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Kind regards,

Team Nexperia

# DATA SHEET



## **BC856W; BC857W; BC858W** PNP general purpose transistors

Product data sheet  
Supersedes data of 1999 Apr 12

2002 Feb 04

# PNP general purpose transistors

# BC856W; BC857W; BC858W

### FEATURES

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

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

PNP transistor in a SOT323 plastic package.  
NPN complements: BC846W, BC847W and BC848W.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BC856W	3D*
BC856AW	3A*
BC856BW	3B*
BC857W	3H*
BC857AW	3E*
BC857BW	3F*
BC857CW	3G*
BC858W	3M*

### Note

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

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



## PNP general purpose transistors

## BC856W; BC857W; BC858W

**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			
	BC856W		–	–80	V
	BC857W		–	–50	V
	BC858W		–	–30	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BC856W		–	–65	V
	BC857W		–	–45	V
	BC858W		–	–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	–	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. Refer to SOT323 standard mounting conditions.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	in free air; note 1	625	K/W

**Note**

1. Refer to SOT323 standard mounting conditions.

## PNP general purpose transistors

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**CHARACTERISTICS**

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

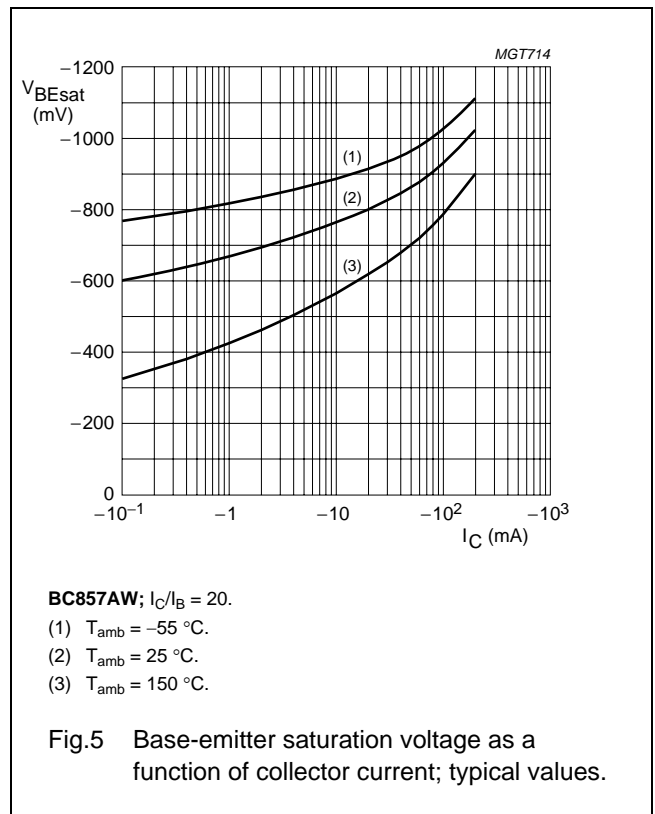
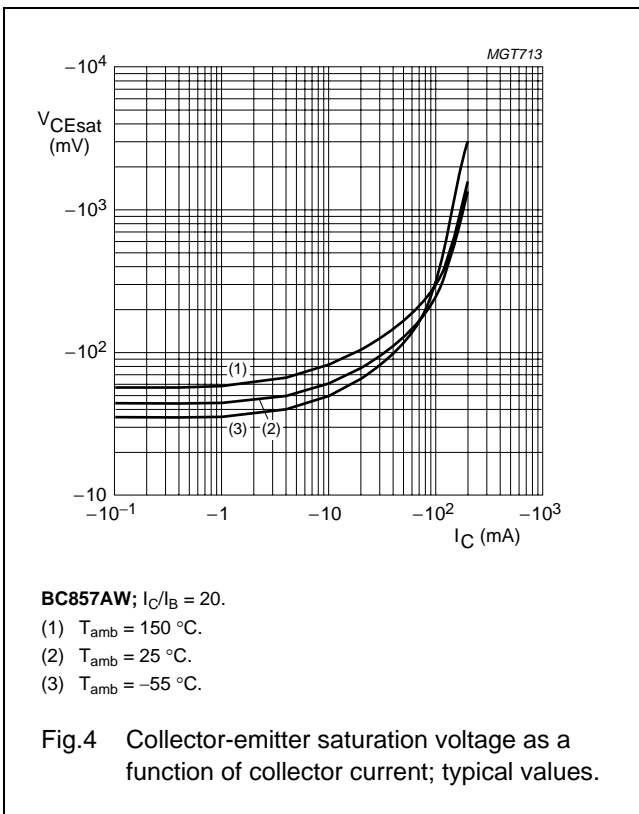
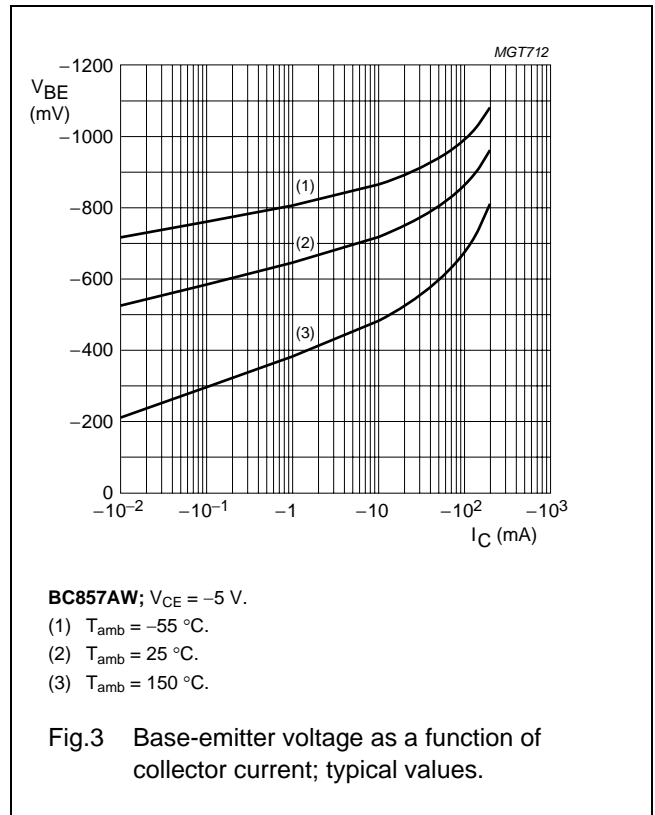
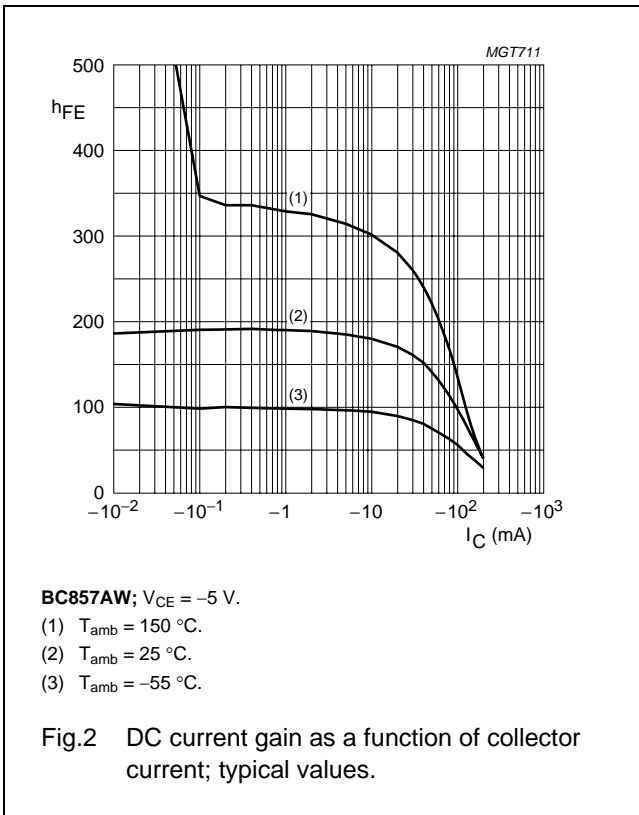
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT				
$I_{CBO}$	collector-base cut-off current	$V_{CB} = -30\text{ V}; I_E = 0$	–	–1	–15	nA				
		$V_{CB} = -30\text{ V}; I_E = 0;$ $T_j = 150\text{ °C}$	–	–	–4	$\mu\text{A}$				
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–100	nA				
$h_{FE}$	DC current gain	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$								
							BC856W	125	–	475
							BC857W; BC858W	125	–	800
							BC856AW; BC857AW	125	–	250
							BC856BW; BC857BW	220	–	475
BC857CW	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	–600	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	$V_{CB} = -10\text{ V}; I_E = I_e = 0;$ $f = 1\text{ MHz}$	–	–	3	pF				
$C_e$	emitter capacitance	$V_{EB} = -0.5\text{ V}; I_C = I_c = 0;$ $f = 1\text{ MHz}$	–	–	12	pF				
$f_T$	transition frequency	$V_{CE} = -5\text{ V}; I_C = -10\text{ mA};$ $f = 100\text{ MHz}$	100	–	–	MHz				
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V};$ $R_S = 2\text{ k}\Omega; f = 1\text{ kHz};$ $B = 200\text{ Hz}$	–	–	10	dB				

