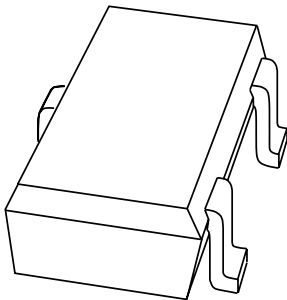


DATA SHEET



BC846W; BC847W; BC848W NPN general purpose transistors

Product specification
Supersedes data of 1999 Apr 23

2002 Feb 04

NPN general purpose transistors

BC846W; BC847W; BC848W

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

NPN transistor in a SOT323 plastic package.
 PNP complements: BC856W, BC857W and BC858W.

MARKING

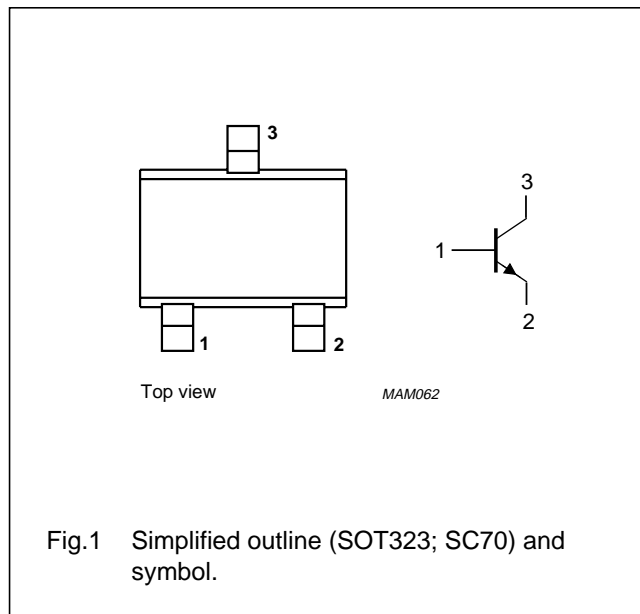
TYPE NUMBER	MARKING CODE ⁽¹⁾
BC846W	1D*
BC846AW	1A*
BC846BW	1B*
BC847W	1H*
BC847AW	1E*
BC847BW	1F*
BC847CW	1G*
BC848W	1M*

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



NPN general purpose transistors

BC846W; BC847W; BC848W

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BC846W		–	80	V
	BC847W		–	50	V
	BC848W	–	30	V	
V _{CEO}	collector-emitter voltage	open base			
	BC846W		–	65	V
	BC847W		–	45	V
	BC848W	–	30	V	
V _{EBO}	emitter-base voltage	open collector			
	BC846W; BC847W		–	6	V
	BC848W	–	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} ≤ 25 °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

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	in free air; note 1	625	K/W

