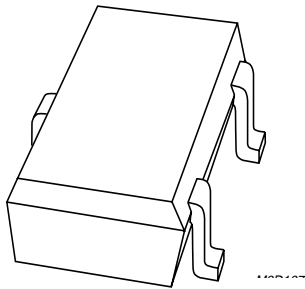


# DATA SHEET



## **BC856W; BC857W** PNP general purpose transistors

Product specification  
Supersedes data of 1997 Apr 07

1999 Apr 12

# PNP general purpose transistors

# BC856W; BC857W

### FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 80)
- S-mini package.

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

PNP transistor in a plastic SOT323 package.  
NPN complements: BC846W and BC847W.

### MARKING

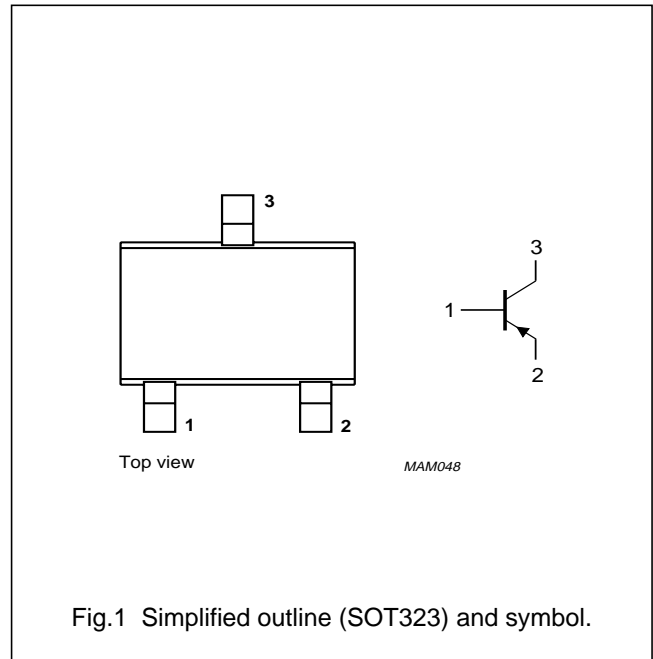
TYPE NUMBER	MARKING CODE <sup>(1)</sup>	TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BC856W	3D*	BC857AW	3E*
BC856AW	3A*	BC857BW	3F*
BC856BW	3B*	BC857CW	3G*
BC857W	3H*		

### Note

- \* = - : Made in Hong Kong.  
\* = t : Made in Malaysia.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



## PNP general purpose transistors

## BC856W; BC857W

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BC856W		–	–80	V
	BC857W		–	–50	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BC856W		–	–65	V
	BC857W		–	–45	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	–	200	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.

