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

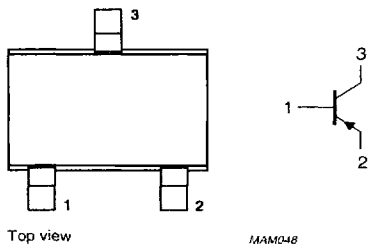


Fig.1 Simplified outline (SOT323) and symbol.

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	$T_{amb} \leq 25$ °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

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	$T_{amb} \leq 25$ °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.

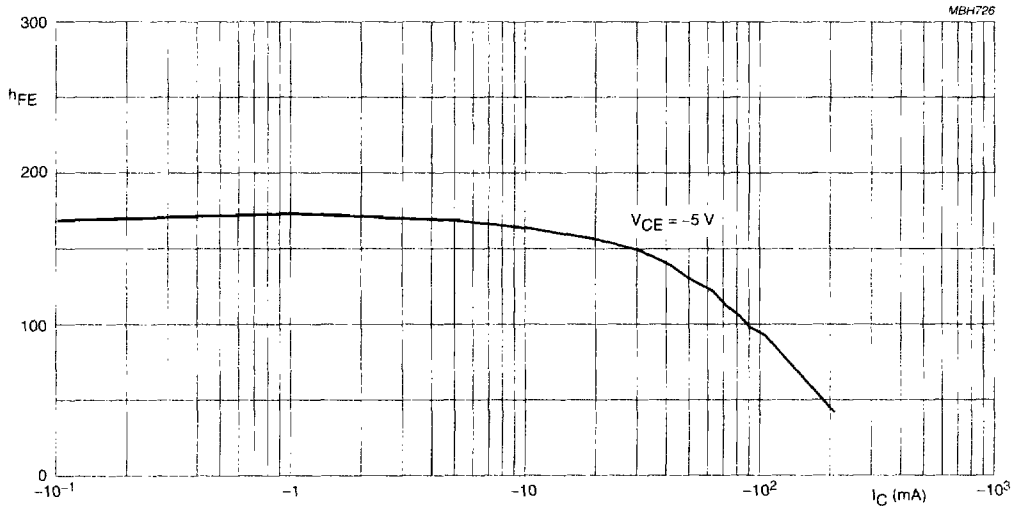
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = −30 V	–	−15	nA
		I_E = 0; V_{CB} = −30 V; T_j = 150 °C	–	−4	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = −5 V	–	−100	nA
h_{FE}	DC current gain	I_C = −2 mA; V_{CE} = −5 V; see Figs 2, 3 and 4			
	BC856W		125	475	
	BC857W; BC858W		125	800	
	BC856AW; BC857AW; BC858AW		125	250	
	BC856BW; BC857BW; BC858BW		220	475	
	BC857CW; BC858CW		420	800	
V_{CEsat}	collector-emitter saturation voltage	I_C = −10 mA; I_B = −0.5 mA	–	−300	mV
		I_C = −100 mA; I_B = −5 mA; note 1	–	−650	mV
V_{BEsat}	base-emitter saturation voltage	I_C = −100 mA; I_B = −5 mA; note 1	–	−950	mV
V_{BE}	base-emitter voltage	I_C = −2 mA; V_{CE} = −5 V	−600	−750	mV
		I_C = −10 mA; V_{CE} = −5 V	–	−820	mV
C_c	collector capacitance	$I_E = i_e$ = 0; V_{CB} = −10 V; f = 1 MHz	–	5	pF
C_e	emitter capacitance	$I_C = i_c$ =0; V_{EB} = −0.5 V; f = 1 MHz	–	12	pF
f_T	transition frequency	I_C = −10 mA; V_{CE} = −5 V; f = 100 MHz	100	–	MHz
F	noise figure	I_C = −200 μA; V_{CE} = −5 V; R_S = 2 kΩ; f = 1 kHz; B = 200 Hz	–	10	dB

