

## BC846AW, BW TRANSISTOR (NPN)

## BC847AW, BW, CW

## BC848AW, BW, CW

SOT-323



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

### FEATURES

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

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

Symbol	Parameter		Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	BC846W	80	V
		BC847W	50	
		BC848W	30	
V <sub>CE0</sub>	Collector-Emitter Voltage	BC846W	65	V
		BC847W	45	
		BC848W	30	
V <sub>EB0</sub>	Emitter-Base Voltage	BC846W	6	V
		BC847W	6	
		BC848W	5	
I <sub>C</sub>	Collector Current –Continuous		0.1	A
P <sub>C</sub>	Collector Power Dissipation		150	mW
T <sub>J</sub>	Junction Temperature		150	°C
T <sub>stg</sub>	Storage Temperature		-55-150	°C

### DEVICE MARKING

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

## ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BC846W BC847W BC848W	$V_{CBO}$	$I_C=10\mu A, I_E=0$	80 50 30		V
Collector-emitter breakdown voltage	BC846W BC847W BC848W	$V_{CEO}$	$I_C=10mA, I_B=0$	65 45 30		V
Emitter-base breakdown voltage	BC846W BC847W BC848W	$V_{EBO}$	$I_E=1\mu A, I_C=0$	6 6 5		V
Collector Cutoff Current		$I_{CBO}$	$V_{CB}=30V$		15	nA
DC current gain	BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW	$h_{FE}$	$V_{CE}=5V, I_C=10\mu A$  $V_{CE}=5V, I_C=2mA$	  110 200 420	90 150 270	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,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW	NF	$V_{CE}=5V, I_C=0.2mA,$ $f=1KHz, R_S=2K\Omega$ $BW=200Hz$		10 4	dB

