	V
	BC857		–	–45	V
	BC858	–	–30	V	
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–5	V
I <sub>C</sub>	collector current (DC)		–	–100	mA
I <sub>CM</sub>	peak collector current		–	–200	mA
I <sub>BM</sub>	peak base current		–	–200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	250	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

**Note**

1. Transistor mounted on an FR4 printed-circuit board, standard footprint.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	in free air; note 1	500	K/W

**Note**

1. Transistor mounted on an FR4 printed-circuit board, standard footprint.

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**CHARACTERISTICS**

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

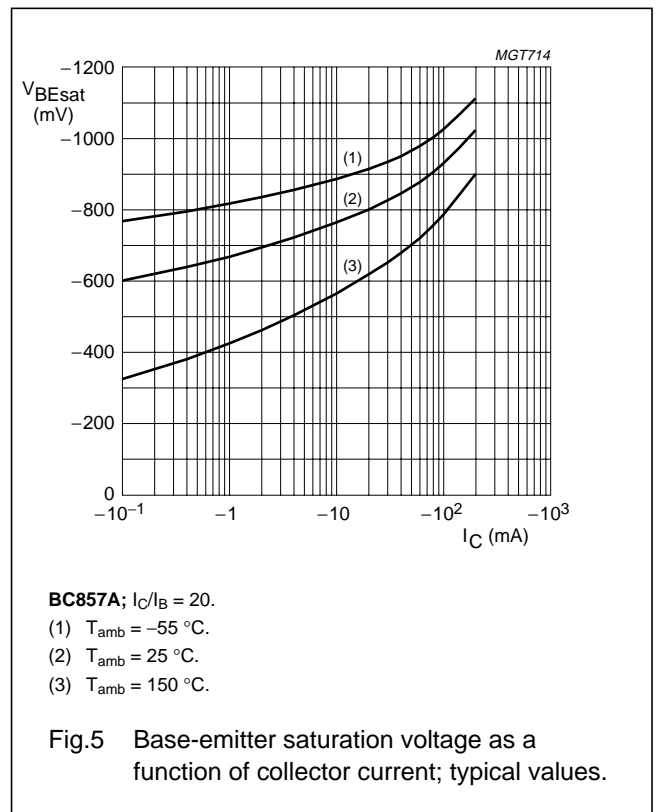
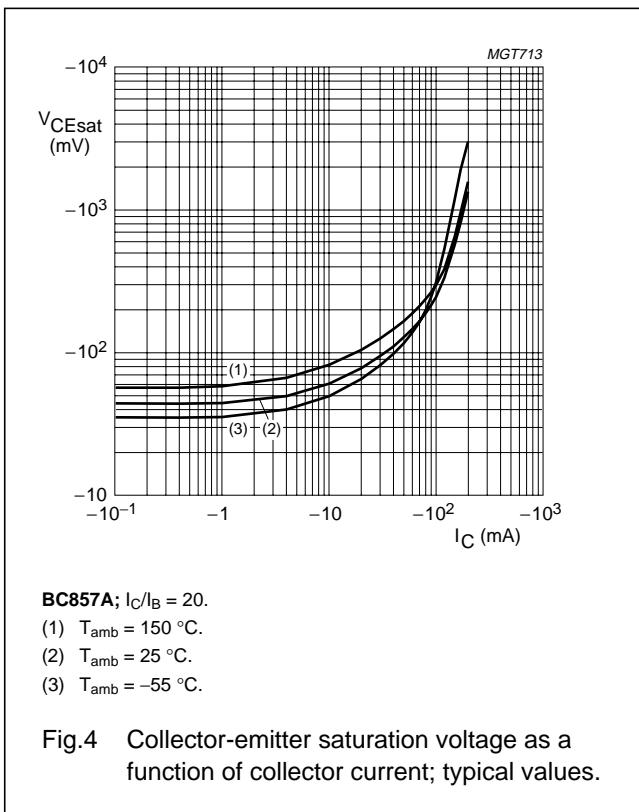
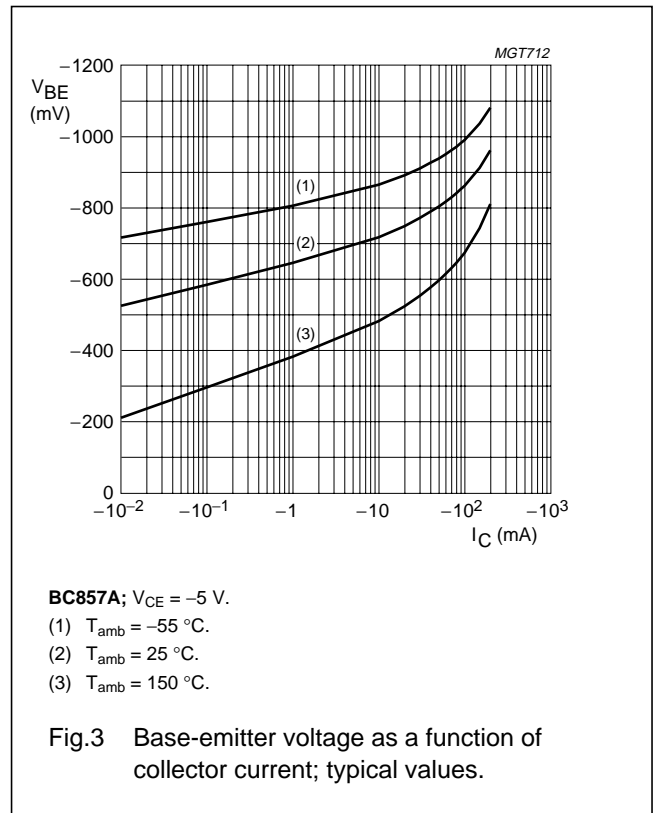
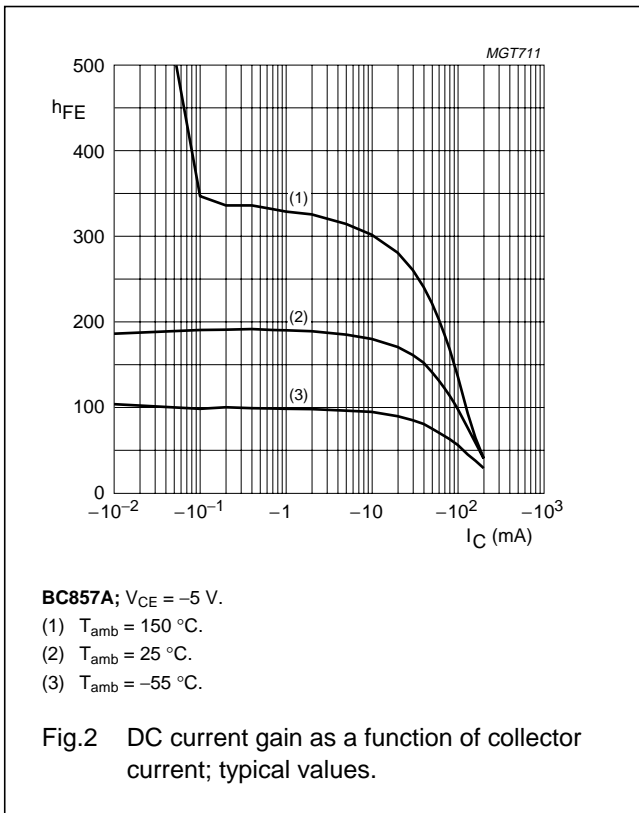
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT				
$I_{CBO}$	collector-base cut-off current	$V_{CB} = -30\text{ V}; I_E = 0$	–	–1	–15	nA				
		$V_{CB} = -30\text{ V}; I_E = 0;$ $T_J = 150\text{ °C}$	–	–	–4	$\mu\text{A}$				
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–100	nA				
$h_{FE}$	DC current gain	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$								
							BC856	125	–	475
							BC857	125	–	800
							BC856A; BC857A	125	–	250
							BC856B; BC857B; BC858B	220	–	475
BC857C	420	–	800							
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$	–	–75	–300	mV				
		$I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1	–	–250	–650	mV				
$V_{BEsat}$	base-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$	–	–700	–	mV				
		$I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1	–	–850	–	mV				
$V_{BE}$	base-emitter voltage	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	–600	–650	–750	mV				
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$	–	–	–820	mV				
$C_c$	collector capacitance	$V_{CB} = -10\text{ V}; I_E = I_e = 0;$ $f = 1\text{ MHz}$	–	4.5	–	pF				
$f_T$	transition frequency	$V_{CE} = -5\text{ V}; I_C = -10\text{ mA};$ $f = 100\text{ MHz}$	100	–	–	MHz				
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V};$ $R_S = 2\text{ k}\Omega; f = 1\text{ kHz};$ $B = 200\text{ Hz}$	–	2	10	dB				

