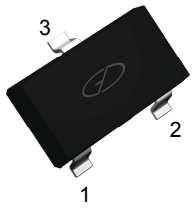
GOOD-ARK
SEMICONDUCTOR

BC846xW/BC847xW/BC848xW
NPN Transistors

Features

- Low Current
- Low Voltage
- Ideal for Automatic Insertion

1. BASE
2. EMITTER
3. COLLECTOR



SOT-323

Maximum Ratings (T_A=25°C unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BC846W	80	V
		BC847W	50	
		BC848W	30	
V_{CEO}	Collector-Emitter Voltage	BC846W	65	V
		BC847W	45	
		BC848W	30	
V_{EBO}	Emitter-Base Voltage	BC846W	6	V
		BC847W	6	
		BC848W	5	
I_C	Collector Current –Continuous		0.1	A
P_C	Collector Power Dissipation		150	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient		833	°C/W
T_J	Junction Temperature		-55 to +150	°C
T_{STG}	Storage Temperature		-55 to +150	°C

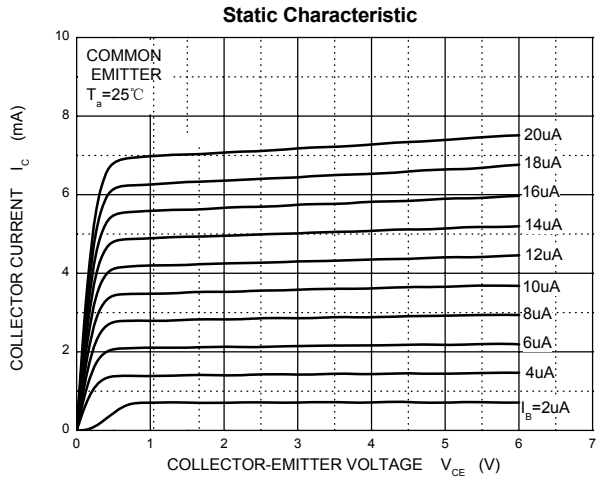
Device Marking

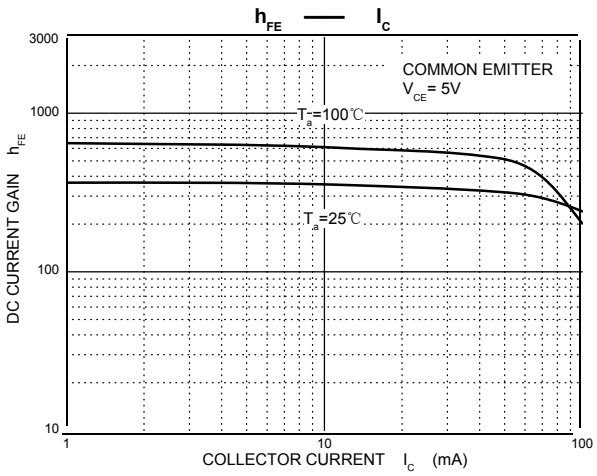
BC846AW=1A;
BC846BW=1B;
BC847AW. 1E;
BC847BW=1F;
BC847CW=1G;
BC848AW=1J;
BC848BW=1K:
BC848CW=1L.

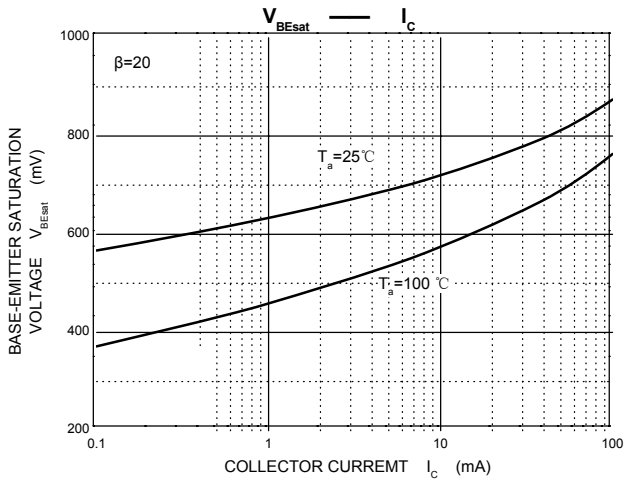
Electrical Characteristics (T_A=25°C unless otherwise specified)

