



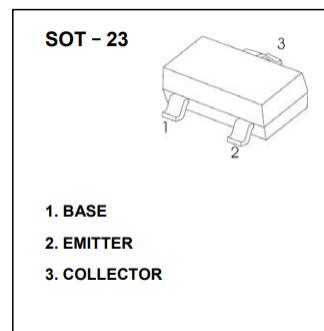
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

## AD-BC846/47/48 Series Plastic-Encapsulated Transistor

AD-BC846/47/48 series Transistor (NPN)

### FEATURES

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



### MARKING

AD-BC846-A =  $\bar{1}$ A; AD-BC846-B =  $\bar{1}$ BAD-BC847-A =  $\bar{1}$ E; AD-BC847-B =  $\bar{1}$ F; AD-BC847-C =  $\bar{1}$ GAD-BC848-A =  $\bar{1}$ J; AD-BC848-B =  $\bar{1}$ K; AD-BC848-C =  $\bar{1}$ LThe -A/B/C indicate the different  $h_{FE}$ .

### MAXIMUM RATINGS ( $T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	$V_{CBO}$	AD-BC846*	80
		AD-BC847*	50
		AD-BC848*	30
Collector-emitter voltage	$V_{CEO}$	AD-BC846*	65
		AD-BC847*	45
		AD-BC848*	30
Emitter-base voltage	$V_{EBO}$	AD-BC846*	6
		AD-BC847*	6
		AD-BC848*	6
Collector continuous current	$I_C^{1)}$	0.1	A
Collector power dissipation	$P_C^{1)}$	200	mW
Thermal resistance from junction to ambient	$R_{\theta JA}^{2)}$	625	$^\circ\text{C}/\text{W}$
Operating junction and storage temperature range	$T_j, T_{stg}$	-55 ~ 150	$^\circ\text{C}$

