



Micro Commercial Components



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20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

BC846AW/BW BC847AW/BW/CW BC848AW/BW/CW

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Low current (max. 100mA)
- Low voltage (max. 65V)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings

- Operating temperature : -65°C to $+150^{\circ}\text{C}$
- Storage temperature : -65°C to $+150^{\circ}\text{C}$
- Thermal resistance from junction to ambient*: 625K/W
- Marking: BC846AW---1A ; BC846BW---1B
BC847AW---1E ; BC847BW---1F ; BC847CW---1G
BC848AW---1JS/1J ; BC848BW---1KS/1K ; BC848CW---1LS/1L

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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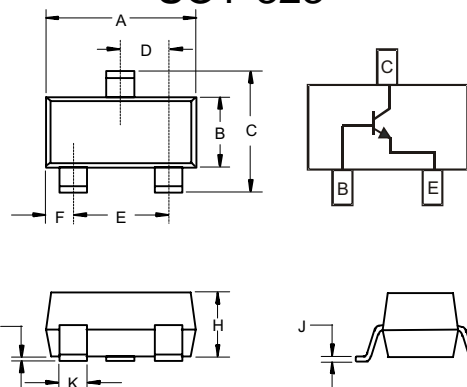
OFF CHARACTERISTICS

$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=10\mu\text{Adc}$, $I_E=0$)	---	80 50 30	Vdc
	BC846AW/BW BC847AW/BW/CW BC848AW/BW/CW			
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ($I_C=10\text{mAdc}$, $I_B=0$)	---	65 45 30	Vdc
	BC846AW/BW BC847AW/BW/CW BC848AW/BW/CW			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_E=1\mu\text{Adc}$, $I_C=0$)	---	6 5	Vdc
	BC846AW/BW, BC847AW/BW/CW BC848AW/BW/CW			
I_C	Collector Current (DC)	---	100	mAdc
I_{CM}	Peak Collector Current	---	200	mAdc
I_{BM}	Peak Base Current	---	200	mAdc

* Transistor mounted on an FR4 printed-circuit board

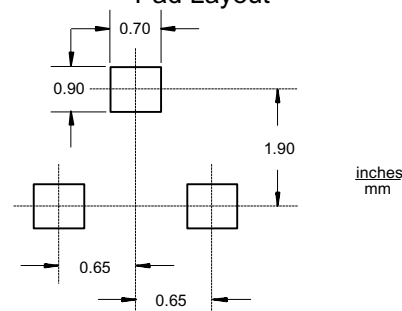
NPN General Purpose Transistors

SOT-323



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	

Suggested Solder Pad Layout



ON CHARACTERISTICS

Symbol	Parameter	Min	Typ	Max	Units
I_{CBO}	Collector-base Cut-off Current ($I_{CE}=0$, $V_{CB}=30V_{dc}$) ($I_{CE}=0$, $V_{CB}=30V_{dc}$, $T_J=150^{\circ}C$)	---	---	15	nA
		---	---	5	μA
I_{CEO}	Emitter-base Cut-off Current ($I_C=0$, $V_{EB}=5V_{dc}$)	---	---	100	nA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=10mA_{dc}$, $I_B=0.5mA_{dc}$) ($I_C=100mA_{dc}$, $I_B=5mA_{dc}^*$)	---	90	250	mVdc
		---	200	600	mVdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ($I_C=10mA_{dc}$, $I_B=0.5mA_{dc}$) ($I_C=100mA_{dc}$, $I_B=5mA_{dc}^*$)	---	700	---	mVdc
		---	900	---	mVdc
h_{FE}	DC Current Gain ($I_C=10\mu A$; $V_{CE}=5V$)	---	90	---	
	BC846AW; BC847AW; BC848AW	---	150	---	
	BC846BW; BC847BW; BC848BW	---	270	---	
	BC847CW; BC848CW	---	---	---	
	DC Current Gain ($I_C=2mA$; $V_{CE}=5V$)	---	---	---	
	BC846AW; BC847AW; BC848AW	110	180	220	
V_{BE}	Base-emitter Voltage ($I_C=2mA_{dc}$, $V_{CE}=5V$) ($I_C=10mA_{dc}$, $V_{CE}=5V$)	580	660	700	mVdc
		---	---	770	mVdc
C_C	Collector Capacitance ($V_{CB}=10V$; $I_E=I_B=0$; $f=1MHz$)	---	---	4.5	pF
f_T	Transition Frequency ($V_{CE}=5V$; $I_C=10mA$; $f=100MHz$)	100	---	---	MHz
F	Noise Figure ($V_{CE}=5V$; $I_C=200\mu A$; $f=1KHz$; $B=200Hz$; $R_S=2K\Omega$)	---	---	10	dB