Note

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

NPN general purpose transistors

BC846W; BC847W; BC848W

CHARACTERISTICS

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

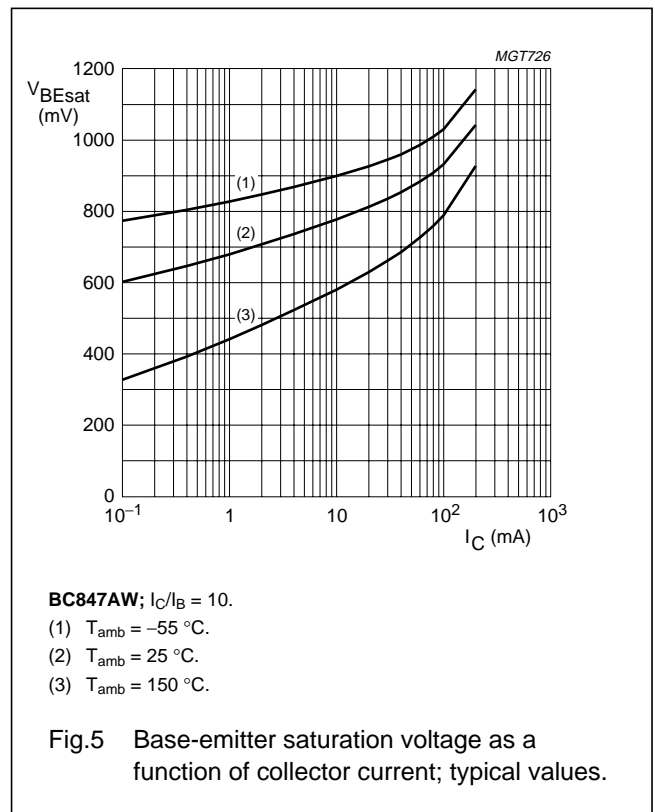
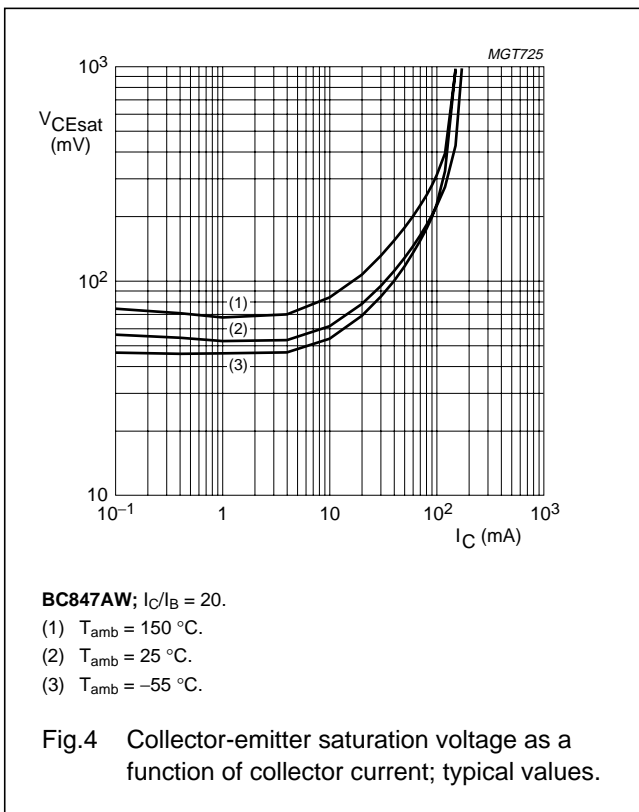
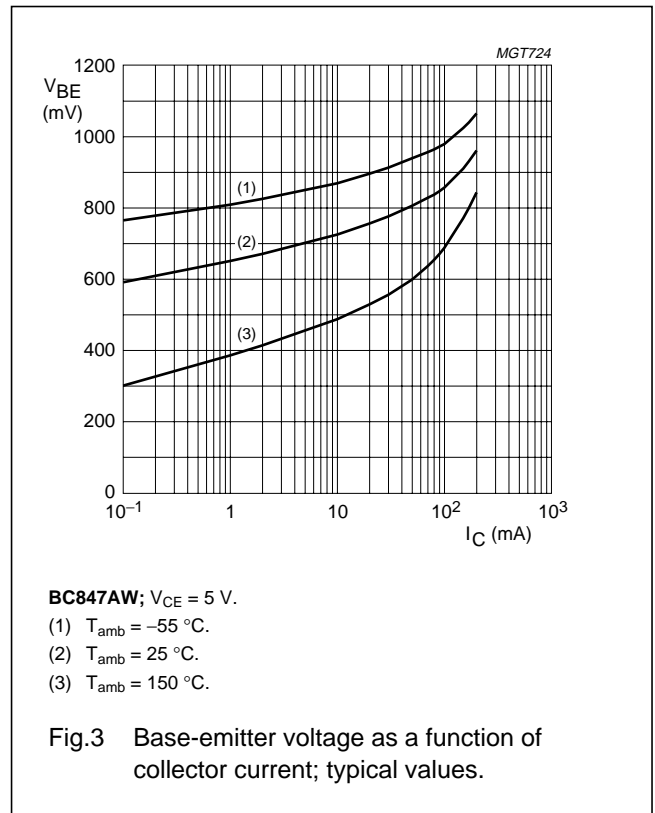
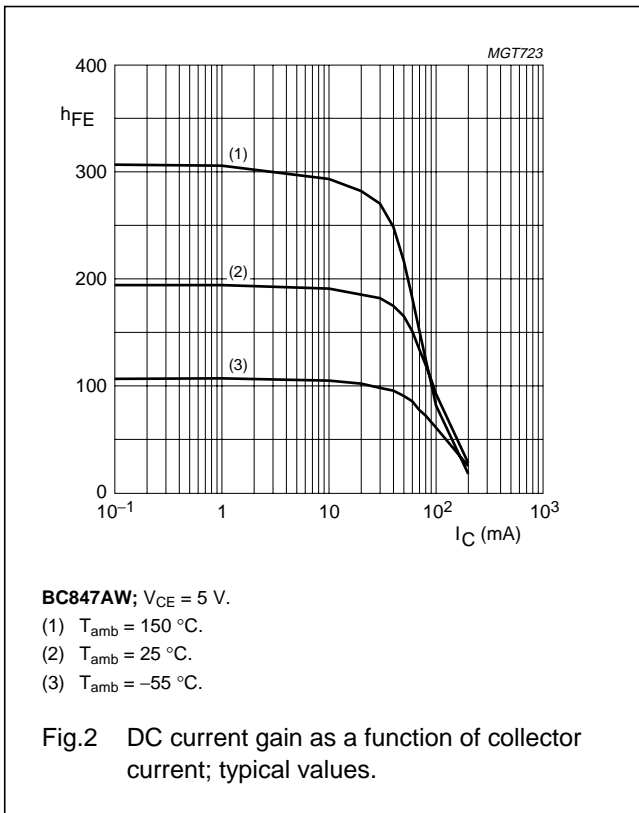
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = 30\text{ V}; I_E = 0$	–	–	15	nA
		$V_{CB} = 30\text{ V}; I_E = 0;$ $T_j = 150\text{ °C}$	–	–	5	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0$	–	–	100	nA
h_{FE}	DC current gain	$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	–	90	–	
	BC846AW; BC847AW					
h_{FE}	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	110	–	450	
	BC846W					
	BC847W; BC848W					
	BC846AW; BC847AW					
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	90	250	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA};$ note 1	–	200	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	–	900	–	mV
V_{BE}	base-emitter voltage	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	580	660	700	mV
		$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	–	–	770	mV
C_c	collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_e = 0;$ $f = 1\text{ MHz}$	–	–	3	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: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

