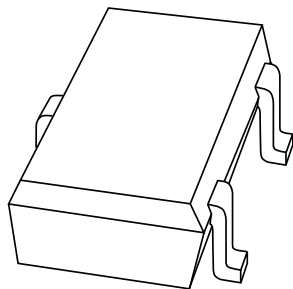


DATA SHEET



BC856W; BC857W; BC858W PNP general purpose transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Apr 07

PNP general purpose transistors

BC856W; BC857W; BC858W

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, BC847W and BC848W.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BC856W	3Dt	BC857CW	3Gt
BC856AW	3At	BC858W	3Mt
BC856BW	3Bt	BC858AW	3Jt
BC857W	3Ht	BC858BW	3Kt
BC857AW	3Et	BC858CW	3Lt
BC857BW	3Ft		

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

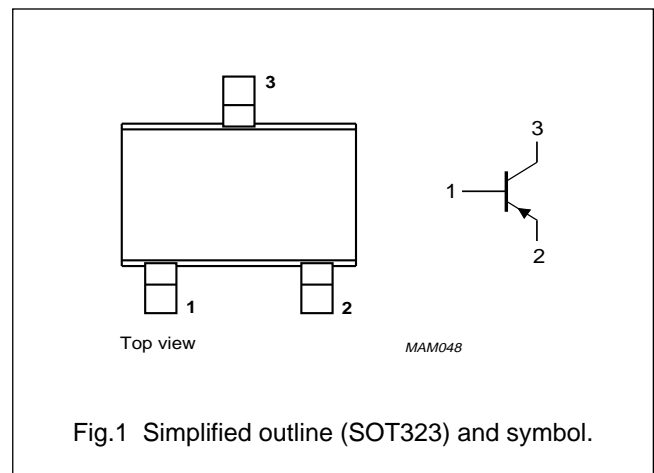


Fig.1 Simplified outline (SOT323) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BC856W		–	–80	V
	BC857W		–	–50	V
	BC858W		–	–30	V
V _{CEO}	collector-emitter voltage	open base			
	BC856W		–	–65	V
	BC857W		–	–45	V
	BC858W		–	–30	V
I _{CM}	peak collector current		–	–200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	–	200	mW
h _{FE}	DC current gain	I _C = –2 mA; V _{CE} = –5 V			
	BC856W		125	475	
	BC857W; BC858W		125	800	
f _T	transition frequency	I _C = –10 mA; V _{CE} = –5 V; f = 100 MHz	100	–	MHz

PNP general purpose transistors

BC856W; BC857W; BC858W

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BC856W		–	–80	V
	BC857W		–	–50	V
	BC858W		–	–30	V
V _{CEO}	collector-emitter voltage	open base			
	BC856W		–	–65	V
	BC857W		–	–45	V
	BC858W		–	–30	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		–	–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	note 1	625	K/W

