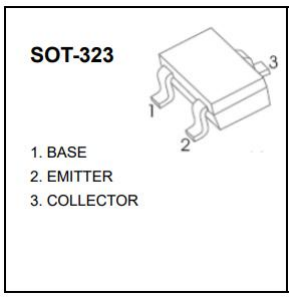
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

AD-BC846W/47W/48W Series Plastic-Encapsulated Transistor

AD-BC846W/47W/48W series Transistor (NPN)



FEATURES

- Ideally suited for automatic insertion
- For switching and AF amplifier applications
- AEC-Q101 qualified

MARKING

AD-BC846W-A = $\overline{1}$A; AD-BC846W-B = $\overline{1}$B;
AD-BC847W-A = $\overline{1}$E; AD-BC847W-B = $\overline{1}$F; AD-BC847W-C = $\overline{1}$G;
AD-BC848W-A = $\overline{1}$J; AD-BC848W-B = $\overline{1}$K; AD-BC848W-C = $\overline{1}$L

The additional A/B/C indicate the different h_{FE}.

MAXIMUM RATINGS (T_j = 25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
Collector-base voltage	AD-BC846W*	V_{CBO}	80	V
	AD-BC847W*		50	
	AD-BC848W*		30	
Collector-emitter voltage	AD-BC846W*	V_{CEO}	65	V
	AD-BC847W*		45	
	AD-BC848W*		30	
Emitter-base voltage	AD-BC846W*	V_{EBO}	6	V
	AD-BC847W*		6	
	AD-BC848W*		5	
Collector continuous current		I_C 1)	0.1	A
Collector power dissipation		P_C 1)	150	mW
Thermal resistance from junction to ambient		$R_{\theta JA}$ 2)	833	°C/W
Operating junction and storage temperature range		T_j, T_{stg}	-55 ~ 150	°C

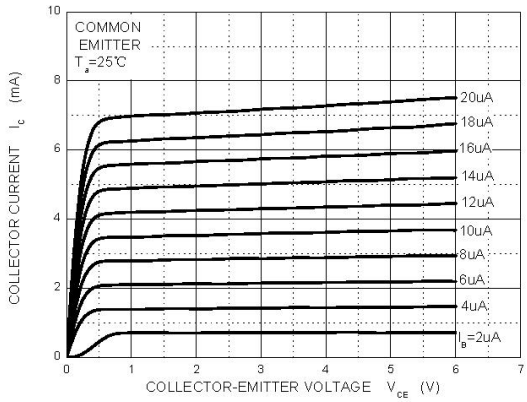
ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise specified)

Parameter		Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	AD-BC846W*	V_{CBO}	I_C = 10μA, I_E = 0A	80	-	-	V
	AD-BC847W*			50	-	-	
	AD-BC848W*			30	-	-	
Collector-emitter breakdown voltage	AD-BC846W*	V_{CEO}	I_C = 10mA, I_B = 0A	65	-	-	V
	AD-BC847W*			45	-	-	
	AD-BC848W*			30	-	-	
Emitter-base breakdown voltage	AD-BC846W*	V_{EBO}	I_E = 1μA, I_C = 0A	6	-	-	V
	AD-BC847W*			6	-	-	
	AD-BC848W*			5	-	-	
Collector cutoff current		I_{CBO}	V_{CB} = 30V	-	-	15	nA
DC current gain	AD-BC84*W-A	h_{FE1}	V_{CE} = 5V, I_C = 10μA	-	90	-	-
	AD-BC84*W-B			-	150	-	
	AD-BC84*W-C			-	270	-	
	AD-BC84*W-A	h_{FE2}	V_{CE} = 5V, I_C = 2mA	110	-	220	-
	AD-BC84*W-B			200	-	450	
	AD-BC84*W-C			420	-	800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	-	0.25	V
			I_C = 100mA, I_B = 5mA	-	-	0.6	
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	0.7	-	V
			I_C = 100mA, I_B = 5mA	-	0.9	-	
Base-emitter voltage		$V_{BE(on)}$	V_{CE} = 5V, I_C = 2mA	580	660	700	mV
			V_{CE} = 5V, I_C = 10mA	-	-	770	
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	AD-BC84*W-A	NF	V_{CE} = 5V, I_C = 0.2mA, f = 1KHz, R_S = 2KΩ, BW = 200Hz	-	-	10	dB
	AD-BC84*W-B			-	-	10	
	AD-BC84*W-C			-	-	4	