## PNP general purpose transistors

## BC856W; BC857W

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

## Note

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

## CHARACTERISTICS

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

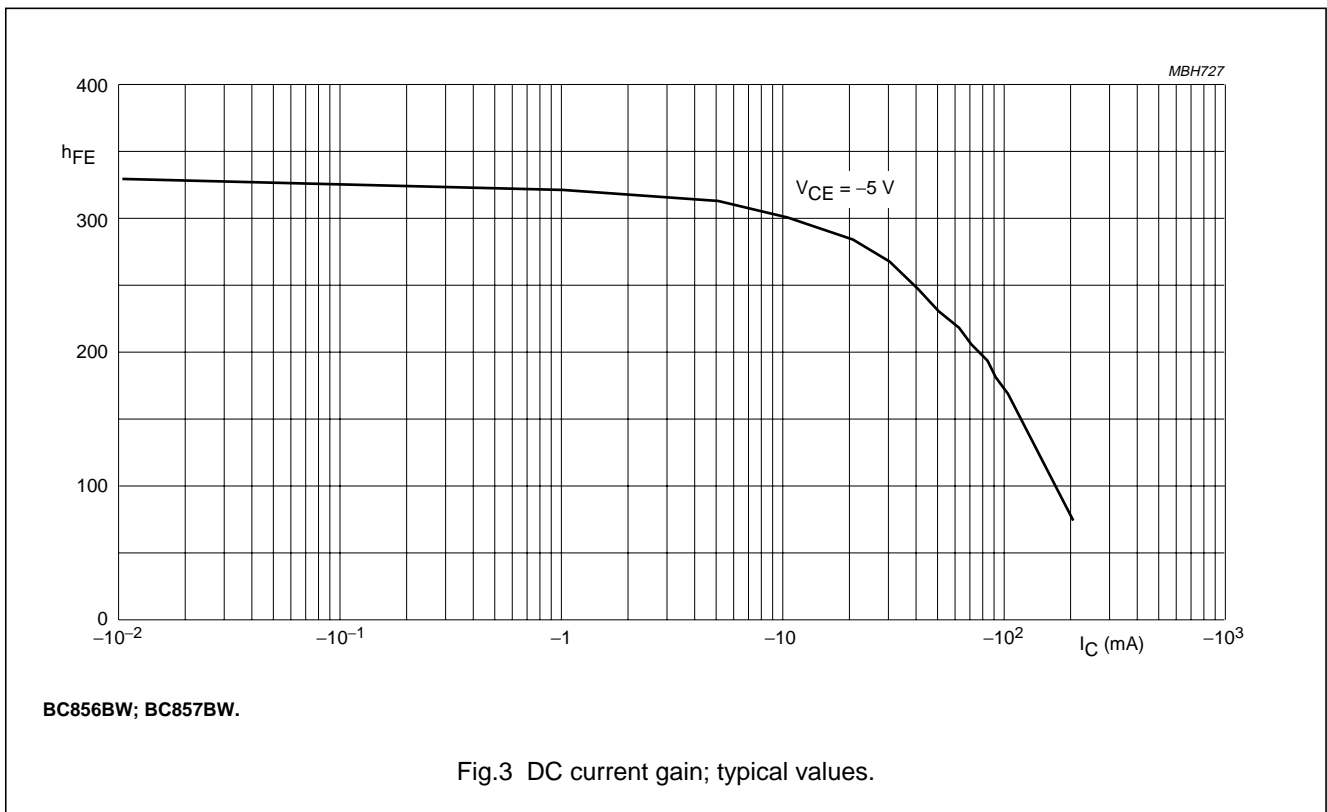
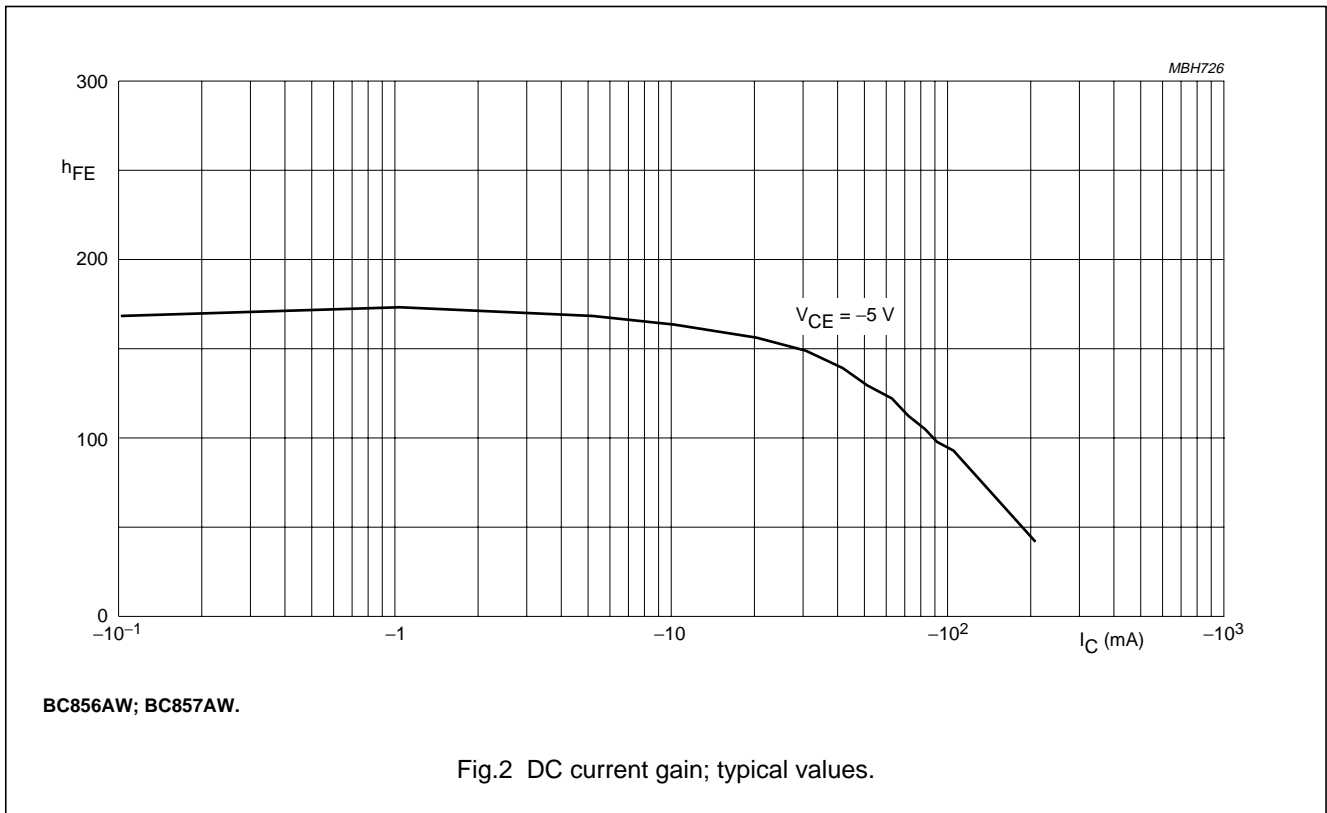
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = -30\text{ V}$	–	–15	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 150\text{ °C}$	–	–4	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–100	nA
$h_{FE}$	DC current gain BC856W BC857W BC856AW; BC857AW BC856BW; BC857BW BC857CW	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V};$ see Figs 2, 3 and 4	125	475	
			125	800	
			125	250	
			220	475	
			420	800	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$	–	–300	mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1	–	–650	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = -100\text{ mA}; I_B = -5\text{ mA};$ note 1	–	–950	mV
$V_{BE}$	base-emitter voltage	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	–600	–750	mV
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$	–	–820	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	5	pF
$C_e$	emitter capacitance	$I_C = i_c = 0; V_{EB} = -0.5\text{ V}; f = 1\text{ MHz}$	–	12	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:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