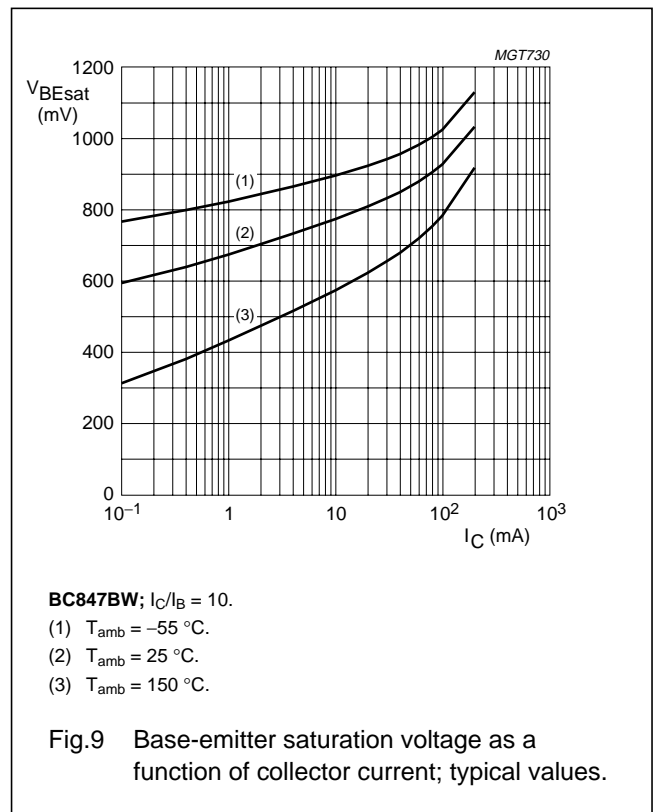
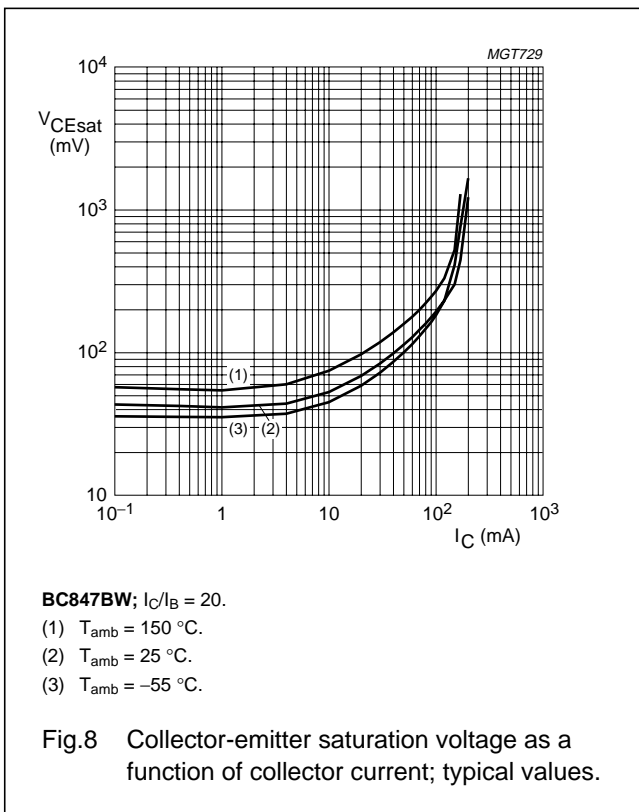
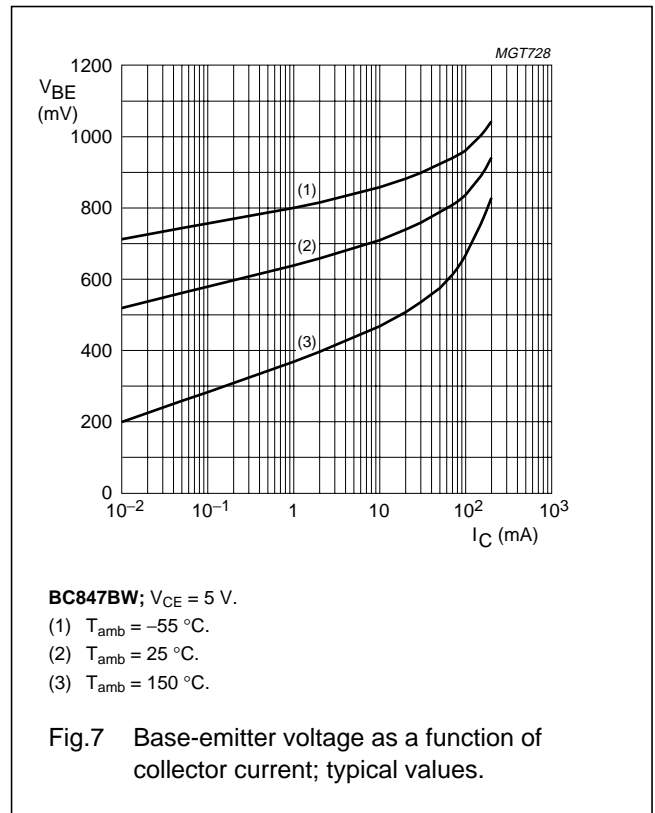
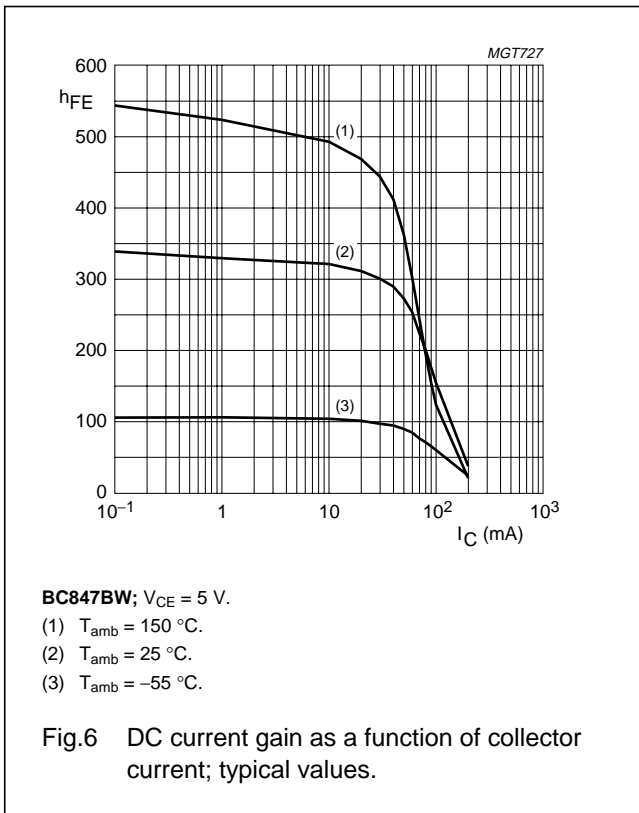
NPN general purpose transistors