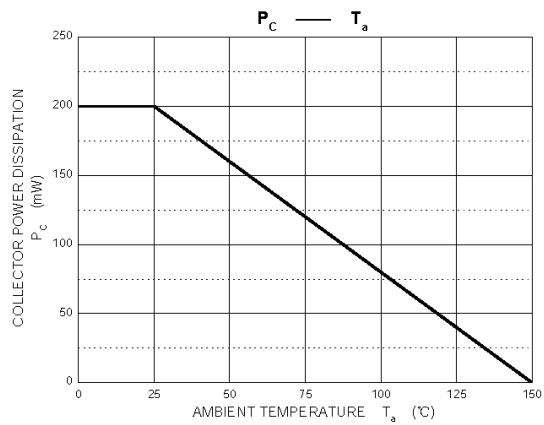
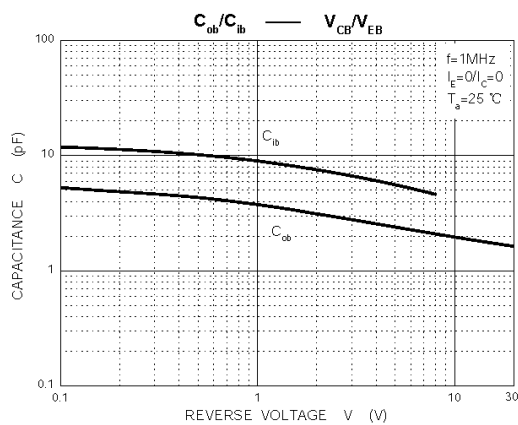
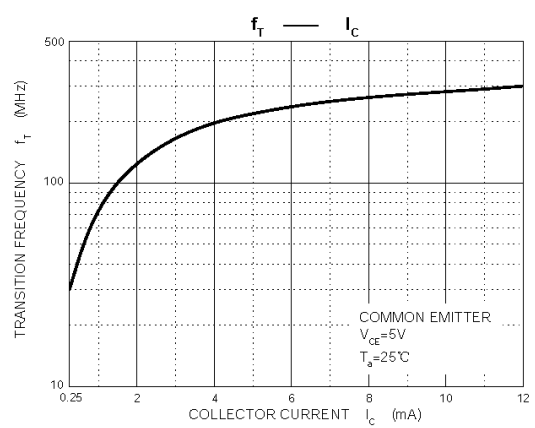
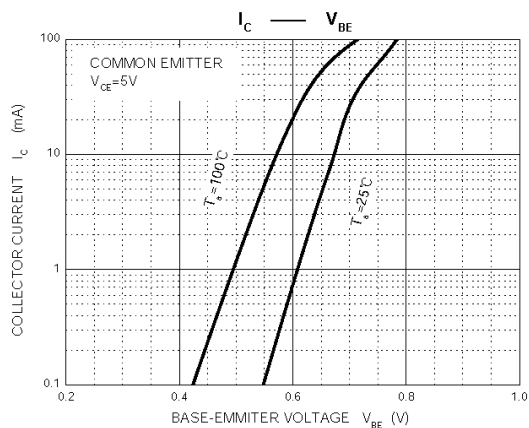
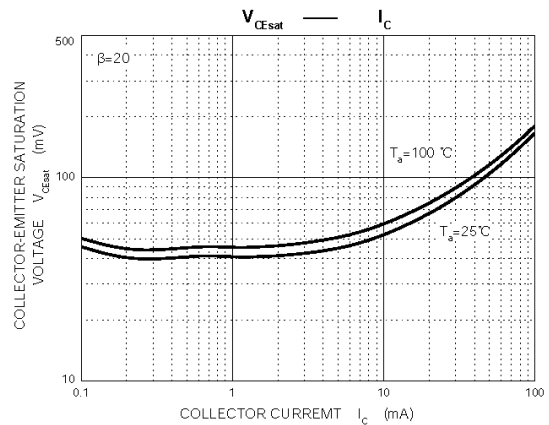
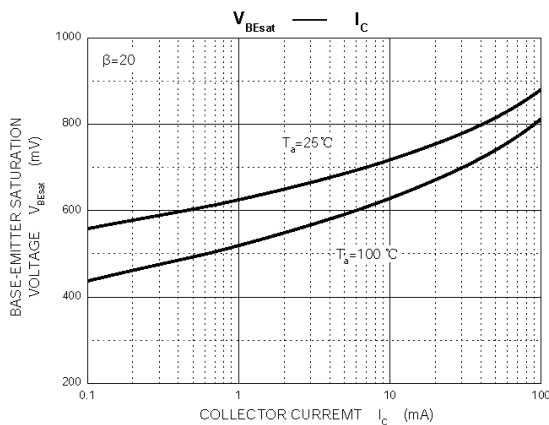
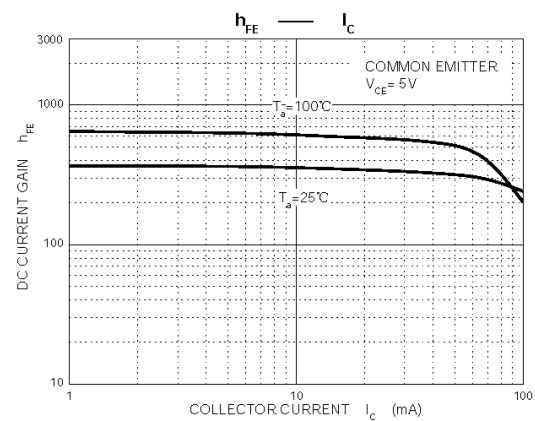
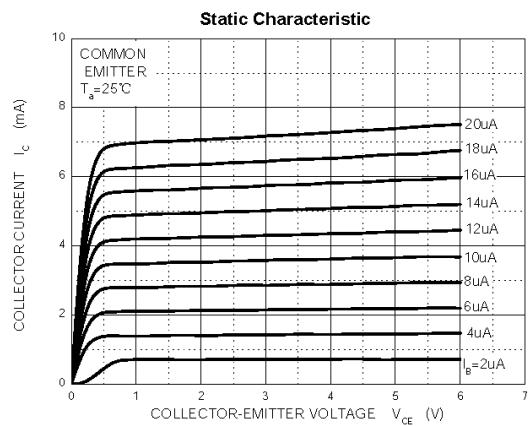
**ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

