PNP general purpose transistors BC856; BC857; BC858

Features

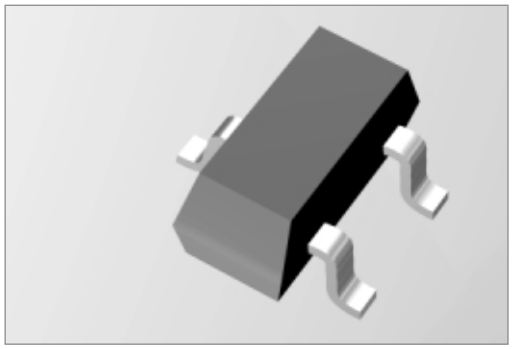
- Low current (max. 100 mA)
- Low voltage (max. 65 V)

Applications

- General purpose switching and amplification

Description

- PNP transistor in a SOT23 plastic package
- NPN complements: BC846,BC847 and BC848.



Pinning

Pin	Description
1	base
2	emitter
3	collector

Marking

Type Number	Marking Code	Type Number	Marking Code(1)
BC856	3D*	BC857A	3E*
BC856A	3A*	BC857B	3F*
BC856B	3B*	BC857C	3G*
BC857	3H*	BC858B	3K*

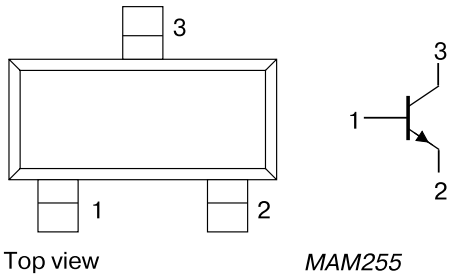


Fig.1 Simplified outline (SOT23) and symbol.

Ordering Information

Type Number	Package		
	Name	Description	Version
BC856 BC857 BC858	–	plastic surface mounted package; 3 leads	SOT23

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			
	BC856		–	−80	V
	BC857		–	−50	V
	BC858		–	−30	V
V_{CEO}	collector-emitter voltage	open base			
	BC856		–	−65	V
	BC857		–	−45	V
	BC858		–	−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	$T_{amb} \leqslant 25$ °C; note 1	–	250	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, standard footprint.

Thermal Characteristics

Symbol	Parameter	Conditions	Value	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air; note 1	500	K/W

Note

1. Transistor mounted on an FR4 printed-circuit board, standard footprint.

Characteristics

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

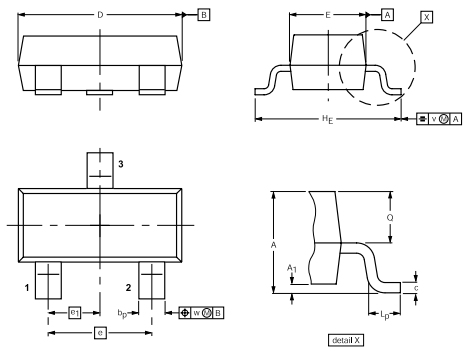
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	collector-base cut-off current	I_E = 0; V_{CB} = −30 V	–	−1	−15	nA
		I_E = 0; V_{CB} = −30 V; T_j = 150 °C	–	–	−4	µA
I_{EBO}	emitter-base cut-off current	I_C = 0; V_{EB} = −5 V	–	–	−100	nA
h_{FE}	DC current gain	I_C = −2 mA; V_{CE} = −5 V				
	BC856		125	–	475	
	BC857		125	–	800	
	BC856A; BC857A		125	–	250	
	BC856B; BC857B;BC858B		220	–	475	
	BC857C		420	–	800	
V_{CEsat}	collector-emitter saturation voltage	I_C = −10 mA; I_B = −0.5 mA	–	−75	−300	mV
		I_C = −100 mA; I_B = −5mA; note 1	–	−250	−650	mV
V_{BEsat}	base-emitter saturation voltage	I_C = −10 mA; I_B = −0.5 mA	–	−700	–	mV
		I_C = −100 mA; I_B = −5 mA; note 1	–	−850	–	mV
V_{BE}	base-emitter voltage	I_C = −2 mA; V_{CE} = −5 V	−600	−650	−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	–	4.5	–	pF
f_T	transition frequency	I_C = −10mA; V_{CE} = −5 V; f = 100 MHz	100	–	–	MHz
F	noise figure	I_C = −200 µA; V_{CE} = −5 V; R_S = 2kΩ; f = 1 kHz; B = 200 Hz	–	2	10	dB

Notes

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

Package Outline

Plastic surface mounted package; 3 leads SOT23



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 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Outline Version	References				European Projection	Issue Date
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				~~97-02-28~~ 99-09-13