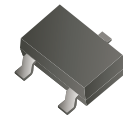


BC846W-HF Thru. BC848W-HF (NPN)

RoHS Device
Halogen Free



Features

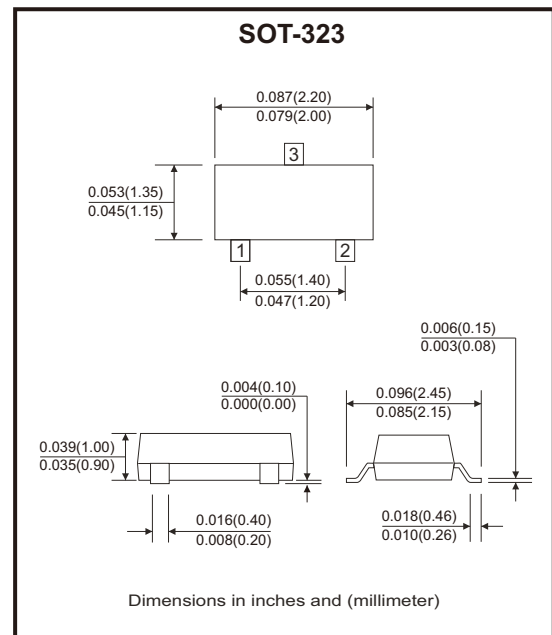
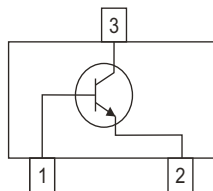
- Ideally suited for automatic insertion.
- For switching and AF amplifier applications.

Mechanical data

- Case: SOT-323, molded plastic.
- Mounting position: Any.

Circuit Diagram

- 1.BASE
- 2.EMITTER
- 3.COLLECTOR



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Units
Collector-base voltage	V_{CBO}	80	V
BC846W-HF		50	
BC847W-HF		30	
Collector-emitter voltage	V_{CEO}	65	V
BC846W-HF		45	
BC847W-HF		30	
Emitter-base voltage	V_{EBO}	6	V
BC846W-HF / BC847W-HF		5	
Collector current-continuous	I_C	0.1	A
Collector power dissipation	P_C	150	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	833	°C/W
Operation junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage BC846W-HF BC847W-HF BC848W-HF	V _{CBO}	I _C = 10μA, I _E = 0	80 50 30			V
Collector-emitter breakdown voltage BC846W-HF BC847W-HF BC848W-HF	V _{CEO}	I _C = 10mA, I _B = 0	65 45 30			V
Emitter-base breakdown voltage BC846W-HF BC847W-HF BC848W-HF	V _{EBO}	I _E = 1μA, I _C = 0	6 6 5			V
Collector cut-off current	I _{CBO}	V _{CB} = 30V			15	nA
DC current gain BC846AW-HF, 847AW-HF, 848AW-HF BC846BW-HF, 847BW-HF, 848BW-HF BC847CW-HF, 848CW-HF BC846AW-HF, 847AW-HF, 848AW-HF BC846BW-HF, 847BW-HF, 848BW-HF BC847CW-HF, 848CW-HF	h _{FE}	V _{CE} = 5V, I _C = 10μA		90 150 270		
		V _{CE} = 5V, I _C = 2mA	110 200 420		220 450 800	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = 10mA, I _B = 0.5mA I _C = 100mA, I _B = 5mA			0.25 0.6	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = 10mA, I _B = 0.5mA I _C = 100mA, I _B = 5mA		0.7 0.9		V
Base-emitter voltage	V _{BE(on)}	V _{CE} = 5V, I _C = 2mA V _{CE} = 5V, I _C = 10mA	580 -	660 -	700 770	mV
Transition frequency	f _T	V _{CE} = 5V, I _C = 10mA f = 100MHz	100			MHz
Collector output capacitance	C _{ob}	V _{CB} = 10V, f = 1MHz			4.5	pF
Noise figure BC846AW-HF, 847AW-HF, 848AW-HF BC846BW-HF, 847BW-HF, 848BW-HF BC847CW-HF, 848CW-HF	NF	V _{CE} = 5V, I _C = 0.2mA, f = 1KHz, R _S = 2KΩ, BW = 200Hz			10 10 4	dB

