Micro Commercial Components

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

NPN
General Purpose Transistors

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
- Moisure Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings

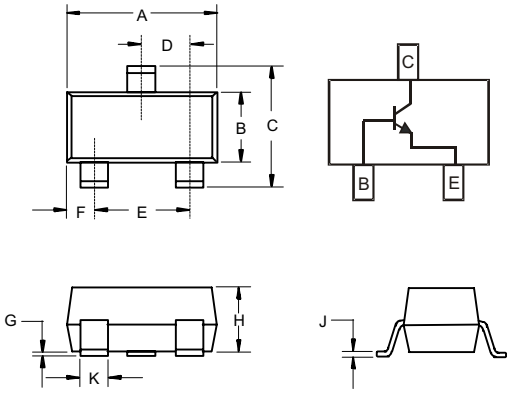
- Operating temperature : -65℃ to +150℃
- Storage temperature : -65℃ to +150℃
- Thermal resistance from junction to ambient*: 625K/W
- Marking: BC846AW---1A ; BC846BW---1B
  BC847AW---1E ; BC847BW---1F ; BC847CW---1G
  BC848AW---1JS/1J ; BC848BW---1KS/1K ; BC848CW---1LS/1L

Electrical Characteristics @ 25℃ Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=10uAdc, I_E=0)			Vdc
	BC846AW/BW	---	80	
	BC847AW/BW/CW	---	50	
	BC848AW/BW/CW	---	30	
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (I_C=10mAdc, I_B=0)			Vdc
	BC846AW/BW	---	65	
	BC847AW/BW/CW	---	45	
	BC848AW/BW/CW	---	30	
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_E=1μAdc, I_C=0)			Vdc
	BC846AW/BW, BC847AW/BW/CW	---	6	
	BC848AW/BW/CW	---	5	
I_C	Collector Current (DC)	---	100	mAdc
I_{CM}	Peak Collector Current	---	200	mAdc
I_{BM}	Peak Base Current	---	200	mAdc

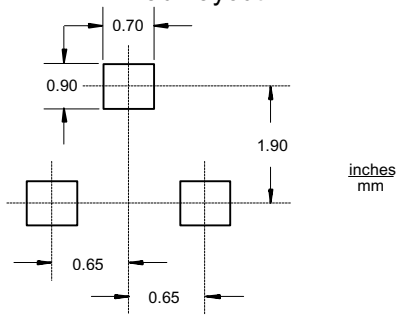
* Transistor mounted on an FR4 printed-circuit board

SOT-323



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.079	.087	2.00	2.20	
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	.012	.016	.30	.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}=30Vdc)	---	---	15	nA
	(I_{CE}=0, V_{CB}=30Vdc, T_j=150℃)	---	---	5	μA
I_{CEO}	Emitter-base Cut-off Current				
	(I_C=0, V_{EB}=5Vdc)	---	---	100	nA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage				
	(I_C=10mAdc, I_B=0.5mAdc)	---	90	250	mVdc
	(I_C=100mAdc, I_B=5mAdc*)	---	200	600	mVdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage				
	(I_C=10mAdc,I_B=0.5mAdc)	---	700	---	mVdc
	(I_C=100mAdc, I_B=5mAdc*)	---	900	---	mVdc
h_{FE}	DC Current Gain (I_C=10μA; V_{CE}=5V)				
	BC846AW; BC847AW;BC848AW	---	90	---	
	BC846BW; BC847BW;BC848BW	---	150	---	
	BC847CW;BC848CW	---	270	---	
	DC Current Gain (I_C=2mA; V_{CE}=5V)				
	BC846AW; BC847AW;BC848AW	110	180	220	
	BC846BW; BC847BW;BC848BW	200	290	450	
	BC847CW;BC848CW	420	520	800	
V_{BE}	Base-emitter Voltage				
	(I_C=2mAdc,V_{CE}=5V)	580	660	700	mVdc
	(I_C=10mAdc,V_{CE}=5V)	---	---	770	mVdc
Cc	Collector Capacitance (V_{CB}=10V; I_E=I_e=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=200μA; f=1KHz; B=200Hz; R_S=2KΩ)	---	---	10	dB

