

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



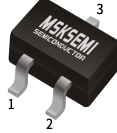
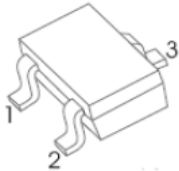
PLED

Product data sheet

[www.msksemi.com](http://www.msksemi.com)

TRANSISTOR (NPN)

BC846W/BC847W/BC848W



1. BASE
2. EMITTER
3. COLLECTOR

**SOT-323**

**FEATURES**

- Ideally suited for automatic insertion
- For Switching and AF Amplifier Applications

**P/N MARK**

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

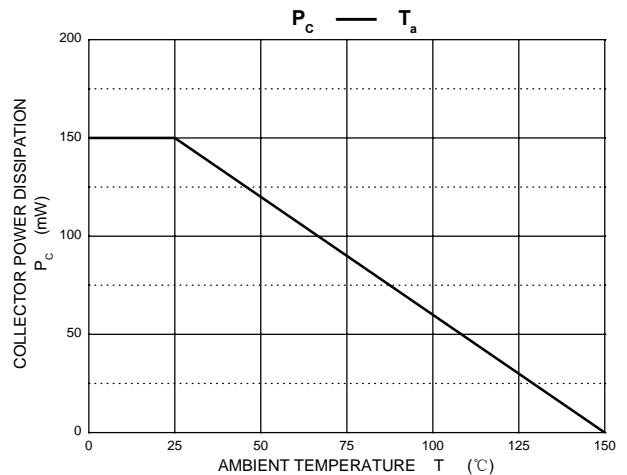
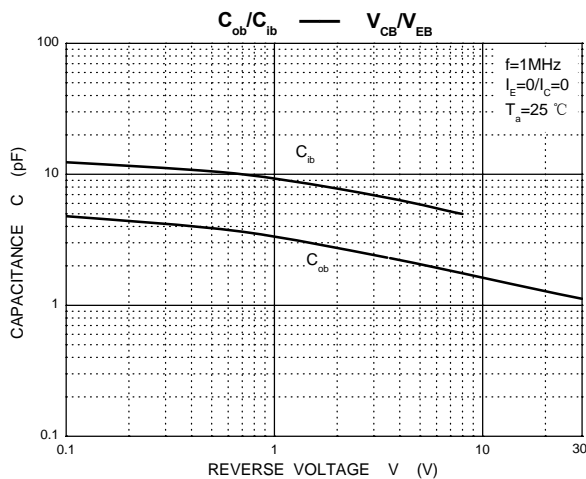
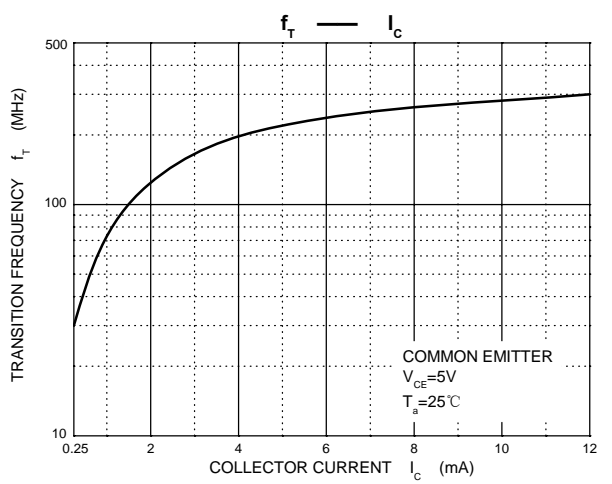
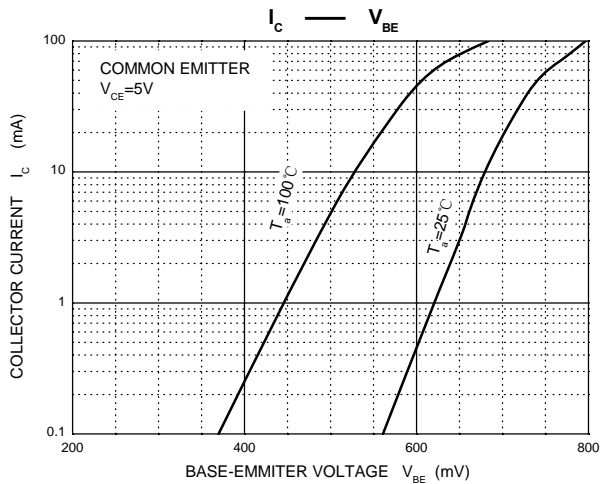
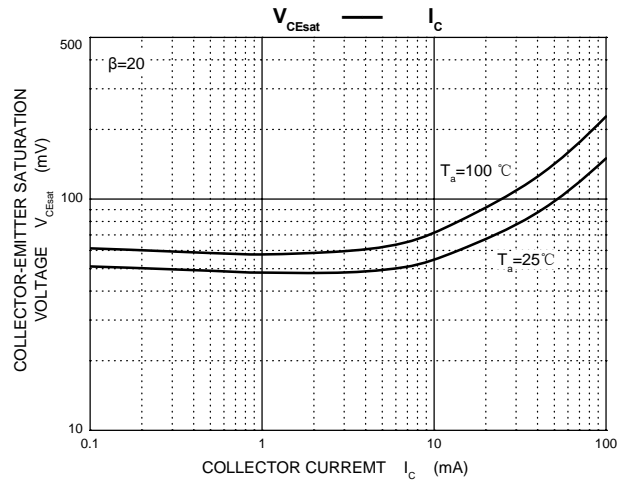