**Note**

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

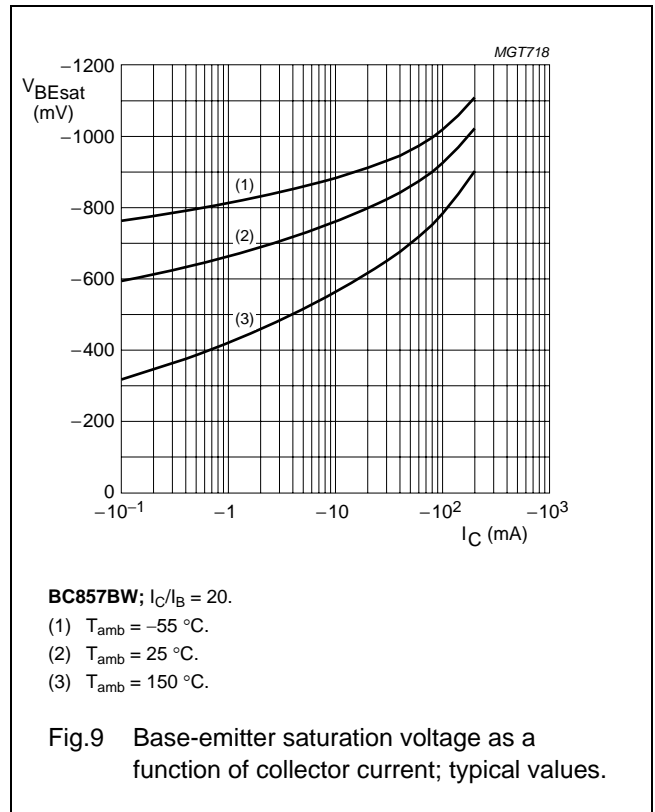
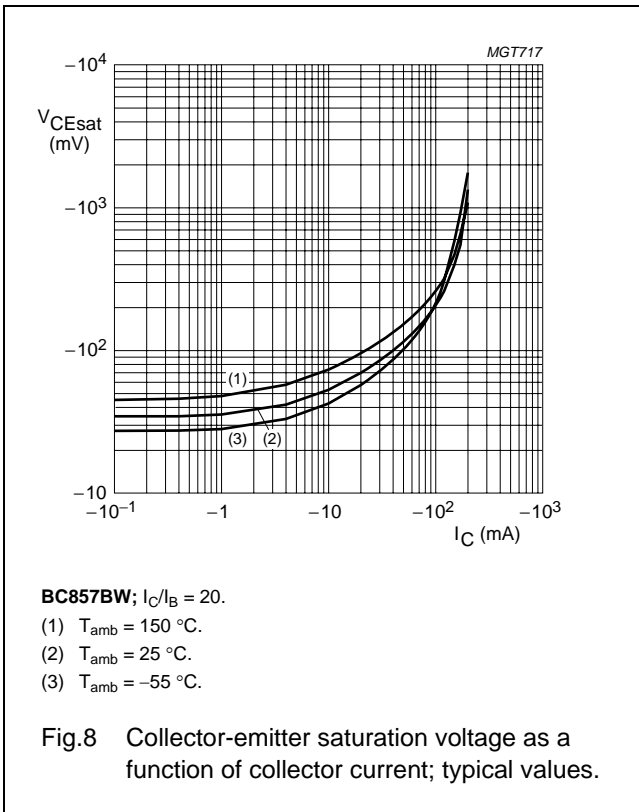