**Note**

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

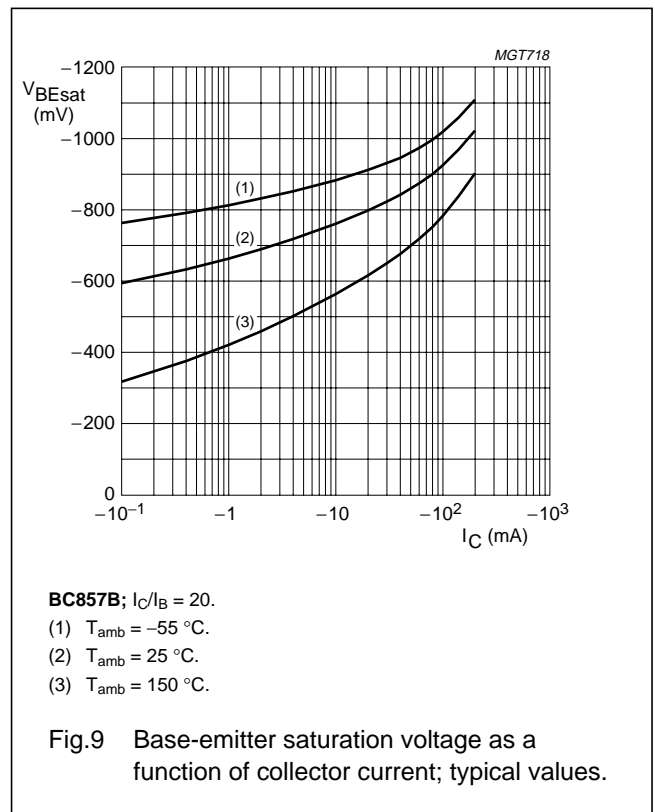
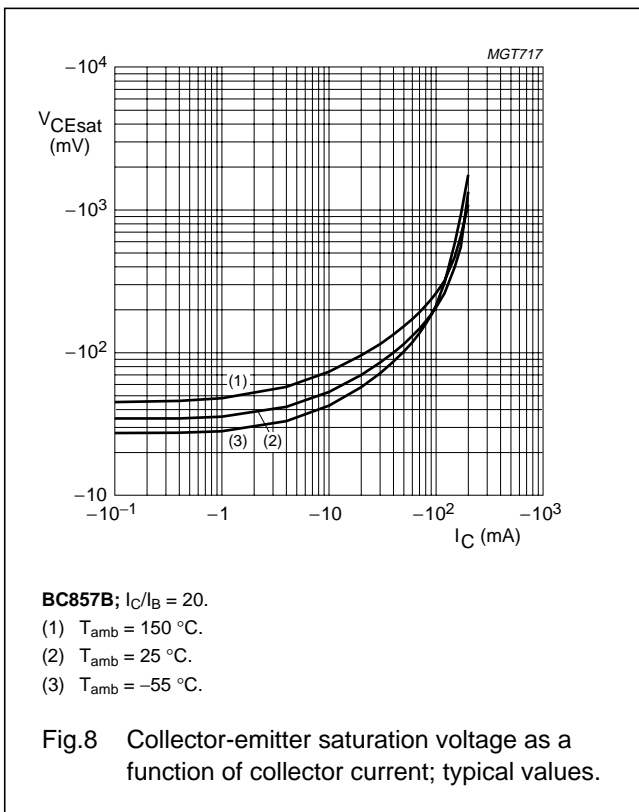
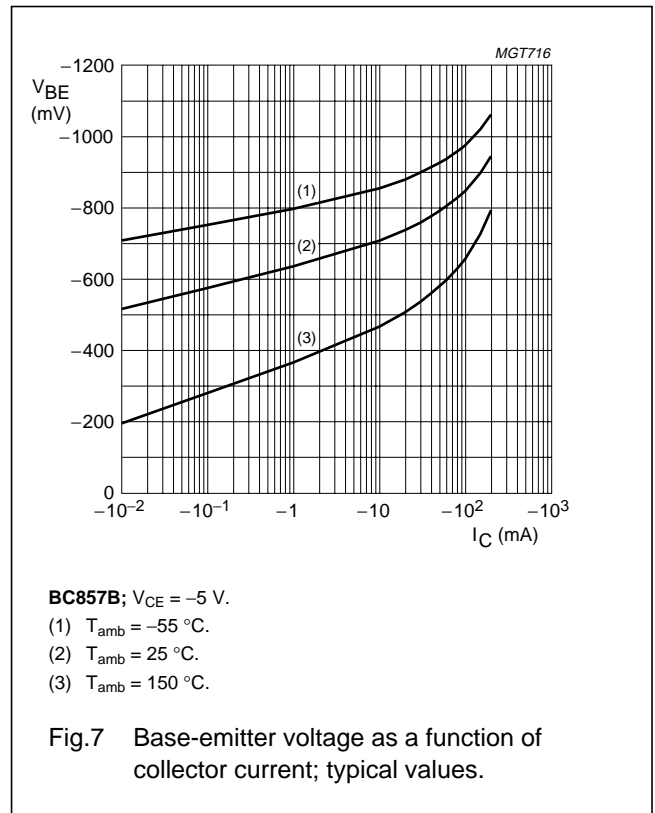
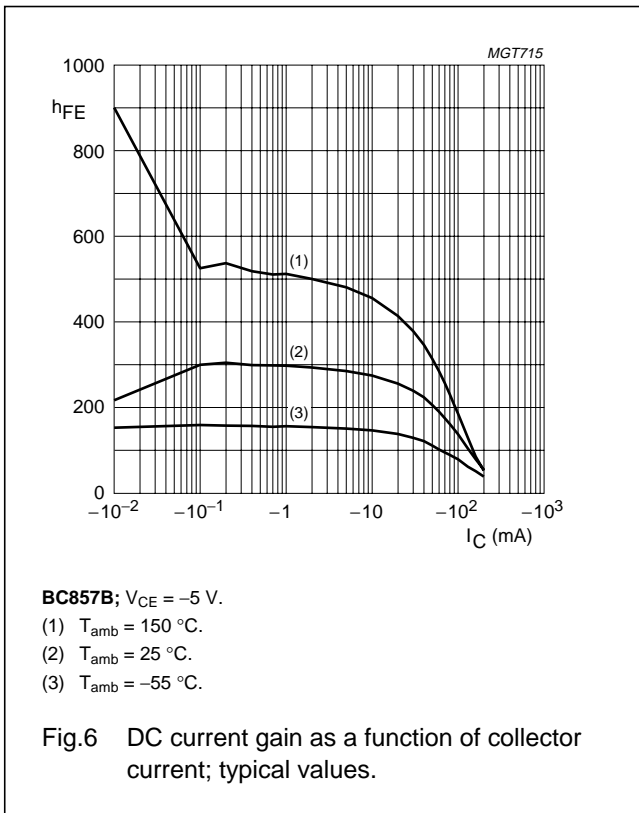