BC846W; BC847W; BC848W



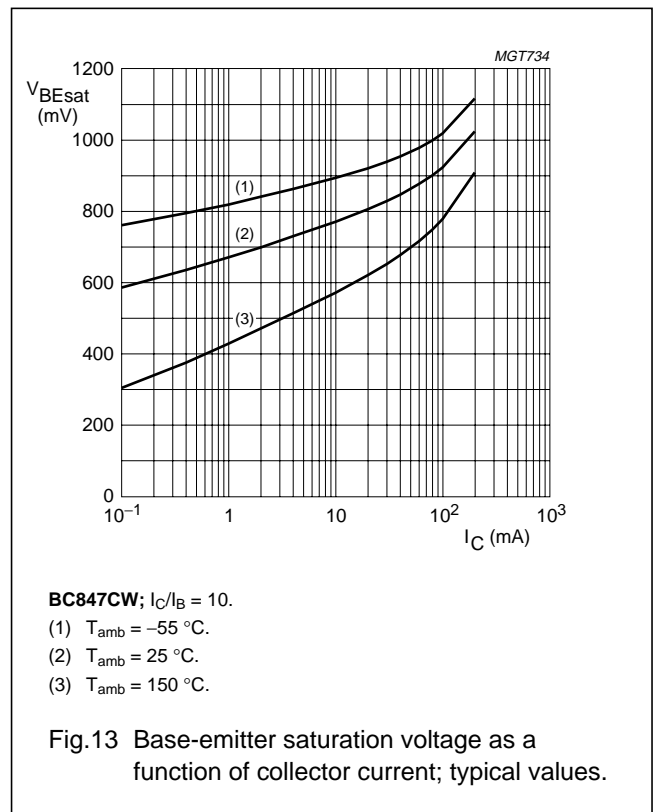
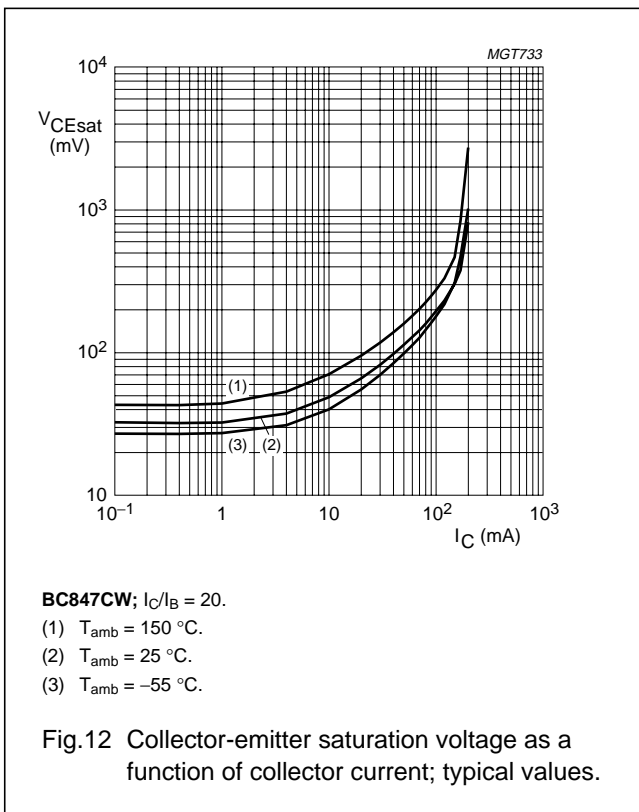