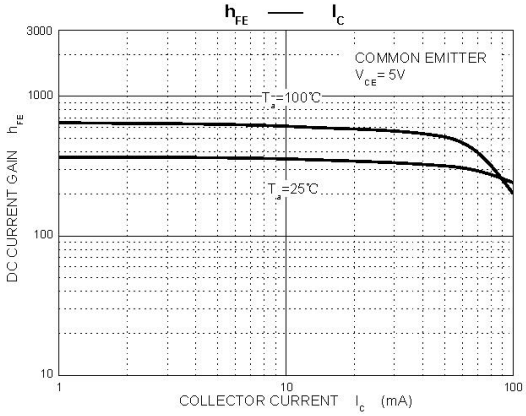
1) Maximum allowed temperature T_j = 25°C.
2) Measured with the device mounted on 1 inch² FR-4 board with 1oz. copper, in a still air environment with T_a = 25℃.

TYPICAL CHARACTERISTICS

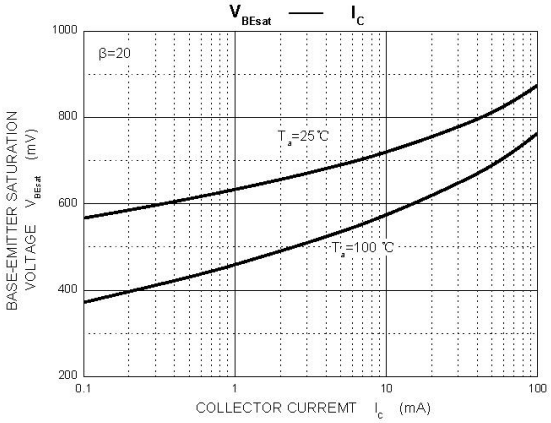
Static Characteristic



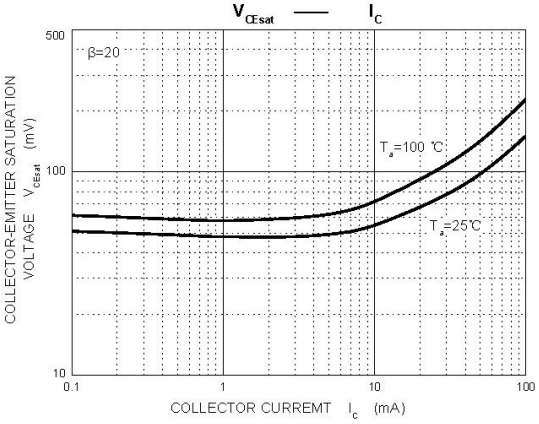
h_{FE} —— I_C



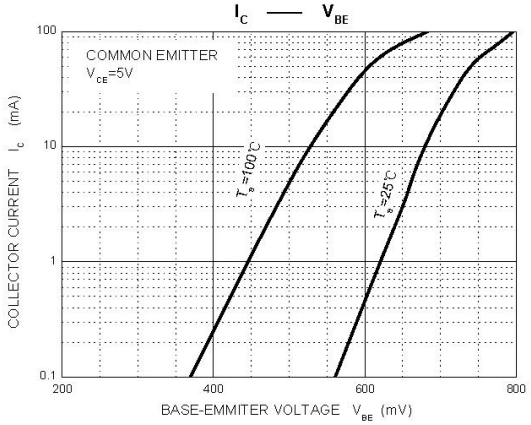
V_{BEsat} —— I_C



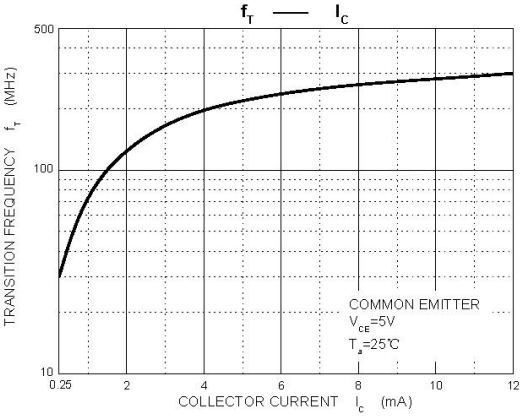
V_{CEsat} —— I_C