## Typical Characteristics

846AW,BW;BC847AW, BW, CW;BC848AW, BW, CW

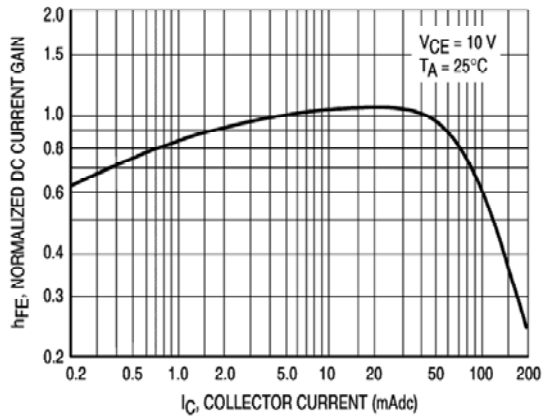


Figure 1. Normalized DC Current Gain

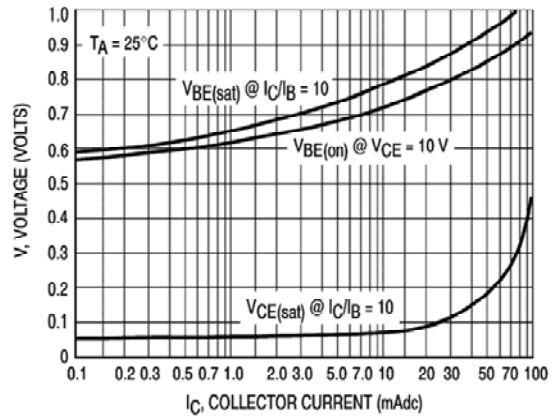


Figure 2. "Saturation" and "On" Voltages

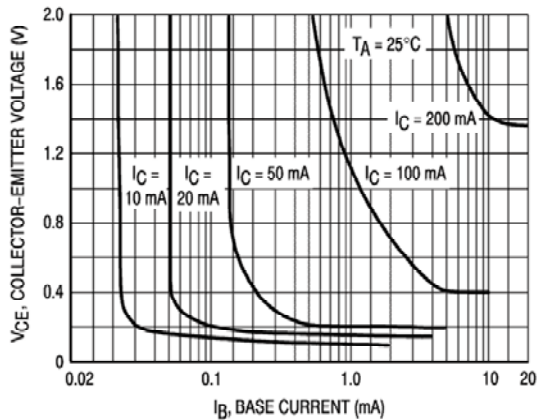


Figure 3. Collector Saturation Region

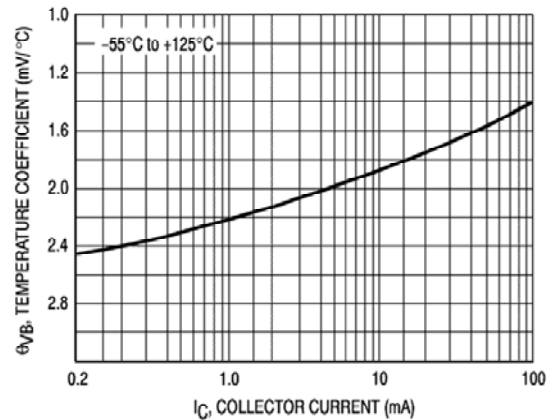
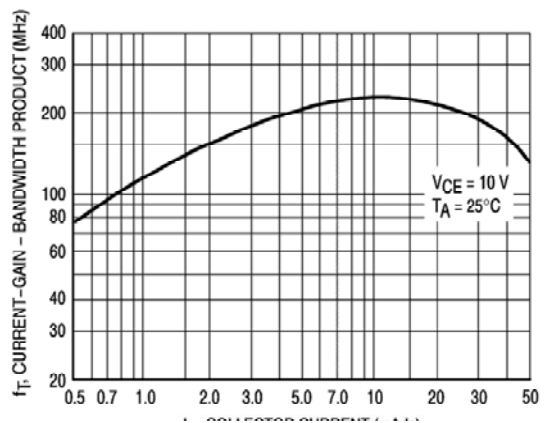
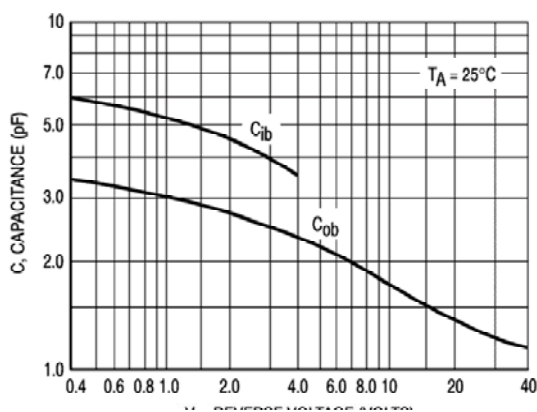


Figure 4. Base-Emitter Temperature Coefficient



Typical Characteristics

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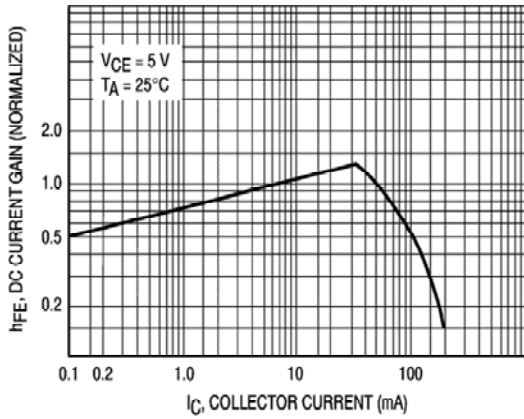


Figure 7. DC Current Gain

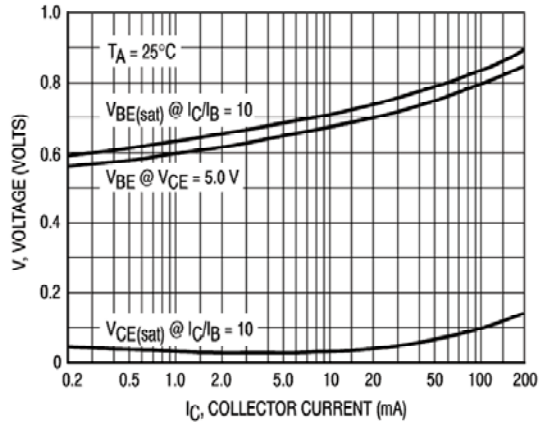


Figure 8. "On" Voltage

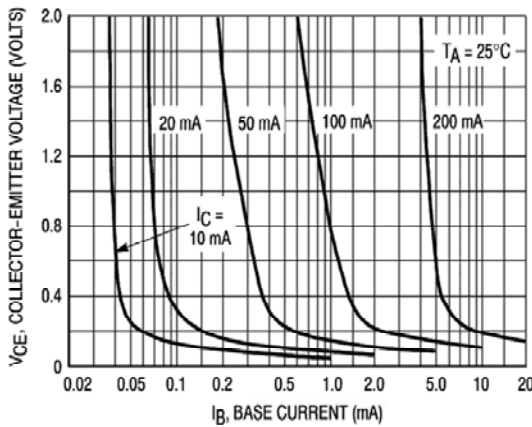


Figure 9. Collector Saturation Region

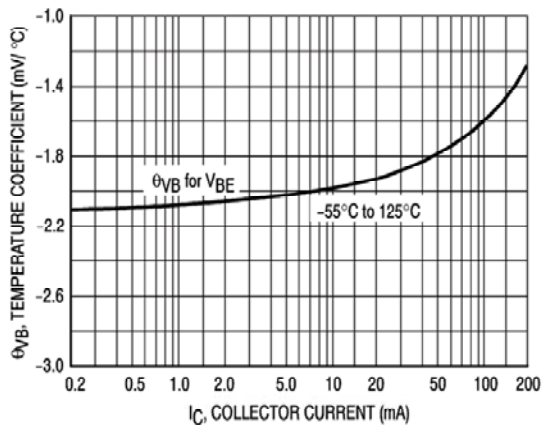


Figure 10. Base-Emitter Temperature Coefficient