Typical Rating and Characteristic Curves (BC846W-HF Thru. BC848W-HF)

Fig.1 - Static Characteristic

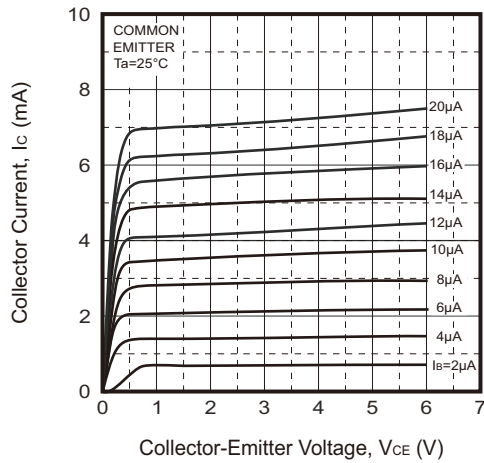


Fig.2 - $h_{FE} - I_C$

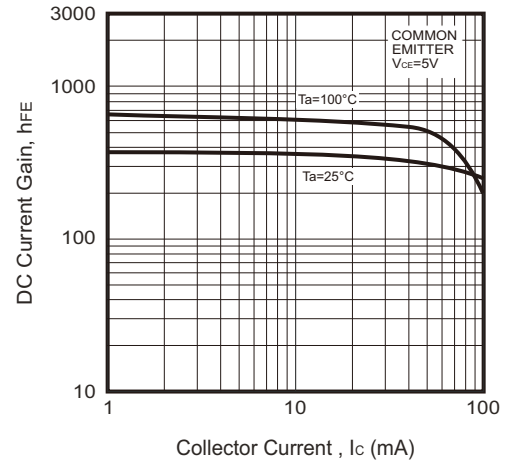


Fig.3 - $V_{BEsat} - I_C$

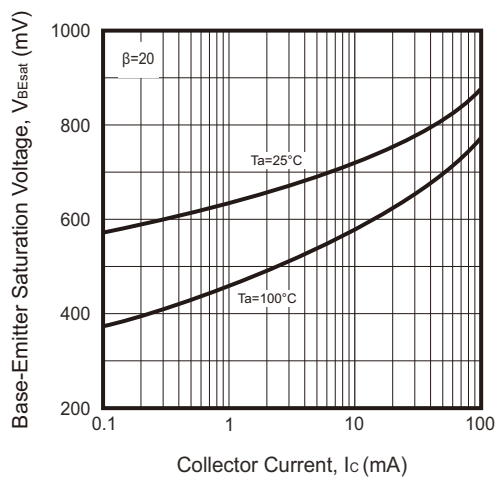


Fig.4 - $V_{CEsat} - I_C$

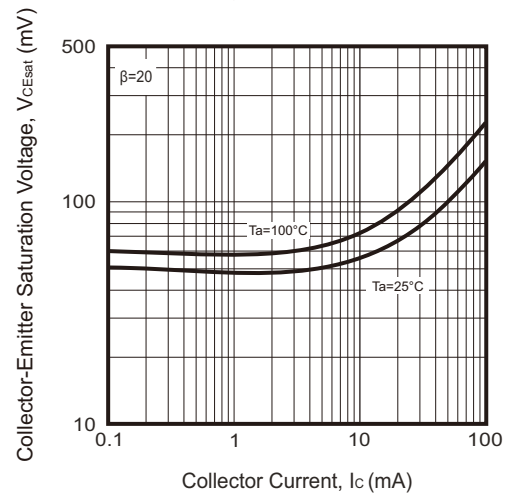


Fig.5 - $I_C - V_{BE}$