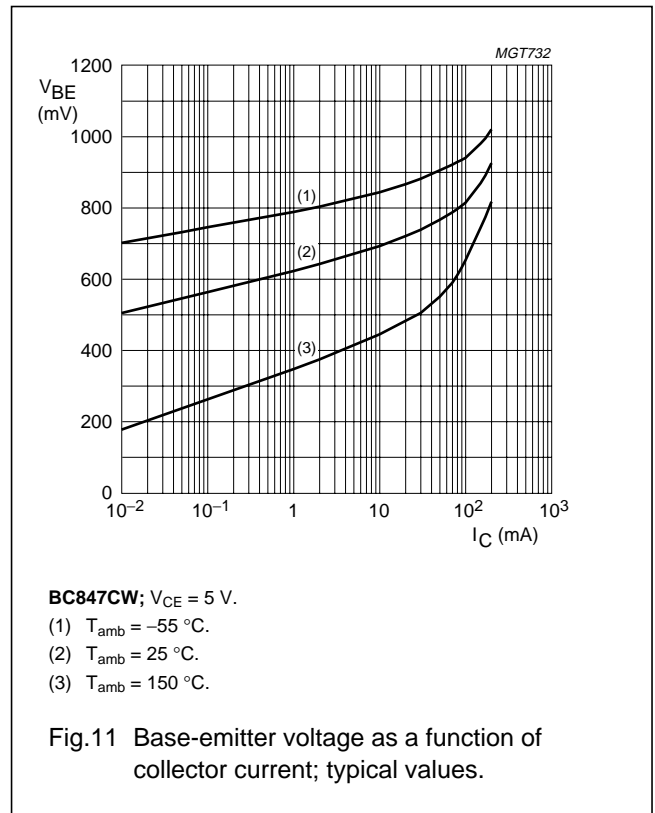
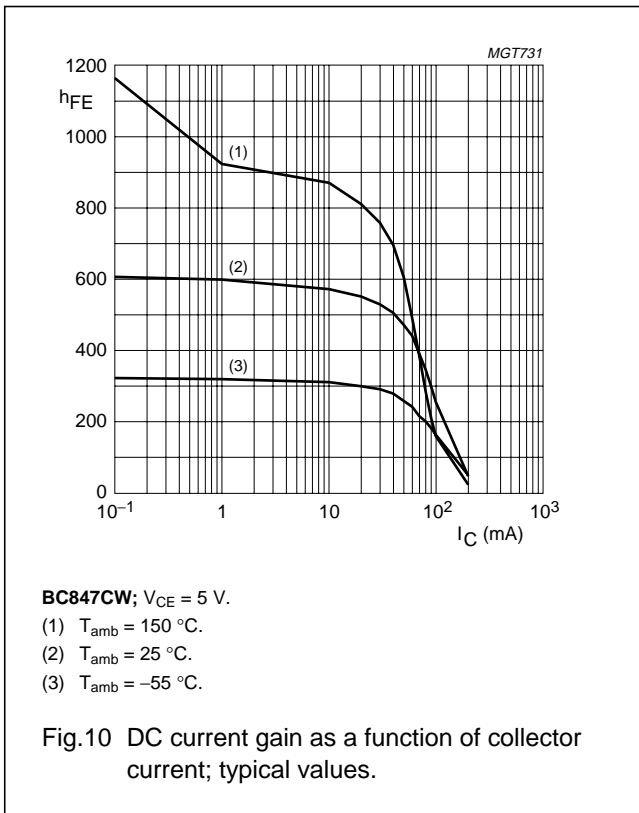
NPN general purpose transistors