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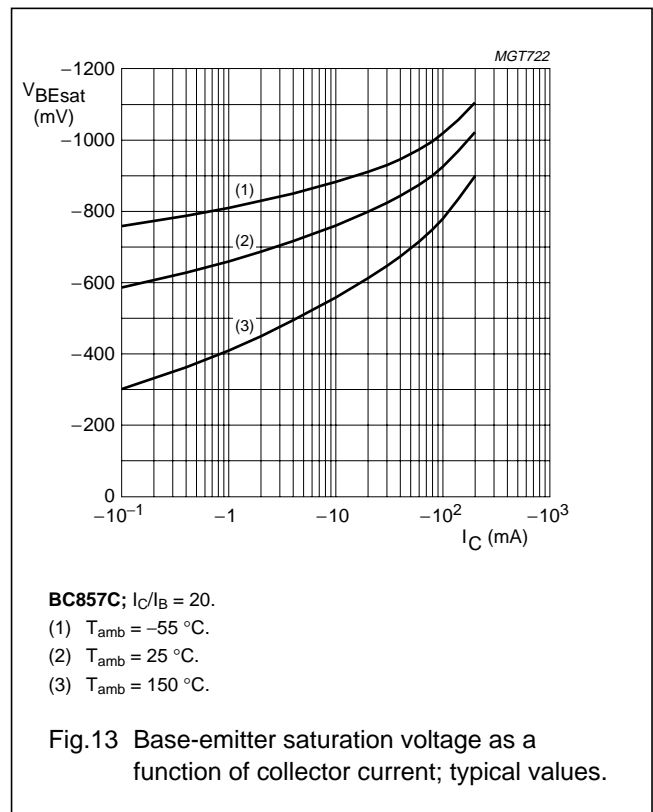
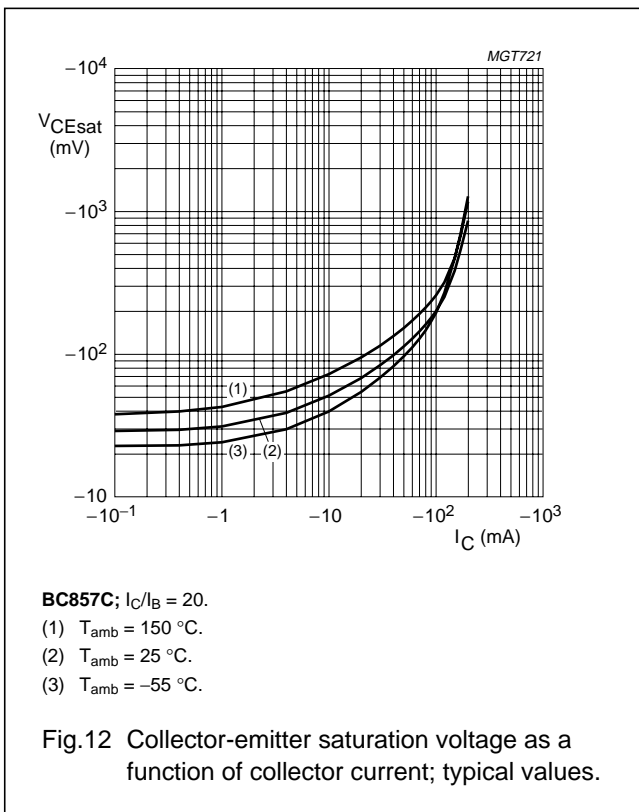
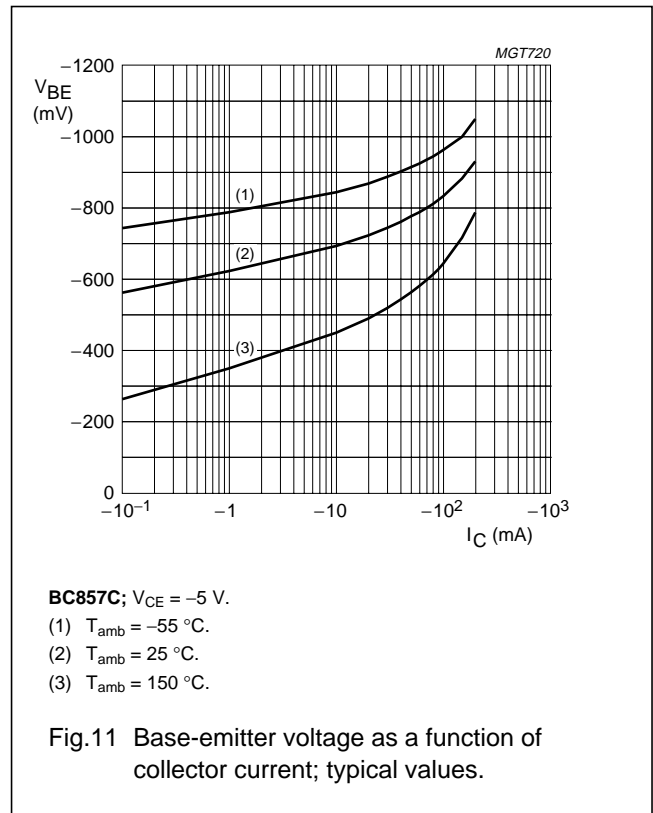
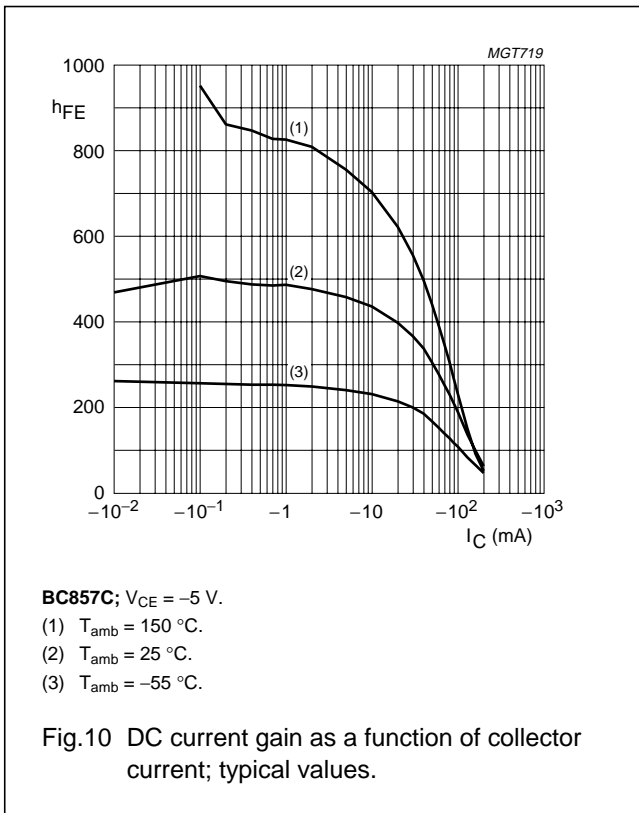