Note

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

PNP general purpose transistors

BC856W; BC857W; BC858W

CHARACTERISTICS

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

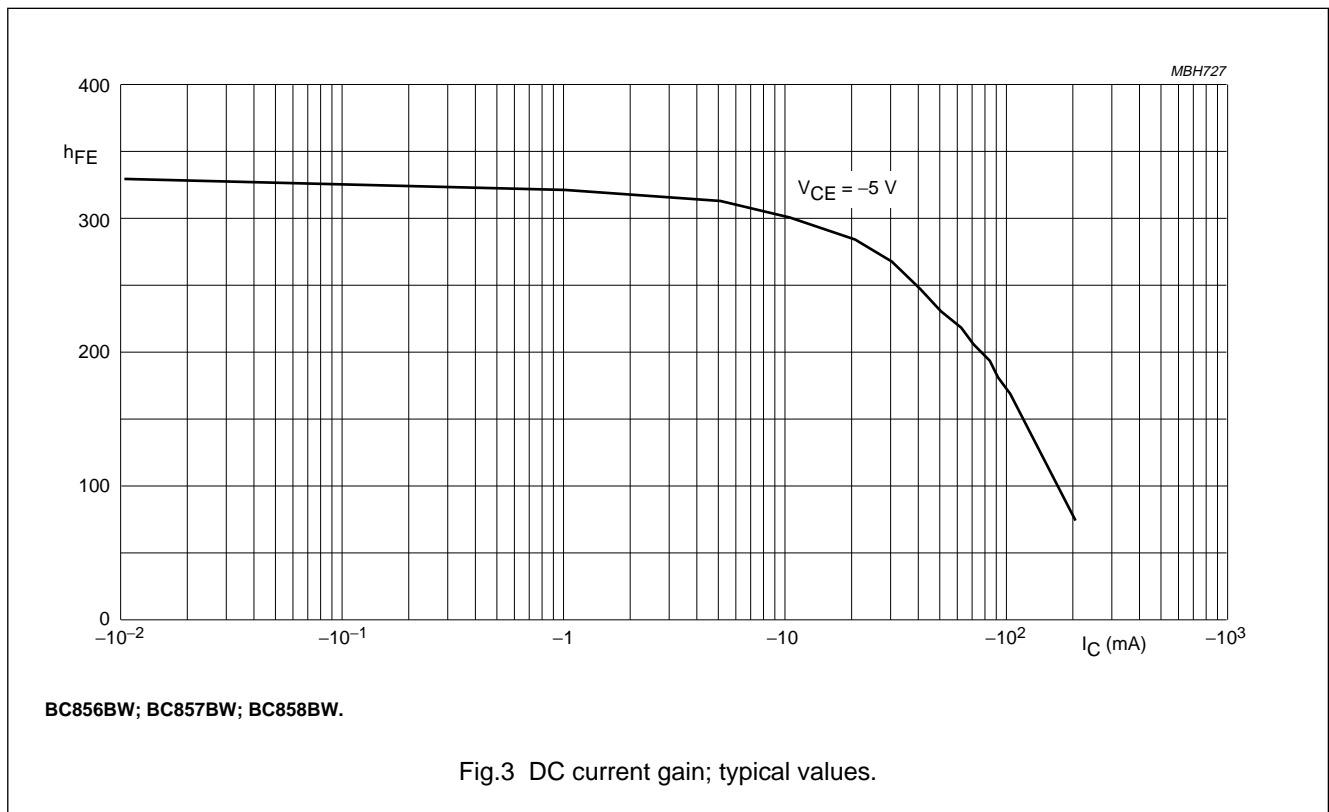
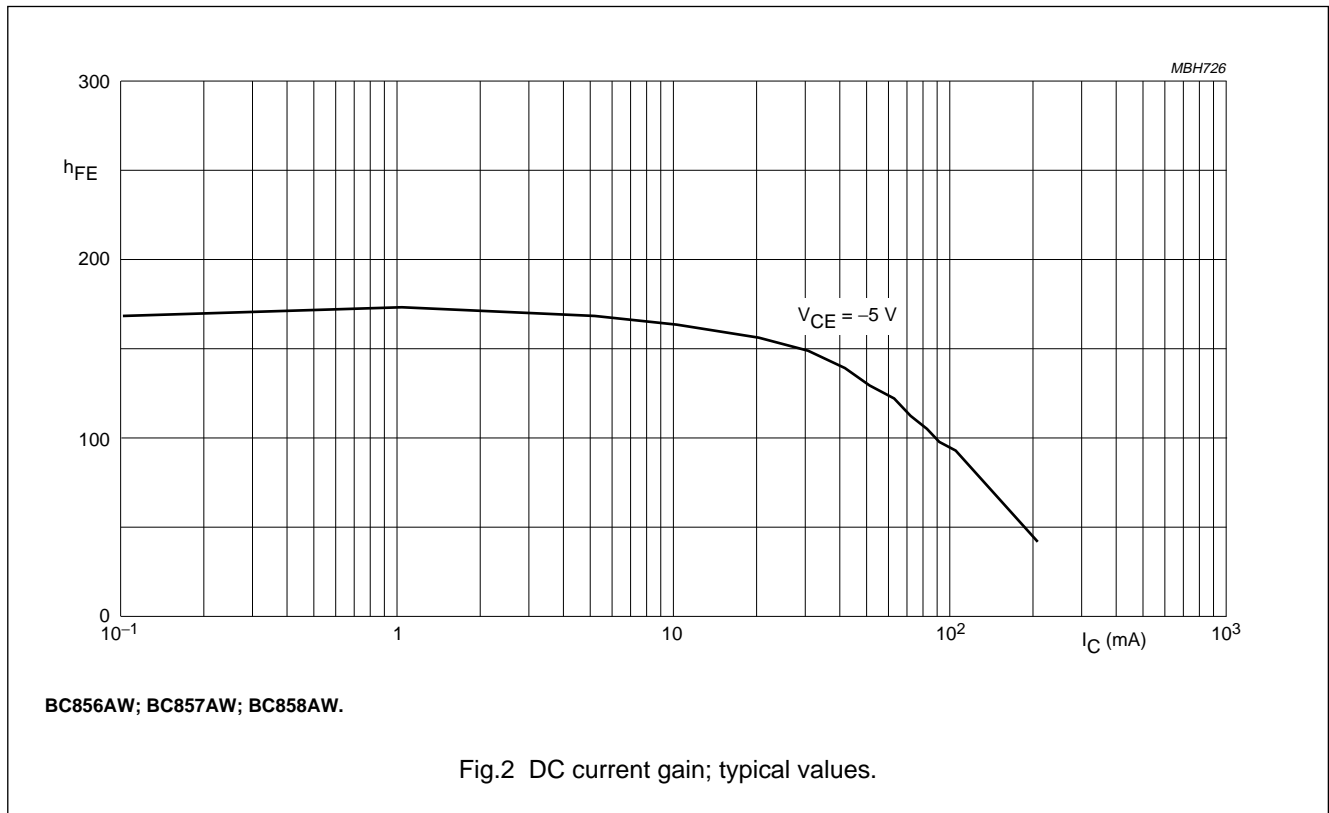
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -30\text{ V}$	–	–15	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 150\text{ °C}$	–	–4	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–100	nA
h_{FE}	DC current gain BC856W BC857W; BC858W BC856AW; BC857AW; BC858AW BC856BW; BC857BW; BC858BW BC857CW; BC858CW	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V};$ 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: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02.$