BC846W; BC847W; BC848W



NPN general purpose transistors

BC846W; BC847W; BC848W



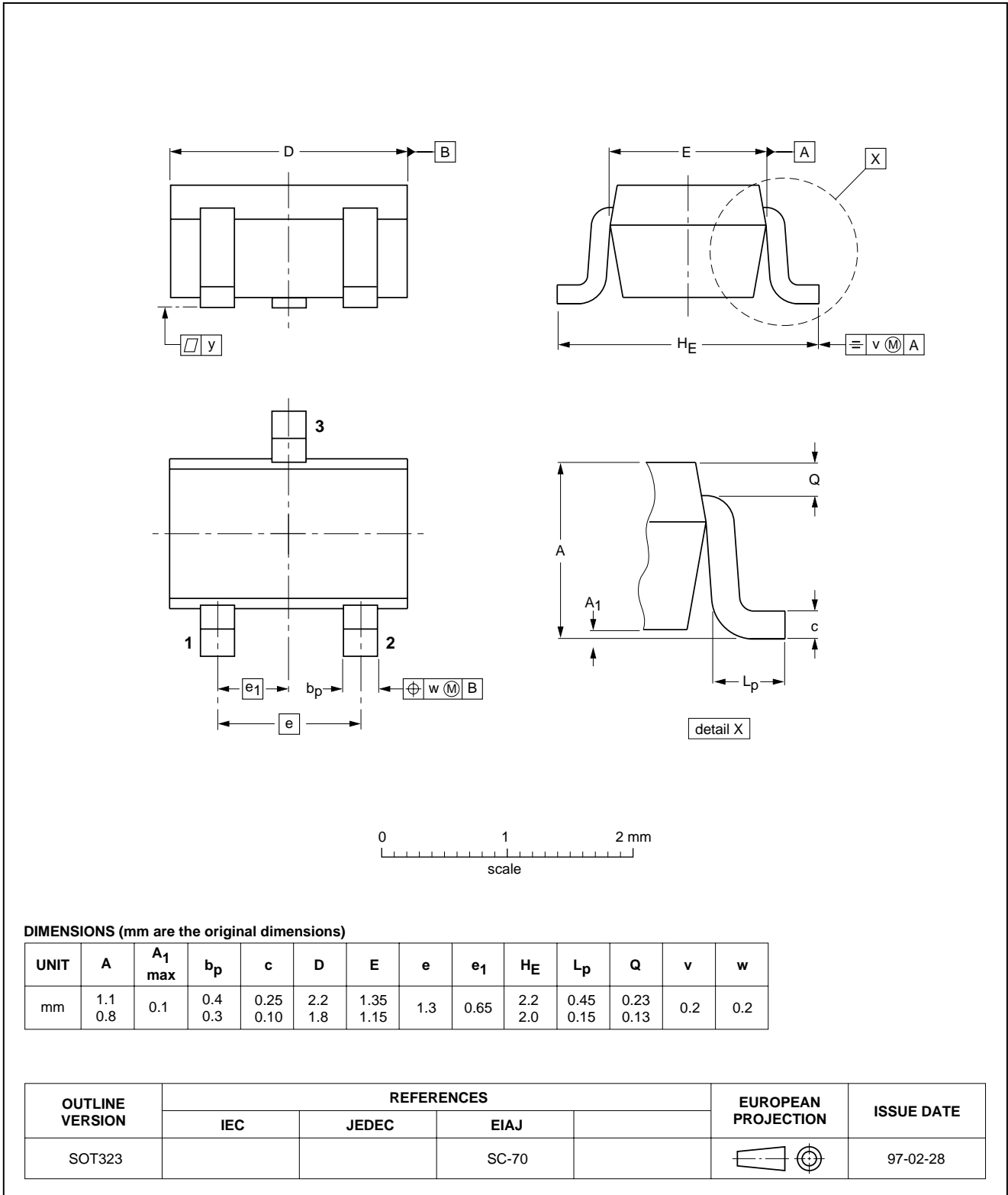
NPN general purpose transistors

BC846W; BC847W; BC848W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



NPN general purpose transistors

BC846W; BC847W; BC848W

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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NPN general purpose transistors

BC846W; BC847W; BC848W

NOTES

NPN general purpose transistors

BC846W; BC847W; BC848W

NOTES

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