

NPN general purpose transistor

BC846W; BC847W; BC848W

FEATURES

- S- mini package.

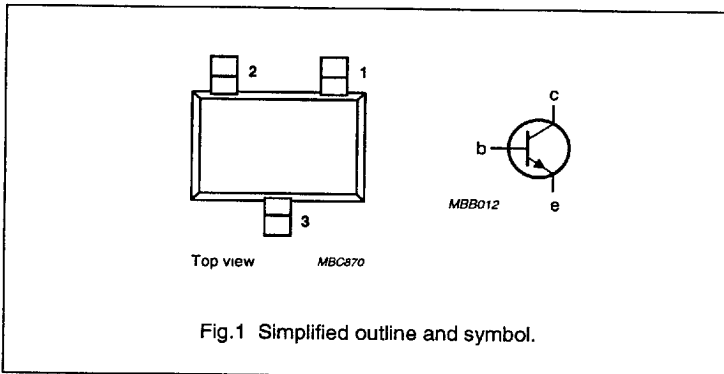
DESCRIPTION

NPN transistor in a plastic SOT323 (SC70) package.

PINNING - SOT323

PIN	DESCRIPTION
1	base
2	emitter
3	collector

PIN CONFIGURATION



MARKING CODES

BC846W:	1D
BC846AW:	1A
BC846BW:	1B
BC847W:	1H
BC847AW:	1E
BC847BW:	1F
BC847CW:	1G
BC848W:	1M
BC848AW:	1J
BC848BW:	1K
BC848CW:	1L

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CES}	collector-emitter voltage	$V_{BE} = 0$			
	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
I_{CM}	peak collector current		—	200	mA
P_{tot}	total power dissipation	up to $T_{amb} = 25\text{ }^{\circ}\text{C}$	—	200	mW
h_{FE}	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}; T_{amb} = 25\text{ }^{\circ}\text{C}$			
	BC846W		110	450	
	BC847W		110	800	
	BC848W		110	800	
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; T_{amb} = 25\text{ }^{\circ}\text{C}$	100	—	MHz

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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CB0}	collector-base voltage BC846W BC847W BC848W	open emitter	—	80 50 30	V V V
V_{CES}	collector-emitter voltage BC846W BC847W BC848W	$V_{BE} = 0$	—	80 50 30	V V V
V_{CEO}	collector-emitter voltage BC846W BC847W BC848W	open base	—	65 45 30	V V V
V_{EBO}	emitter-base voltage	open collector	—	5	V
I_C	DC collector current		—	100	mA
I_{CM}	peak collector current		—	200	mA
I_{EM}	peak emitter current		—	–200	mA
I_{BM}	peak base current		—	200	mA
P_{tot}	total power dissipation	up to $T_{amb} = 25\text{ °C}$ (note 1) see Fig.2	—	200	mW
T_{stg}	storage temperature		–65	150	°C
T_j	junction temperature		—	150	°C
T_{amb}	operating ambient temperature	see Fig.2	–65	150	°C

Note

1. Refer to SOT323 standard mounting conditions.

THERMAL RESISTANCE

SYMBOL	PARAMETER	CONDITIONS	THERMAL RESISTANCE
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air (note 1)	max. 625 K/W

Note

1. Refer to SOT323 standard mounting conditions.

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CHARACTERISTICS

 $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	—	15	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_J = 150\text{ }^{\circ}\text{C}$	—	5	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	—	100	nA
V_{BE}	base-emitter voltage	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	580	700	mV
		$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	—	770	mV
$V_{CE(sat)}$	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	—	250	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA}$ (note 1)	—	600	mV
C_o	collector capacitance	$I_E = I_o = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	—	3	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
h_{FE}	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V};$			
	BC846W		110	450	
	BC847W; BC848W		110	800	
	BC846AW; BC847AW; BC848AW		110	220	
	BC846BW; BC847BW; BC848BW		200	450	
	BC847CW; BC848CW		420	800	

Note

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

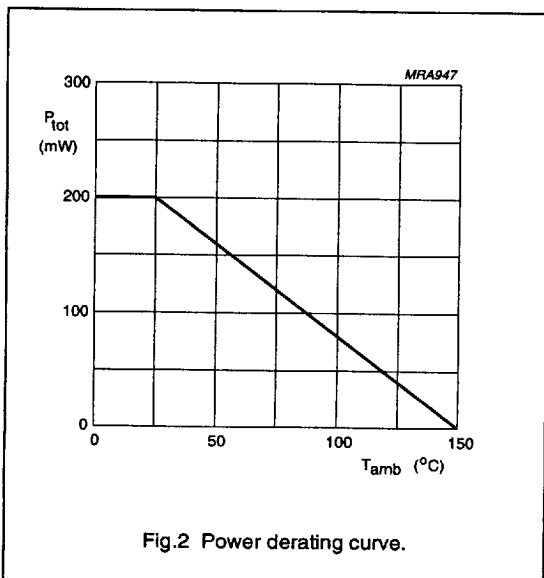


Fig.2 Power derating curve.