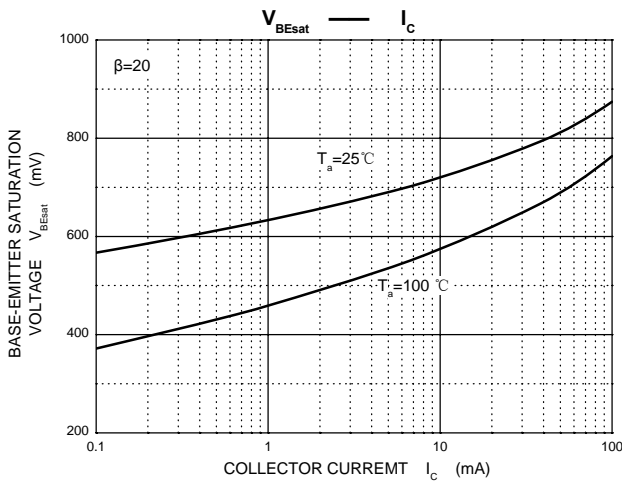
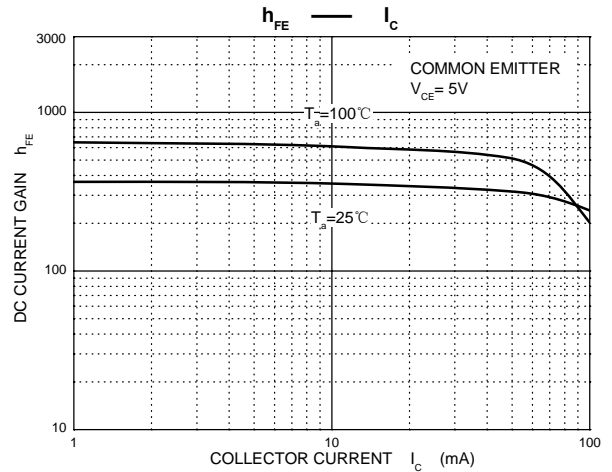
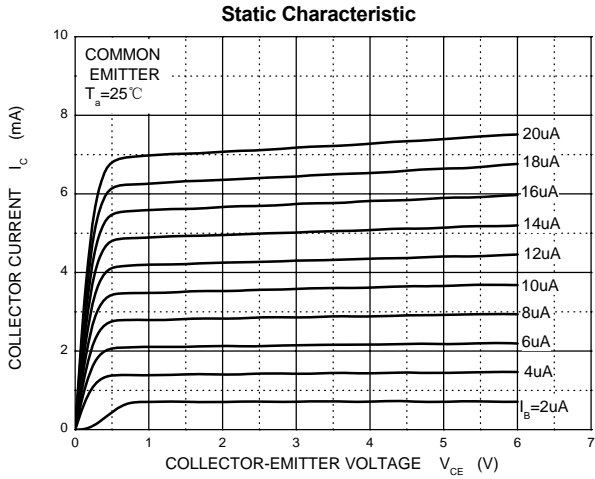
**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
<b>V<sub>CB0</sub></b>	Collector-Base Voltage	BC846W	80
		BC847W	50
		BC848W	30
<b>V<sub>CEO</sub></b>	Collector-Emitter Voltage	BC846W	65
		BC847W	45
		BC848W	30
<b>V<sub>EBO</sub></b>	Emitter-Base Voltage	BC846W	6
		BC847W	6
		BC848W	5
<b>I<sub>C</sub></b>	Collector Current –Continuous	0.1	A
<b>P<sub>C</sub></b>	Collector Power Dissipation	150	mW
<b>R<sub>θJA</sub></b>	Thermal Resistance From Junction To Ambient	833	°C/W
<b>T<sub>J</sub>, T<sub>stg</sub></b>	Operation Junction and Storage Temperature Range	-55-150	°C