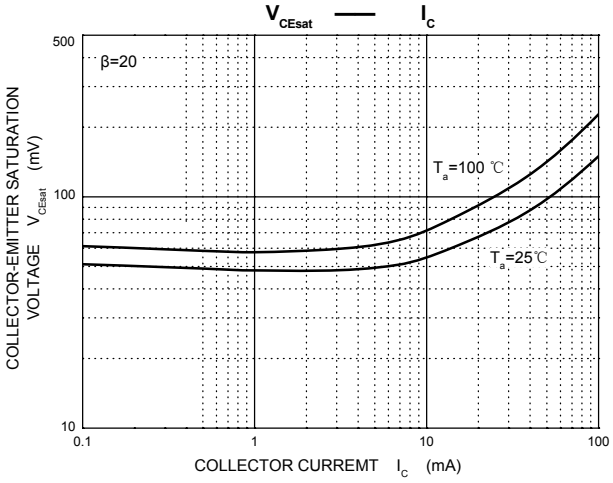
Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base Breakdown Voltage	BC846xW	V_{CBO}	I_C= 10μA, I_E=0	80			V
	BC847xW			50			
	BC848xW			30			
Collector-Emitter Breakdown Voltage	BC846xW	V_{CEO}	I_C= 10mA, I_B=0	65			V
	BC847xW			45			
	BC848xW			30			
Emitter-Base Breakdown Voltage	BC846xW	V_{EBO}	I_E= 1 μA, I_C=0	6			V
	BC847xW			6			
	BC848xW			5			
Collector Cutoff Current		I_{CBO}	V_{CB}=30V			15	nA
DC Current Gain	BC846AW,BC847AW,BC848AW	h_{FE}	V_{CE}= 5V, I_C= 10μA		90		
	BC846BW,BC847BW,BC848BW				150		
	BC847CW,BC848CW				270		
	BC846AW,BC847AW,BC848AW,		V_{CE}= 5V, I_C= 2mA	110		220	
	BC846BW,BC847BW,BC848BW			200		450	
	BC847CW,BC848CW			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}= 5 V, I_C= 10mA f=100MHz	100			MHz
Collector Output Capacitance		C_{ob}	V_{CB}=10V,f=1MHz			4.5	pF
Noise Figure	BC846AW,847AW,848AW	NF	V_{CE}=5V,I_c=0.2mA, f=1kHz,R_S=2kΩ BW=200Hz			10	dB
	BC846BW,847BW,848BW					10	
	BC847CW,BC848CW					4	