* Pulse test: $t_p \leq 300\mu s$; $\delta \leq 0.02$

Typical Characteristics

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

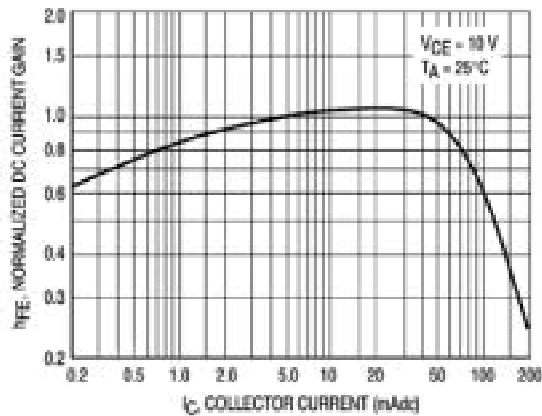


Figure 1. Normalized DC Current Gain

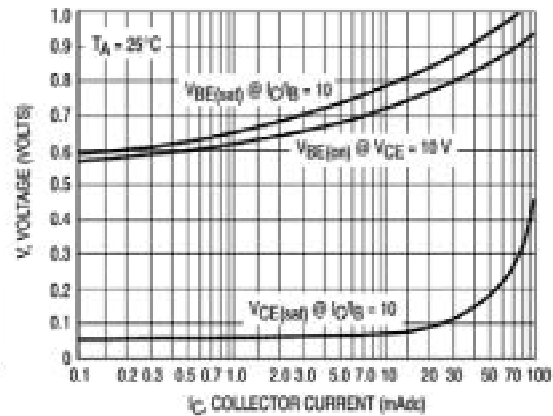


Figure 2. "Saturation" and "On" Voltages

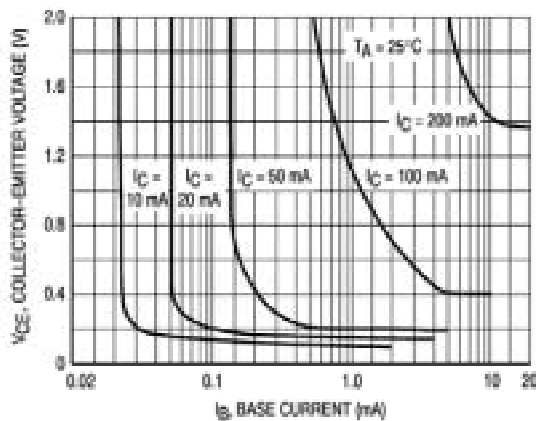


Figure 3. Collector Saturation Region

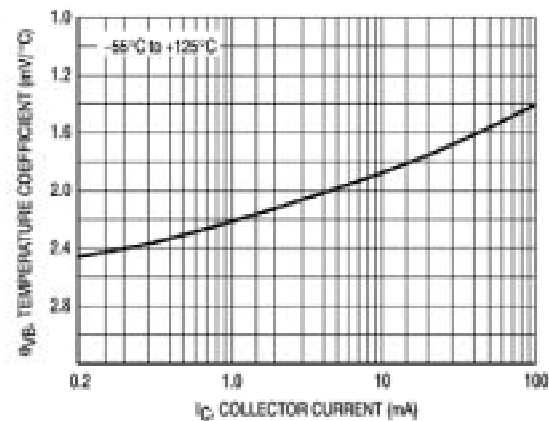


Figure 4. Base-Emitter Temperature Coefficient

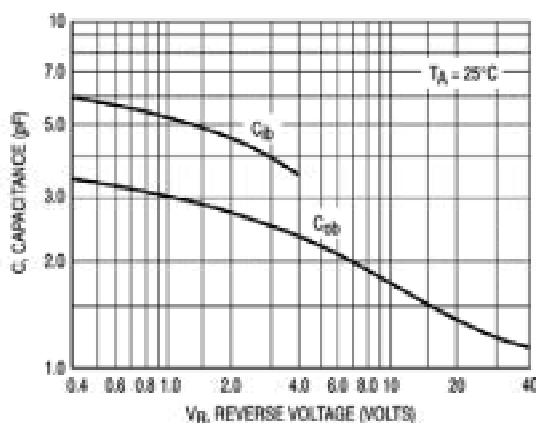


Figure 5. Capacitances

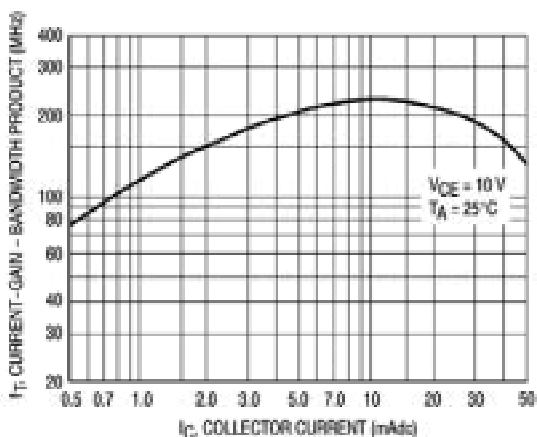


Figure 6. Current-Gain - Bandwidth Product