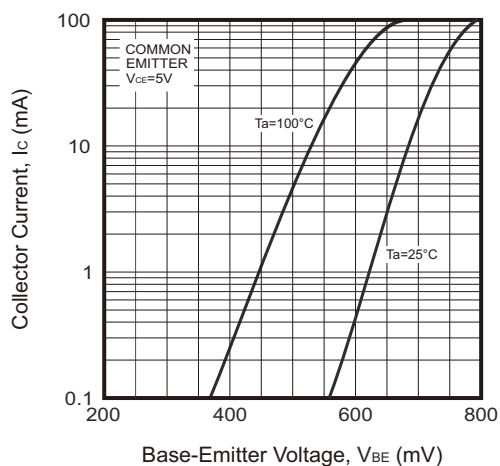
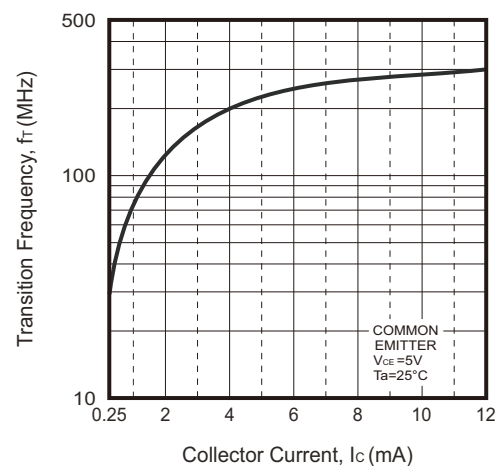


Fig.6 - $f_T - I_C$



Typical Rating and Characteristic Curves (BC846W-HF Thru. BC848W-HF)

Fig.7 - Cob/Cib — V_{CB}/V_{EB}

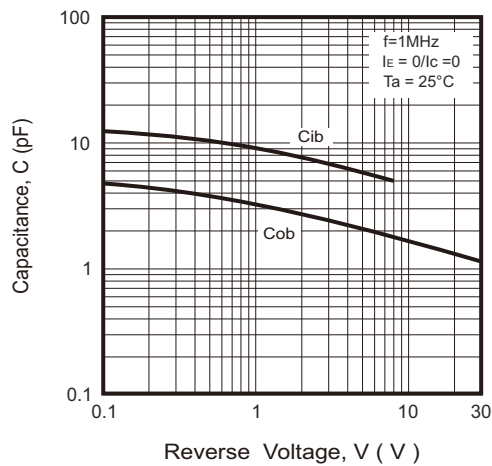
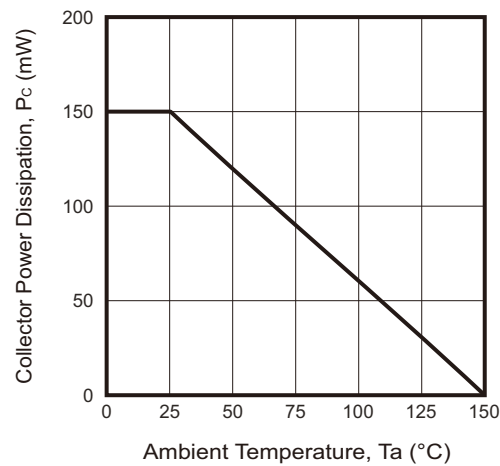
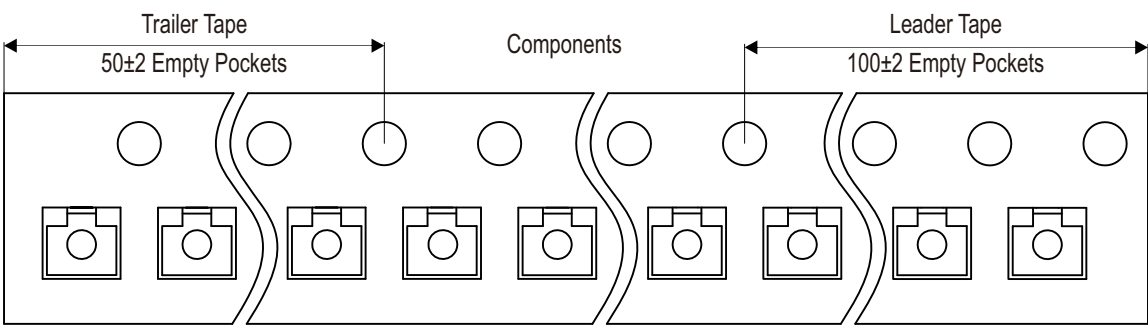
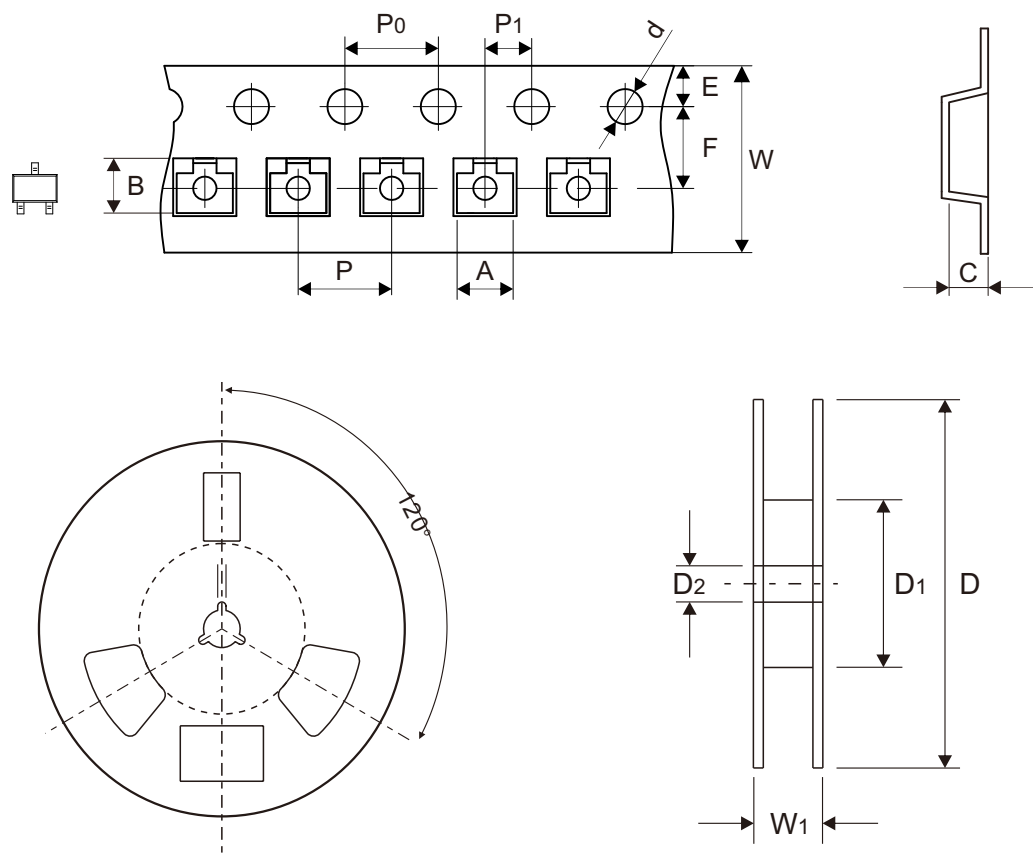


