



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

- Low current (max. 100mA)
- Low voltage (max. 65V)
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0

Maximum Ratings

- Operating temperature : -65°C to +150°C
- Storage temperature : -65°C to +150°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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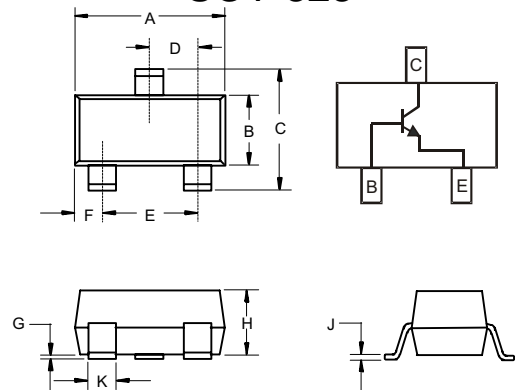
OFF CHARACTERISTICS

$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=10\mu A_{dc}$, $I_E=0$)			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 ($I_E=1\mu A_{dc}$, $I_C=0$)			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

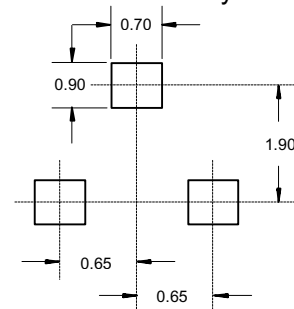
**NPN
 General Purpose
 Transistors**

SOT-323



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.079	.087	2.00	2.20	
D	.026 Nominal		0.65 Nominal		
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) (I _{CE} =0, V _{CB} =30Vdc, T _J =150°C)	---	---	15	nA
		---	---	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) (I _C =100mAdc, I _B =5mAdc*)	---	90	250	mVdc
		---	200	600	mVdc
V _{BE(sat)}	Base-Emitter Saturation Voltage (I _C =10mAdc, I _B =0.5mAdc) (I _C =100mAdc, I _B =5mAdc*)	---	700	---	mVdc
		---	900	---	mVdc
h _{FE}	DC Current Gain (I _C =10μA; V _{CE} =5V) BC846AW; BC847AW; BC848AW BC846BW; BC847BW; BC848BW BC847CW; BC848CW	---	90	---	
		---	150	---	
		---	270	---	
	DC Current Gain (I _C =2mA; V _{CE} =5V) BC846AW; BC847AW; BC848AW BC846BW; BC847BW; BC848BW BC847CW; BC848CW	110	180	220	
		200	290	450	
		420	520	800	
V _{BE}	Base-emitter Voltage (I _C =2mAdc, V _{CE} =5V) (I _C =10mAdc, 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 =200μA; f=1KHz; B=200Hz; R _S =2KΩ)	---	---	10	dB