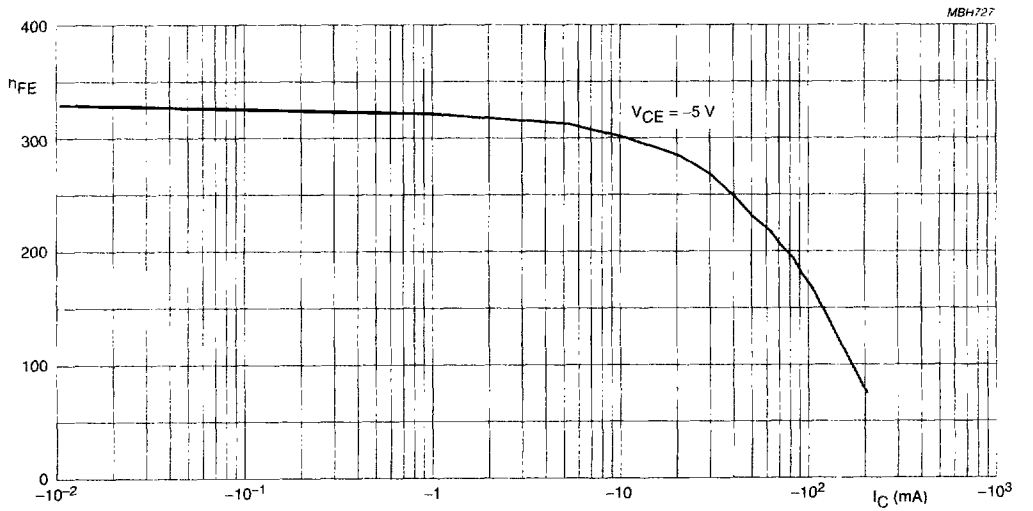
Note

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



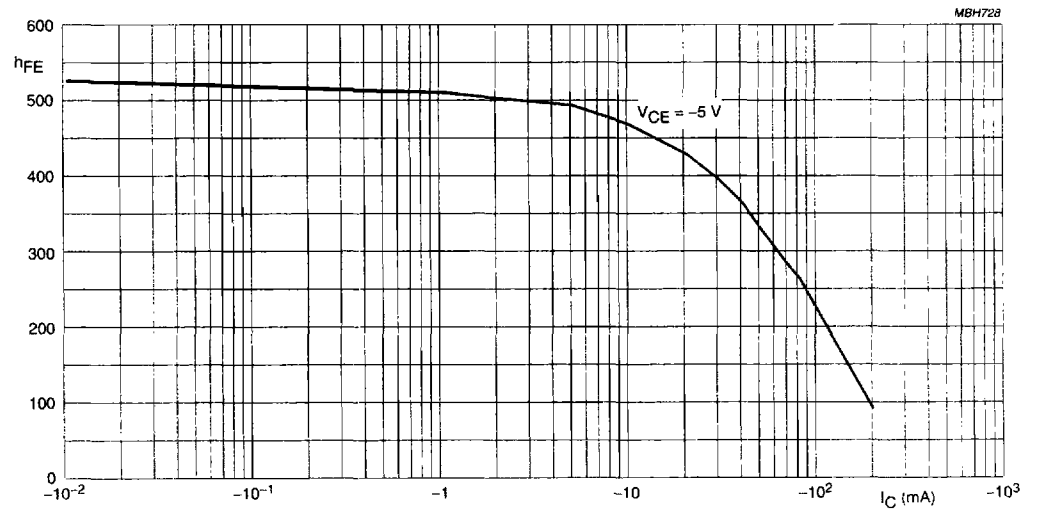
BC856AW; BC857AW; BC858AW.

Fig.2 DC current gain; typical values.



BC856BW; BC857BW; BC858BW.

Fig.3 DC current gain; typical values.



BC857CW; BC858CW.

Fig.4 DC current gain; typical values.