* Pulse test: $t_P \leqq 300\mu s$; $\delta \leqq 0.02$

Typical Characteristics

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

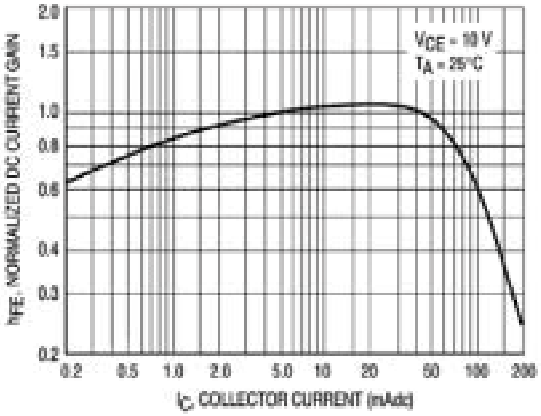


Figure 1. Normalized DC Current Gain

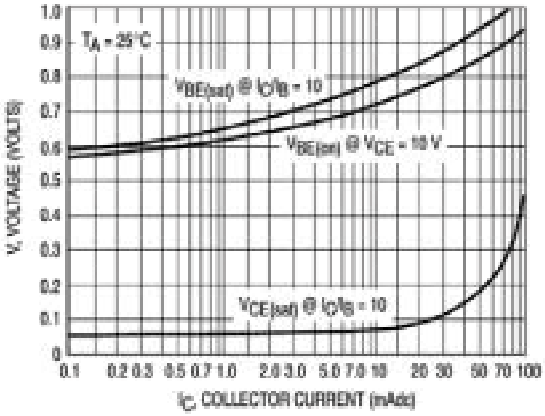


Figure 2. "Saturation" and "On" Voltages

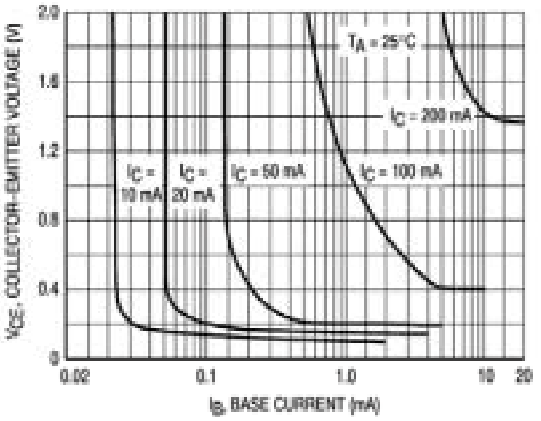


Figure 3. Collector Saturation Region

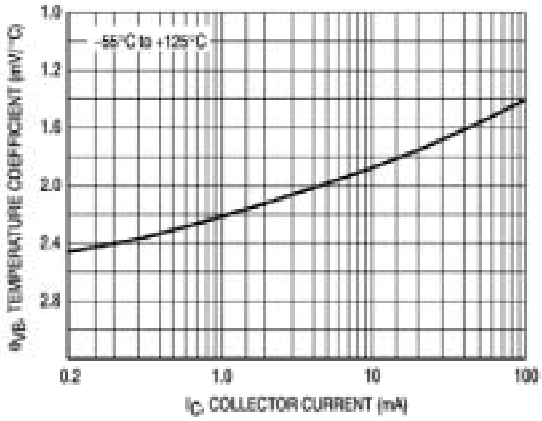


Figure 4. Base–Emitter Temperature Coefficient

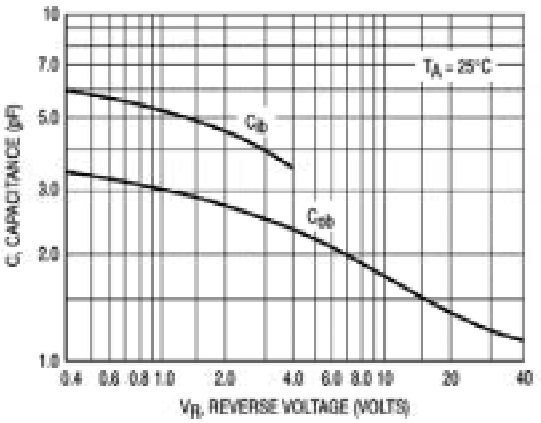


Figure 5. Capacitances

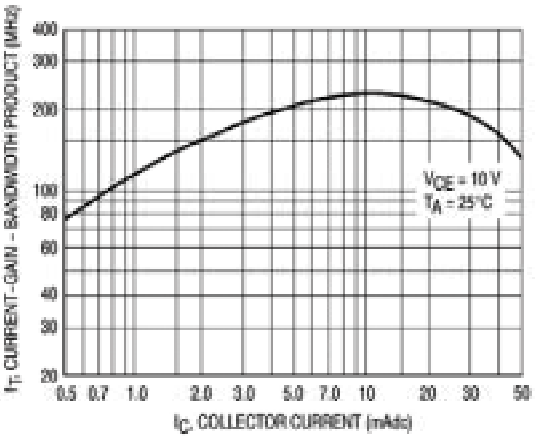


Figure 6. Current–Gain – Bandwidth Product