Parameter		Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	AD-BC846*	$V_{CBO}$	$I_C = 10\mu\text{A}, I_E = 0\text{A}$	80	-	-	V
	AD-BC847*			50	-	-	
	AD-BC848*			30	-	-	
Collector-emitter breakdown voltage	AD-BC846*	$V_{CEO}$	$I_C = 10\text{mA}, I_B = 0\text{A}$	65	-	-	V
	AD-BC847*			45	-	-	
	AD-BC848*			30	-	-	
Emitter-base breakdown voltage	AD-BC846*	$V_{EBO}$	$I_E = 10\mu\text{A}, I_C = 0\text{A}$	6	-	-	V
	AD-BC847*			6	-	-	
	AD-BC848*			6	-	-	
Collector cutoff current	AD-BC846*	$I_{CBO}$	$V_{CB} = 70\text{V}, I_E = 0\text{A}$	-	-	0.1	$\mu\text{A}$
	AD-BC847*		$V_{CB} = 50\text{V}, I_E = 0\text{A}$	-	-	0.1	
	AD-BC848*		$V_{CB} = 30\text{V}, I_E = 0\text{A}$	-	-	0.1	
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0\text{A}$	-	-	0.1	$\mu\text{A}$
DC current gain	AD-BC84*-A	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	110	-	220	-
	AD-BC84*-B			200	-	450	
	AD-BC84*-C			420	-	800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	-	0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	-	1.1	V
Transition frequency		$f_T$	$V_{CE} = 5\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$	100	-	-	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	-	4.5	pF

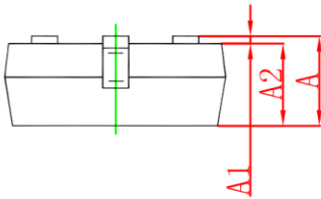
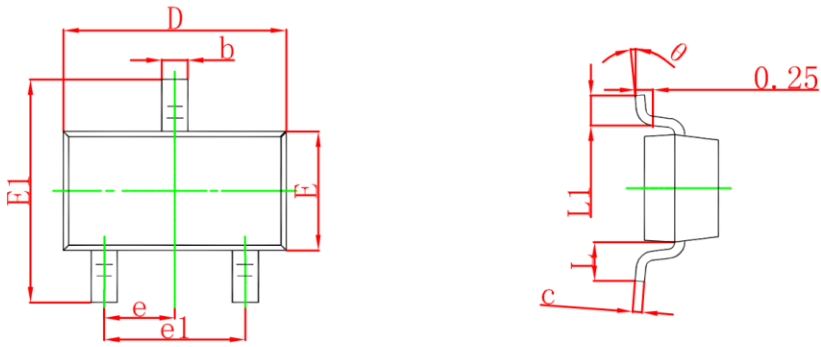
1) Maximum allowed temperature  $T_j = 25^\circ\text{C}$ .

2) Measured with the device mounted on 1 inch<sup>2</sup> FR-4 board with 1oz. copper, in a still air environment with  $T_a = 25^\circ\text{C}$ .