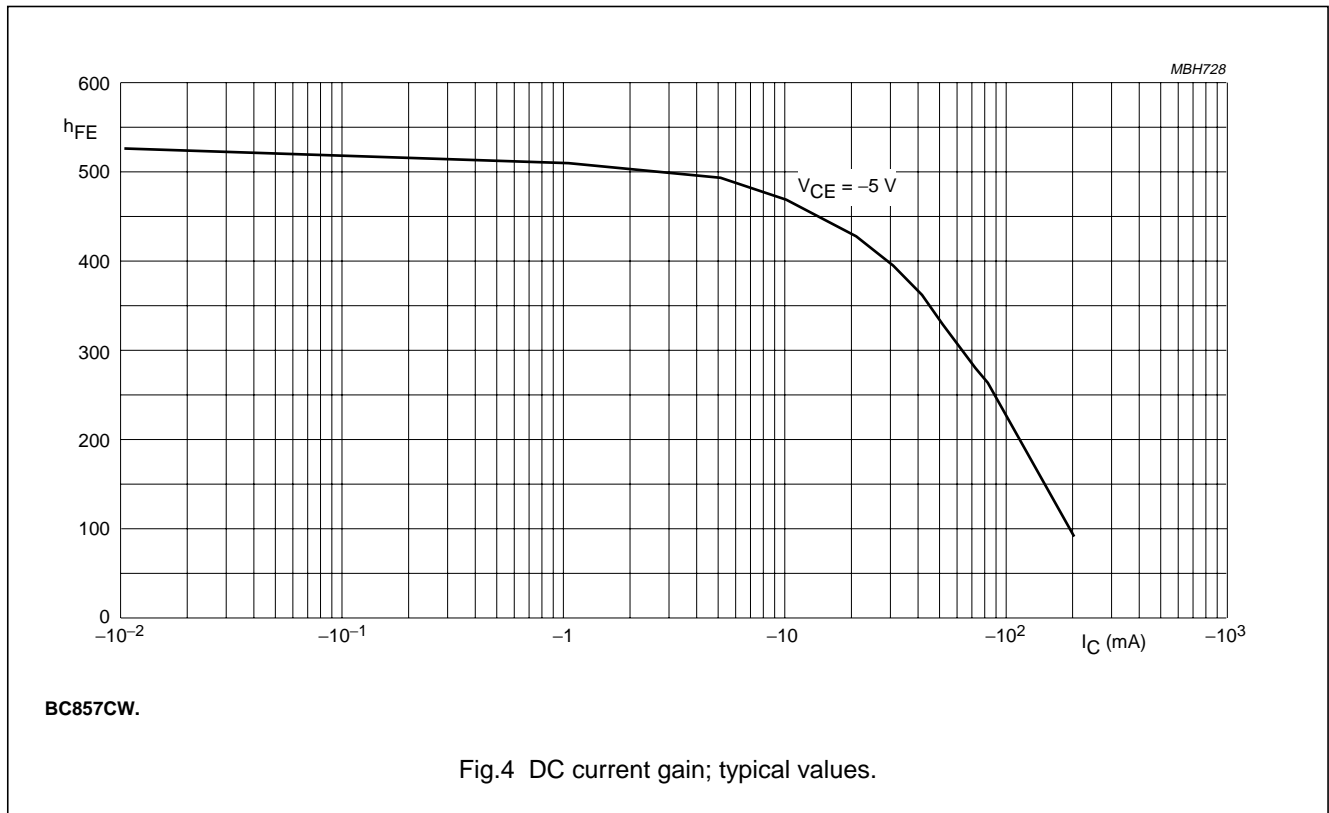
PNP general purpose transistors

BC856W; BC857W



PNP general purpose transistors

BC856W; BC857W



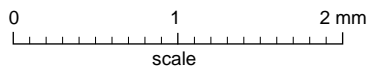
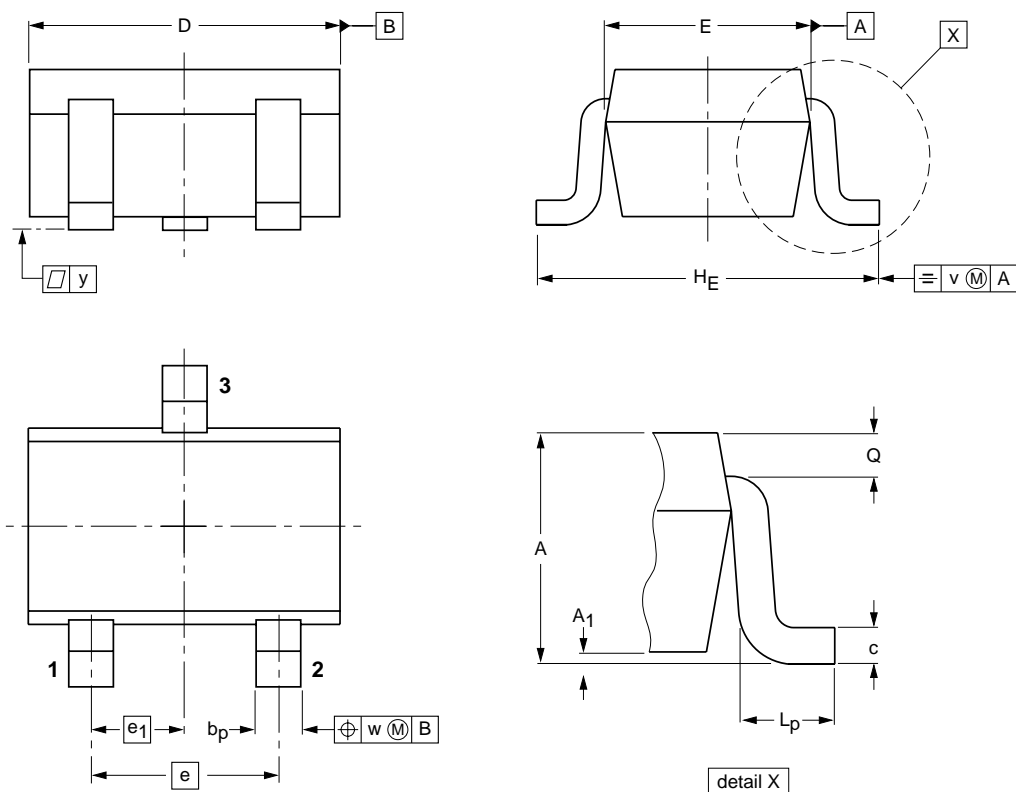
PNP general purpose transistors

BC856W; BC857W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## PNP general purpose transistors

BC856W; BC857W

**DEFINITIONS**

<b>Data sheet status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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PNP general purpose transistors

BC856W; BC857W

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**NOTES**

PNP general purpose transistors

BC856W; BC857W

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**NOTES**

PNP general purpose transistors

BC856W; BC857W

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**NOTES**

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