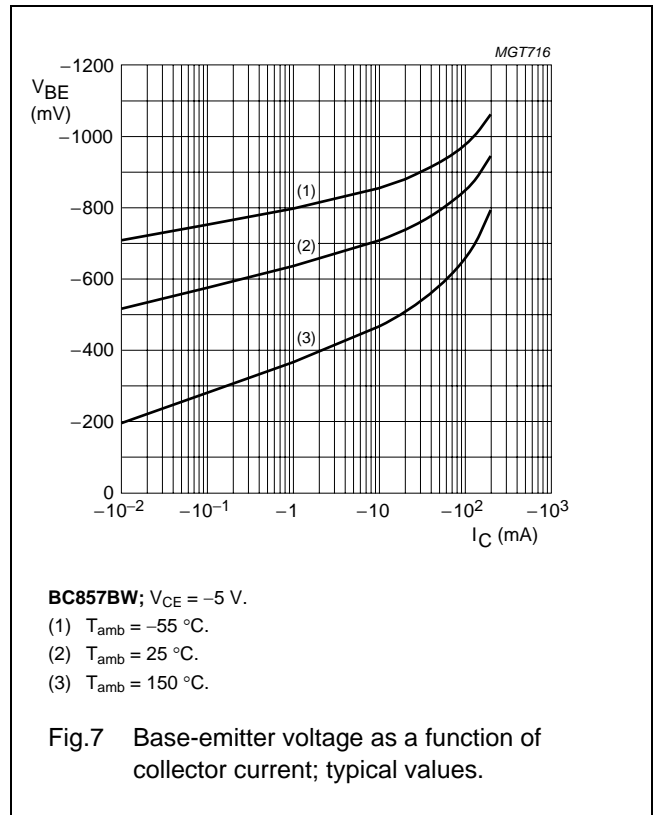
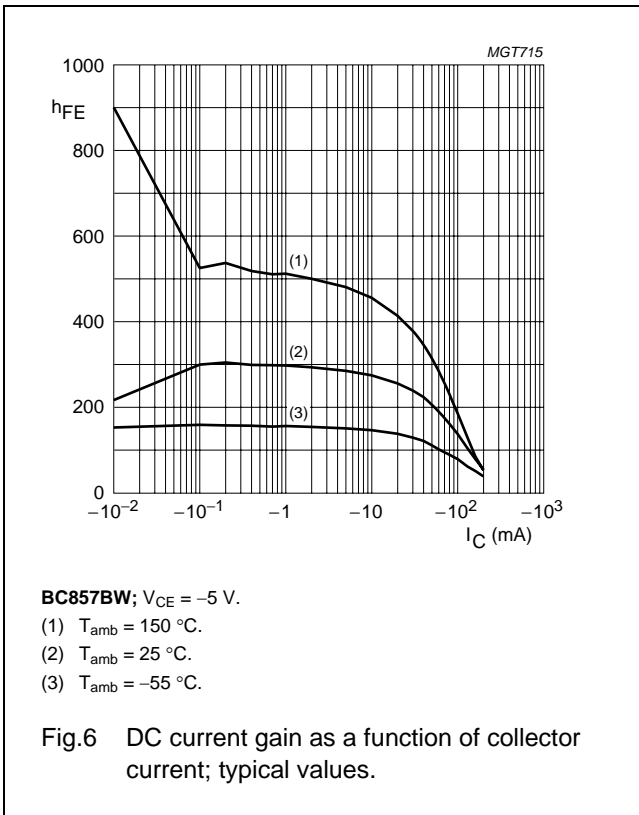
PNP general purpose transistors