Typical Characteristic Curves

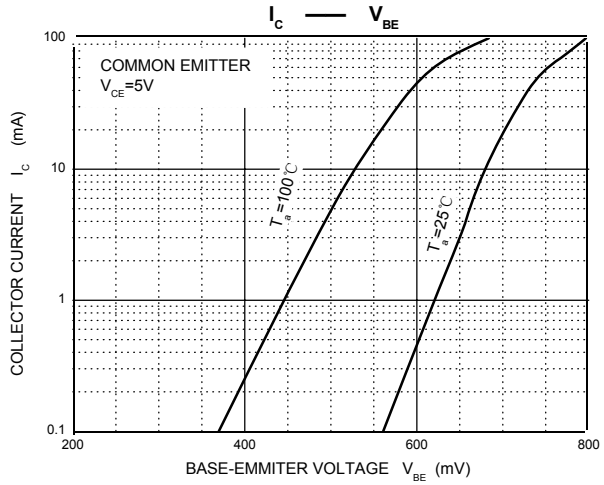


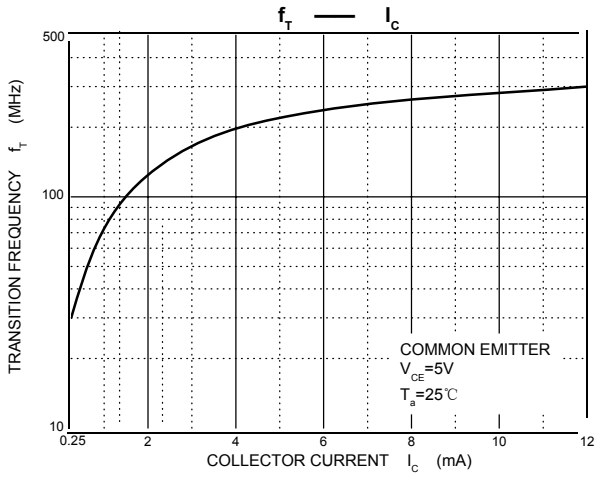


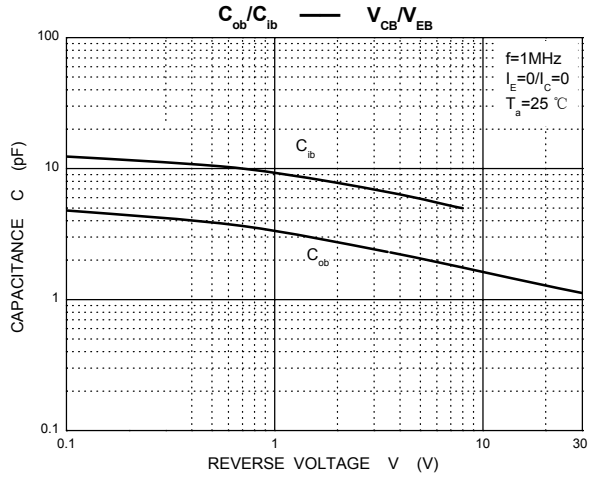


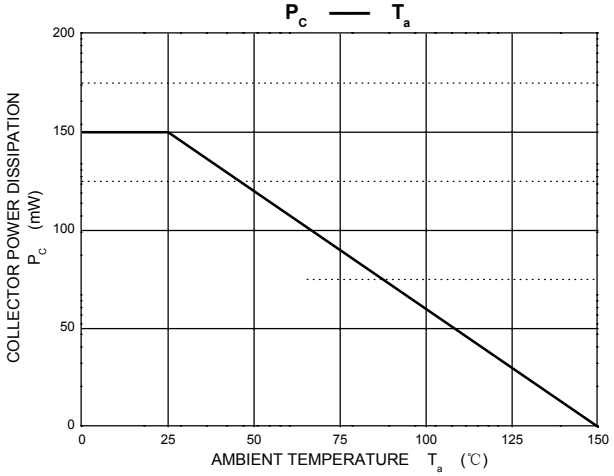


Typical Characteristic Curves

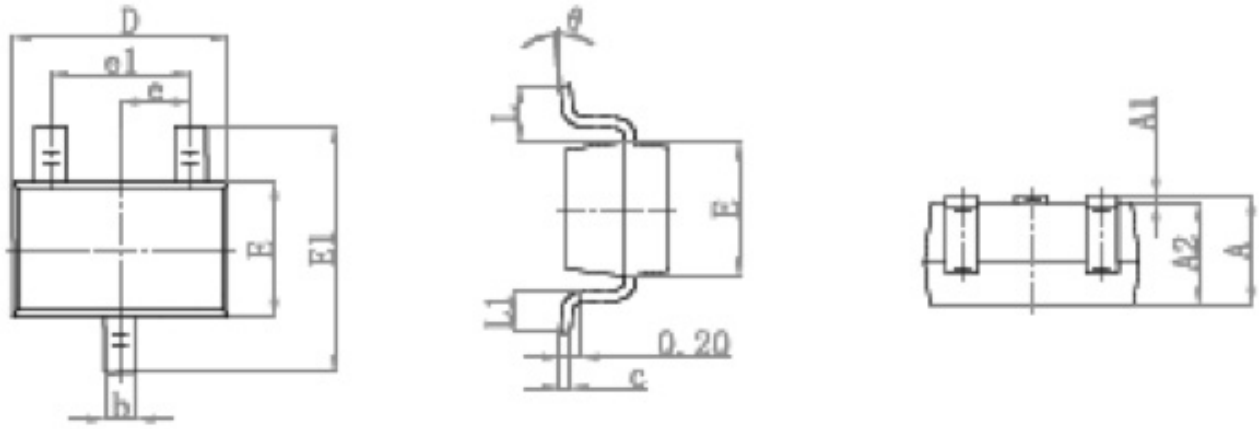






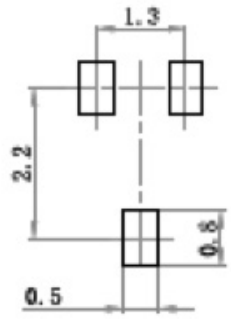


Package Outline Dimensions SOT-323



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°

Suggested Pad Layout



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