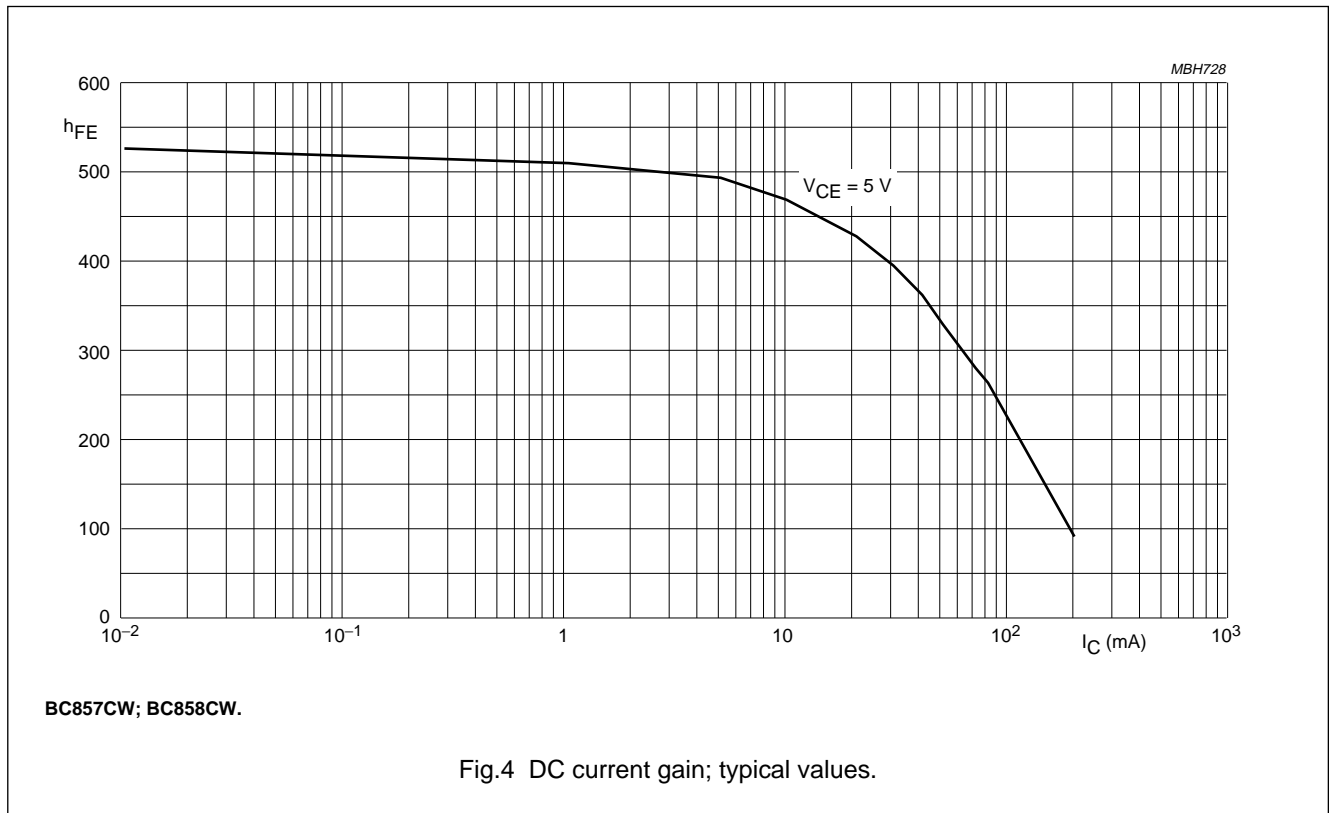
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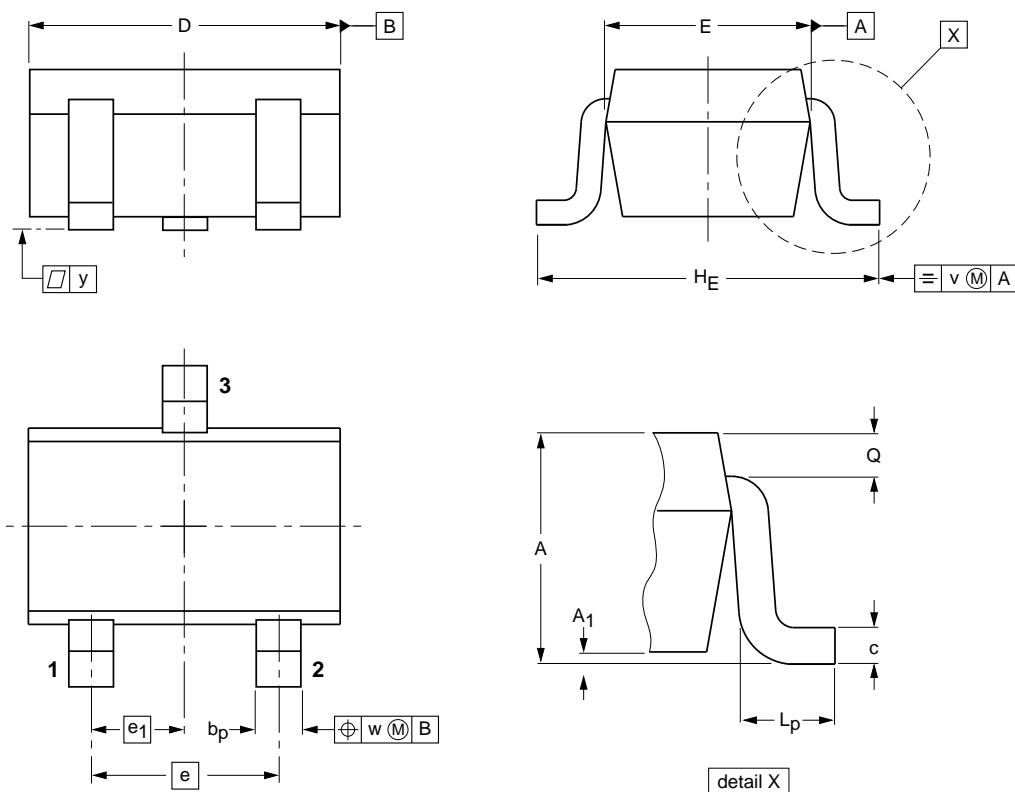
PNP general purpose transistors

BC856W; BC857W; BC858W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	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