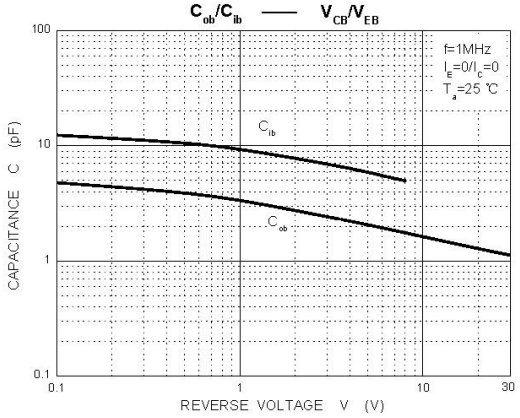
I_C —— V_{BE}



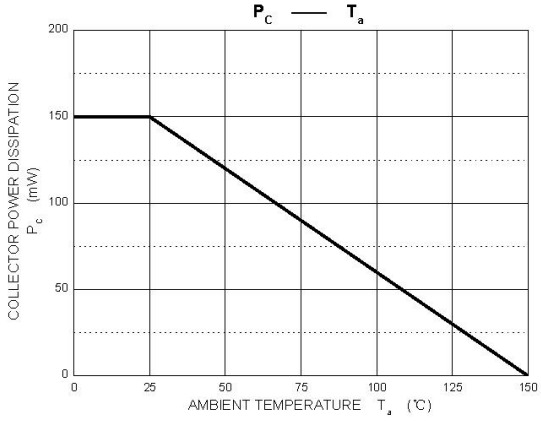
f_T —— I_C



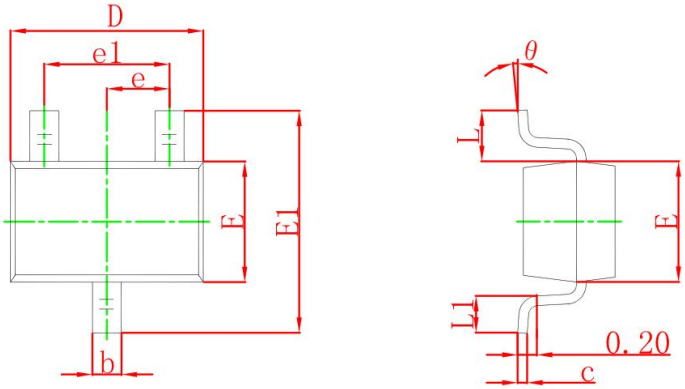
C_{ob}/C_{ib} —— V_{CB}/V_{EB}

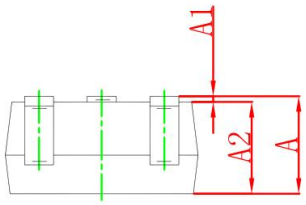


P_C —— T_a



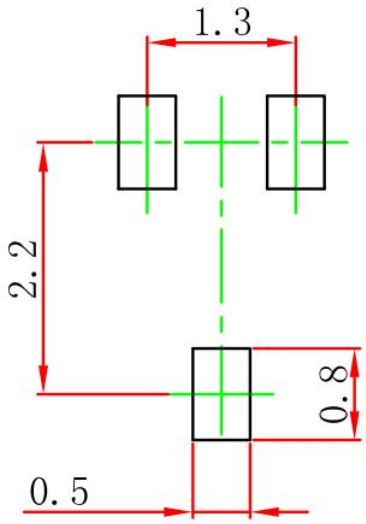
SOT-323 PACKAGE OUTLINE DIMENSIONS





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 SUGGESTED PAD LAYOUT

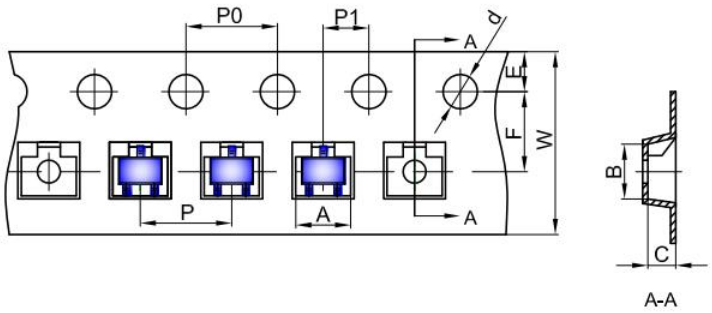


Note:

1. Controlling dimension in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purpose only.