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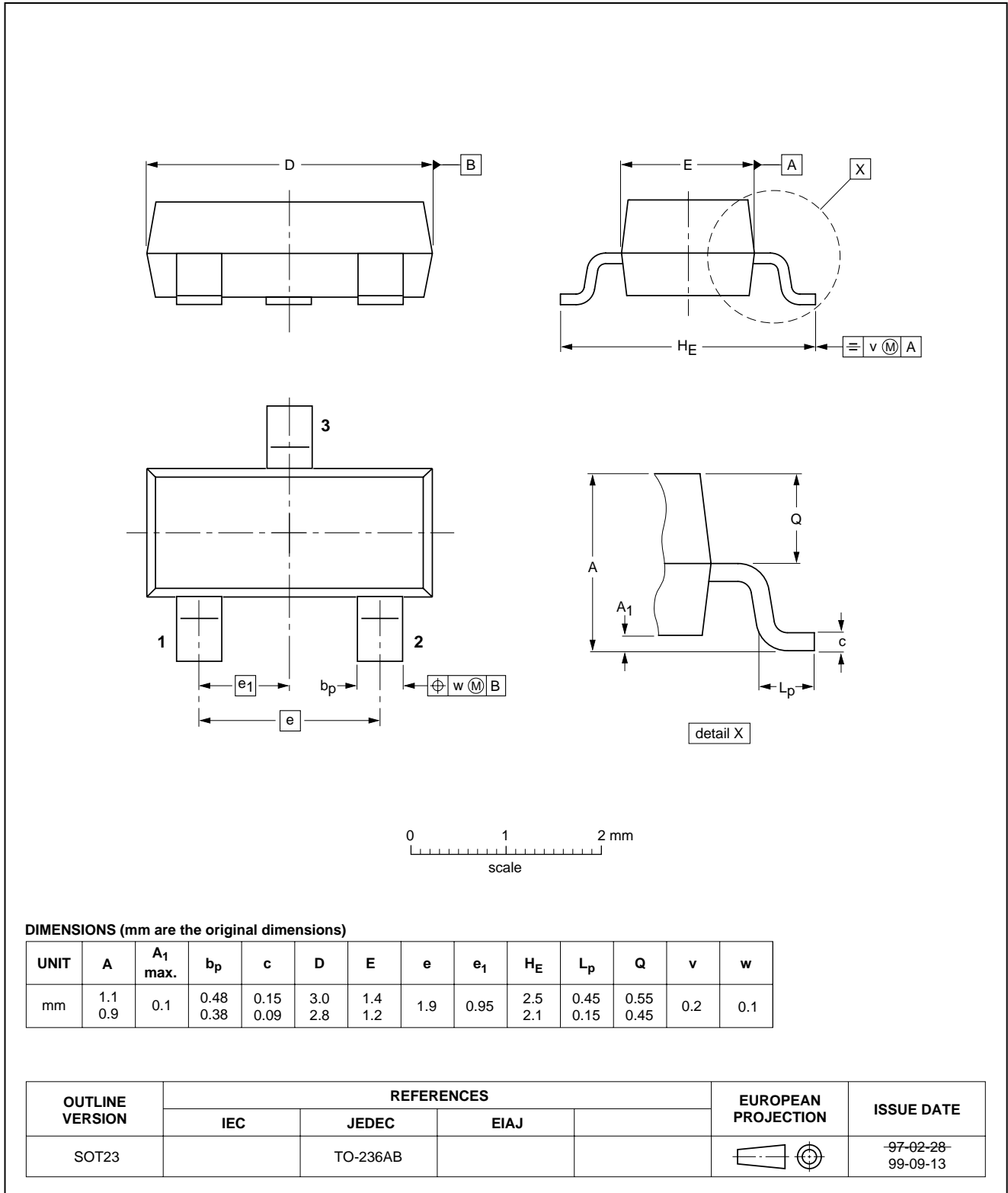
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23





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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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**NOTES**

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**NOTES**

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