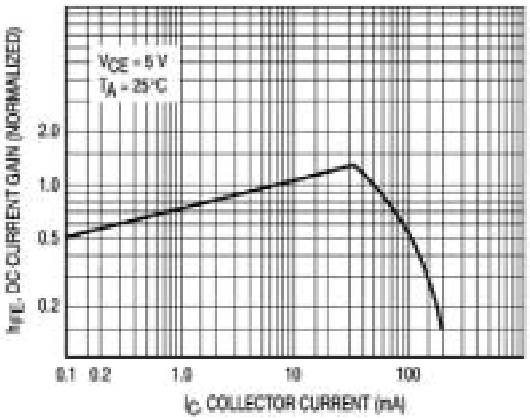


Figure 7. DC Current Gain

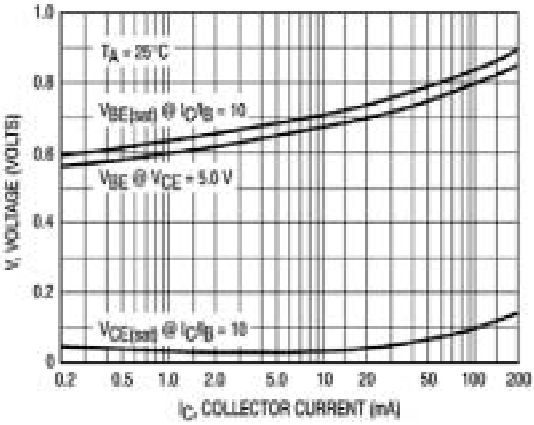


Figure 8. "On" Voltage

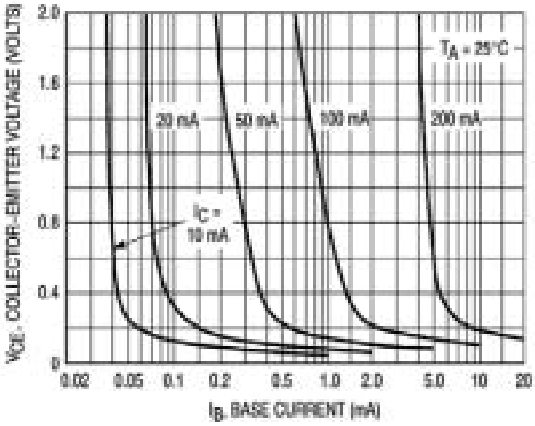


Figure 9. Collector Saturation Region

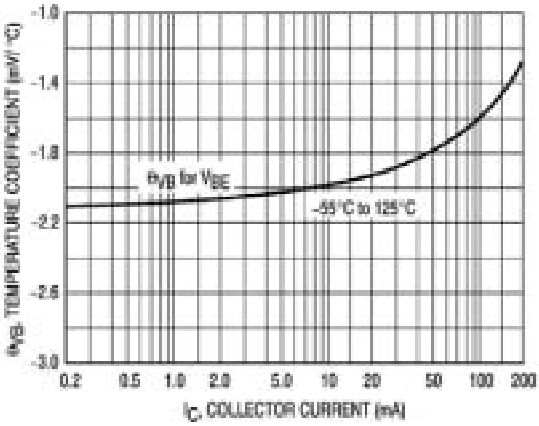


Figure 10. Base–Emitter Temperature Coefficient

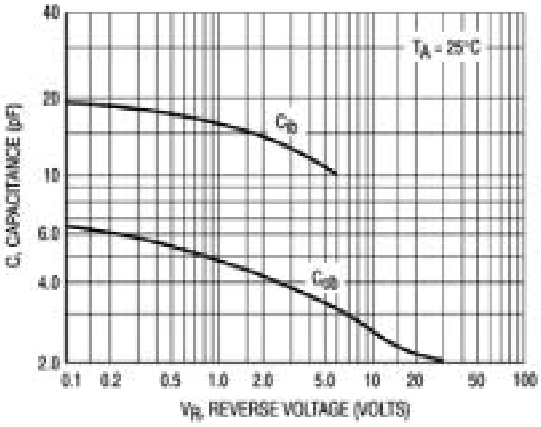


Figure 11. Capacitance

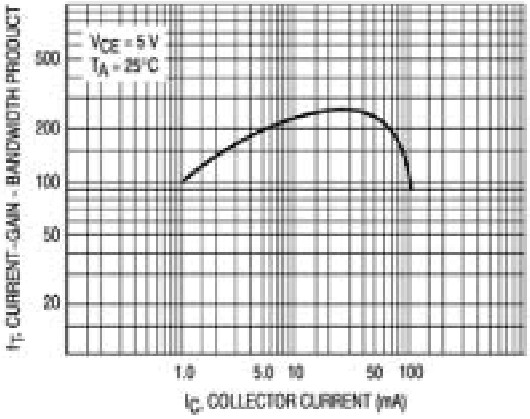


Figure 12. Current–Gain – Bandwidth Product

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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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