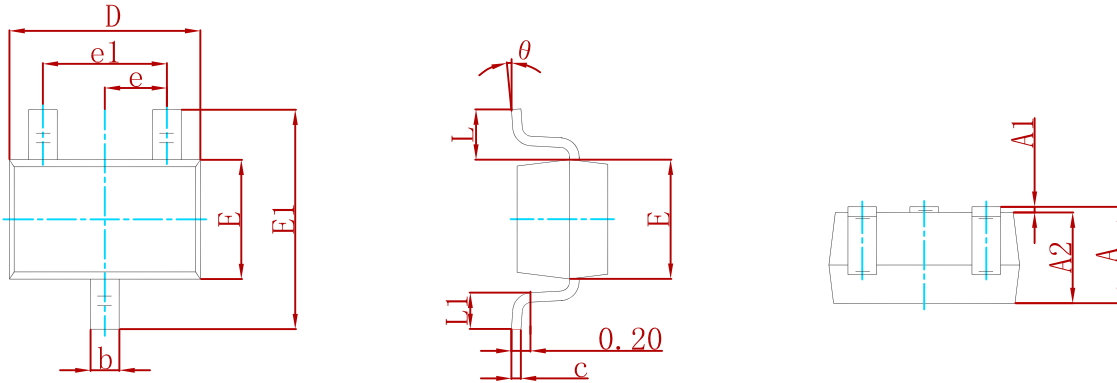
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BC846W BC847W BC848W	V <sub>CBO</sub> I <sub>C</sub> = 10μA, I <sub>E</sub> =0	80 50 30			V
Collector-emitter breakdown voltage	BC846W BC847W BC848W	V <sub>CEO</sub> I <sub>C</sub> = 10mA, I <sub>B</sub> =0	65 45 30			V
Emitter-base breakdown voltage	BC846W BC847W BC848W	V <sub>EBO</sub> I <sub>E</sub> = 1 μA, I <sub>C</sub> =0	6 6 5			V
Collector Cutoff Current		I <sub>CBO</sub> V <sub>CB</sub> =30V			15	nA
DC current gain	BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW	h <sub>FE</sub> V <sub>CE</sub> = 5V, I <sub>C</sub> = 10μA  V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA	  110 200 420	90 150 270	  220 450 800	
Collector-emitter saturation voltage		V <sub>CE(sat)</sub> I <sub>C</sub> =10mA, I <sub>B</sub> =0. 5mA I <sub>C</sub> =100mA, I <sub>B</sub> = 5mA			0.25 0.6	V
Base-emitter saturation voltage		V <sub>BE(sat)</sub> I <sub>C</sub> =10mA, I <sub>B</sub> =0. 5mA I <sub>C</sub> =100mA, I <sub>B</sub> = 5mA		0.7 0.9		V
Base-emitter voltage		V <sub>BE(on)</sub> V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA	580	660	700 770	mV
Transition frequency		f <sub>T</sub> V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10mA f=100MHz	100			MHz
Collector output capacitance		C <sub>ob</sub> V <sub>CB</sub> =10V,f=1MHz			4.5	pF
Noise figure	BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW	NF V <sub>CE</sub> =5V,I <sub>C</sub> =0.2mA, f=1KHz,R <sub>S</sub> =2KΩ BW=200Hz			F€ 10 4	dB

Typical Characteristics

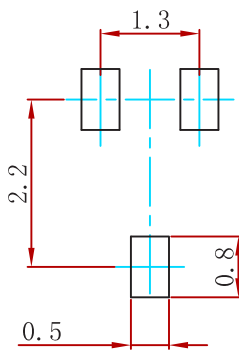


**PACKAGE MECHANICAL DATA**



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.

**REEL SPECIFICATION**

P/N	PKG	QTY
BC846W/BC847W/BC848W	SOT-323	3000

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