SOT-323 TAPE AND REEL

SOT-323 Embossed Carrier Tape

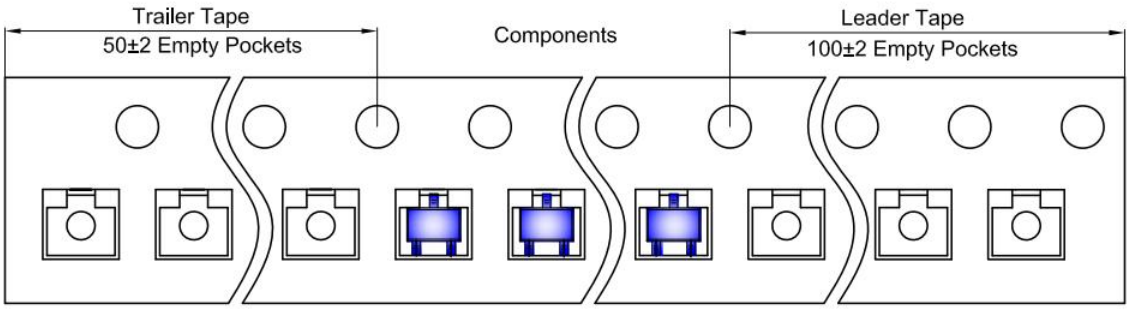


Packaging Description:

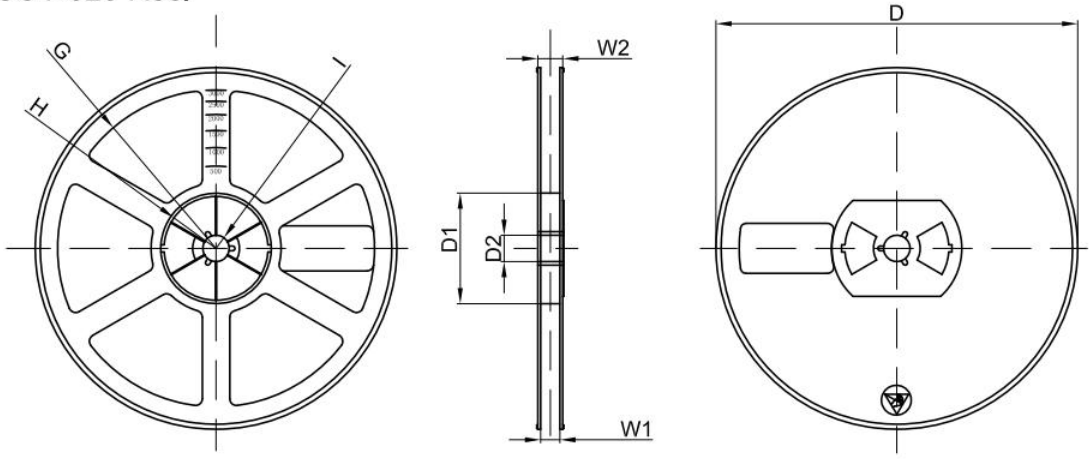
SOT-323 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-323	2.25	2.55	1.19	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

SOT-323 Tape Leader and Trailer



SOT-323 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

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