Fig.8 - P_C — T_a



Reel Taping Specification

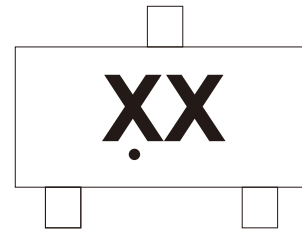


SOT-323	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	2.25 ± 0.05	2.55 ± 0.05	1.19 ± 0.05	1.55 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.089 ± 0.002	0.100 ± 0.002	0.047 ± 0.002	0.061 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

SOT-323	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 - 0.004	0.484 ± 0.039

Marking Code

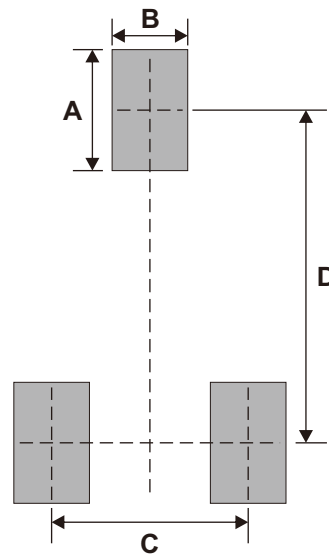
Part Number	Marking Code
BC846AW-HF	1A
BC847AW-HF	1E
BC848AW-HF	1J
BC846BW-HF	1B
BC847BW-HF	1F
BC848BW-HF	1K
BC847CW-HF	1G
BC848CW-HF	1L



Solid dot = Control code
xx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-323	
	(mm)	(inch)
A	0.80	0.031
B	0.50	0.020
C	1.30	0.051
D	2.20	0.087



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-323	3,000	7