BC856W; BC857W; BC858W



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PNP general purpose transistors

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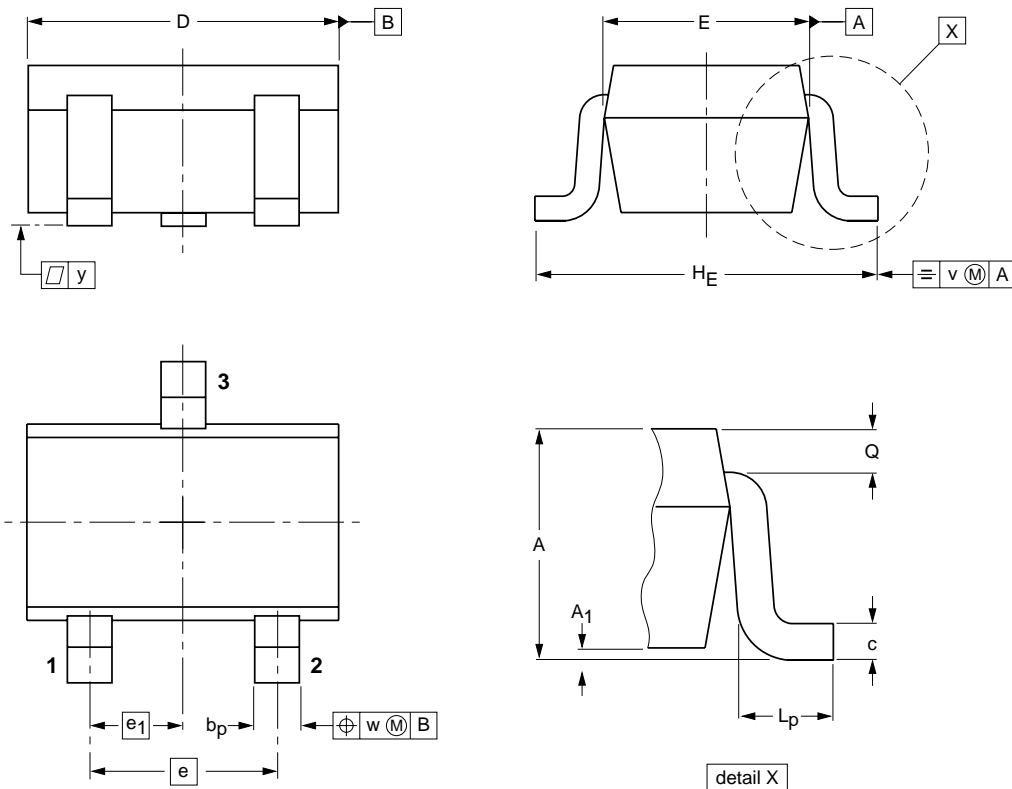
PNP general purpose transistors

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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

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## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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**

For additional information please visit: **<http://www.nxp.com>**

For sales offices addresses send e-mail to: **[salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)**

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