# TYPICAL CHARACTERISTICS

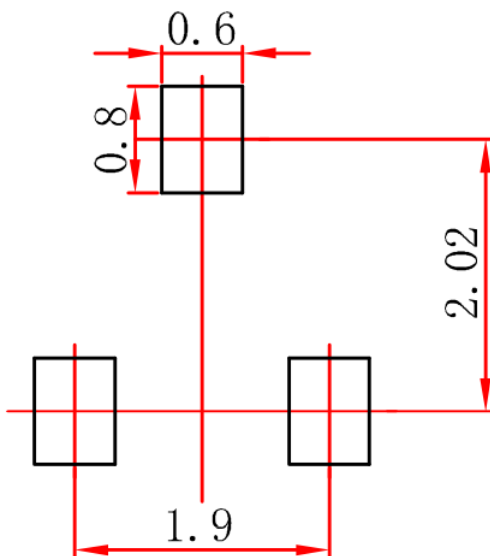


## SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

## SOT-23 SUGGESTED PAD LAYOUT

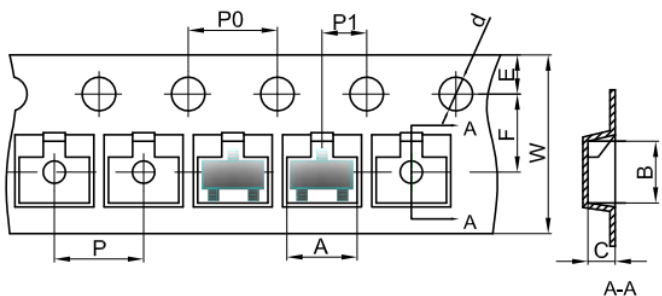


## Note:

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

# SOT-23 TAPE AND REEL

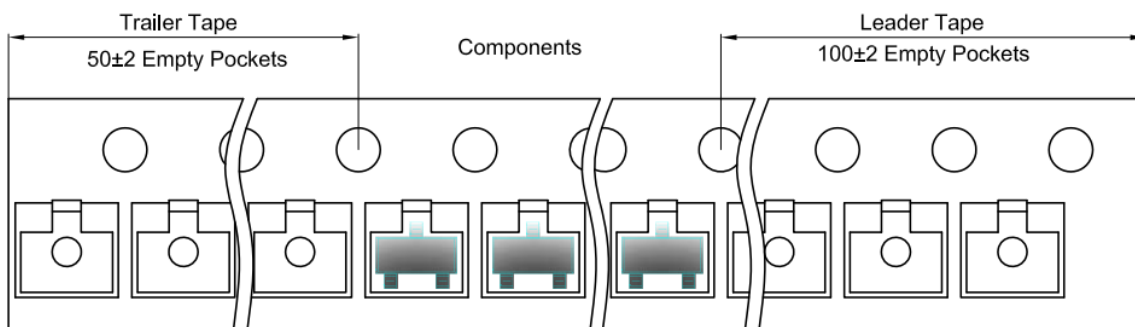
## SOT-23 Embossed Carrier Tape



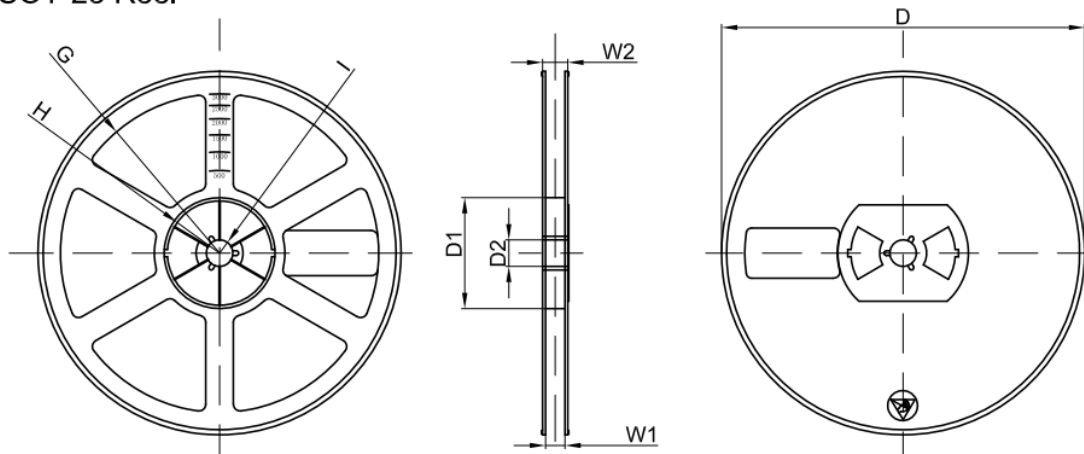
**Packaging Description:**  
 SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

## SOT-23 Tape Leader and Trailer



## SOT-23 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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**PUBLISHED BY****JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.**

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