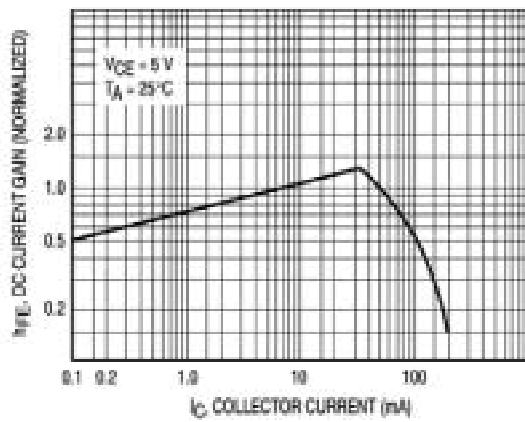


Figure 7. DC Current Gain

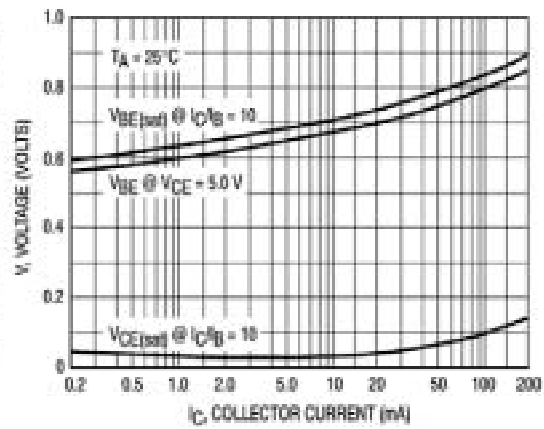


Figure 8. "On" Voltage

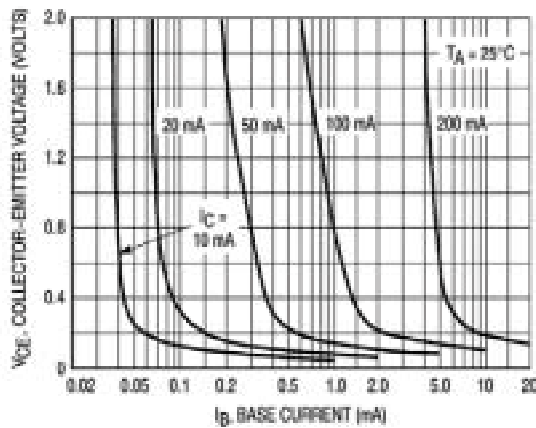


Figure 9. Collector Saturation Region

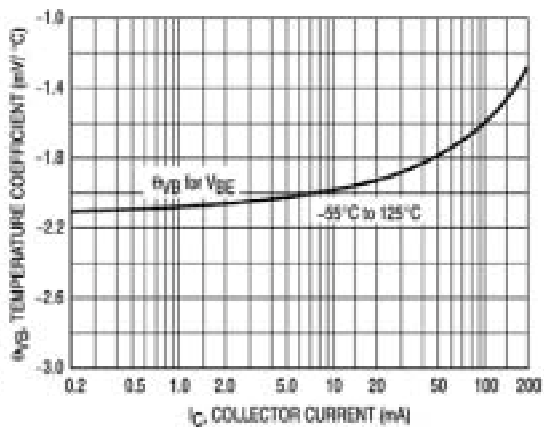


Figure 10. Base-Emitter Temperature Coefficient

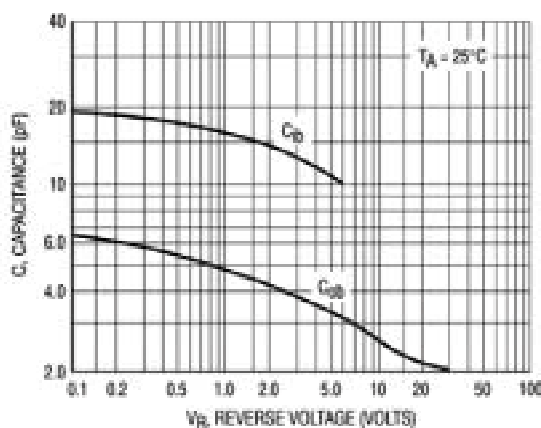


Figure 11. Capacitance

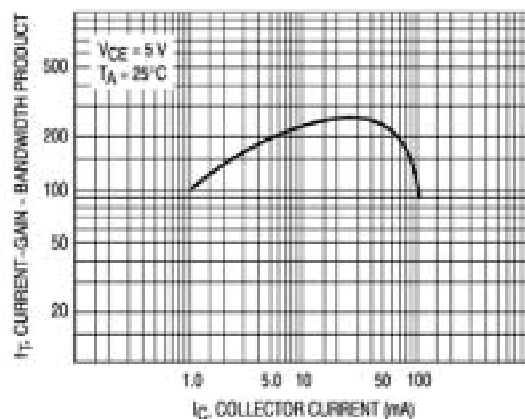


Figure 12. Current-Gain - Bandwidth Product

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel; 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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