* Pulse test: t_p ≤ 300μs; δ ≤ 0.02

Typical Characteristics

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

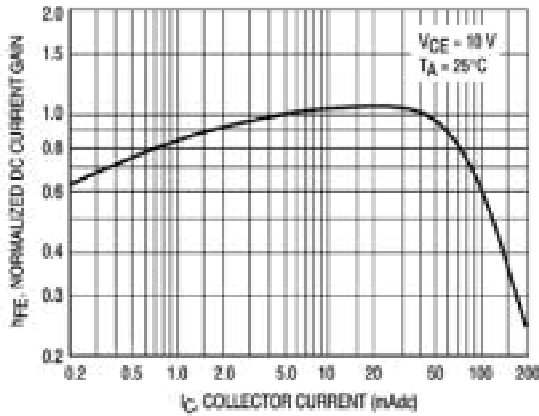


Figure 1. Normalized DC Current Gain

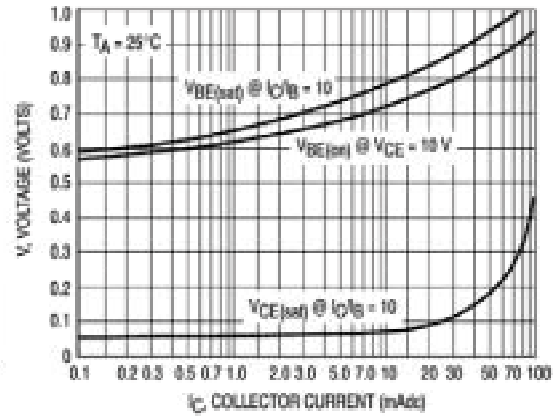


Figure 2. "Saturation" and "On" Voltages

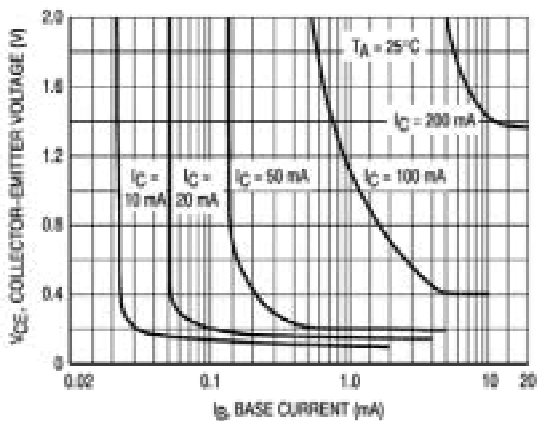


Figure 3. Collector Saturation Region

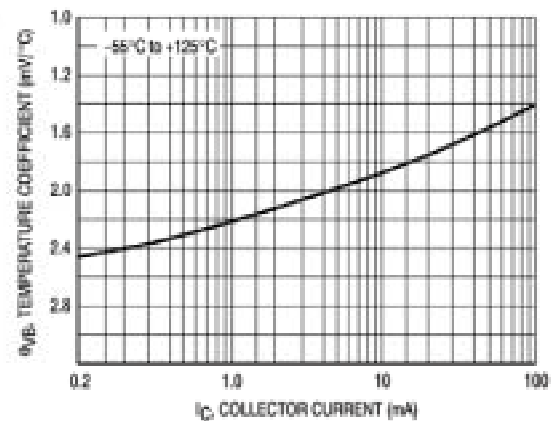


Figure 4. Base-Emitter Temperature Coefficient

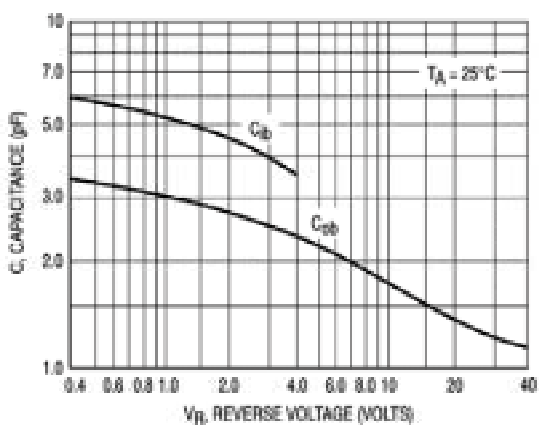


Figure 5. Capacitances

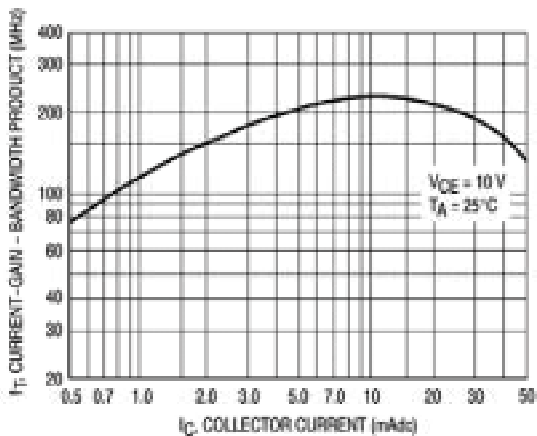


Figure 6. Current-Gain - Bandwidth Product

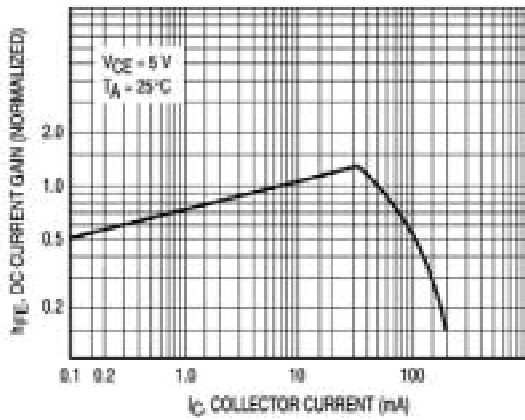


Figure 7. DC Current Gain

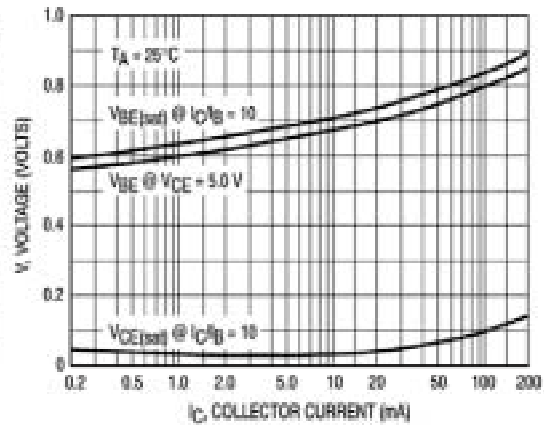


Figure 8. "On" Voltage

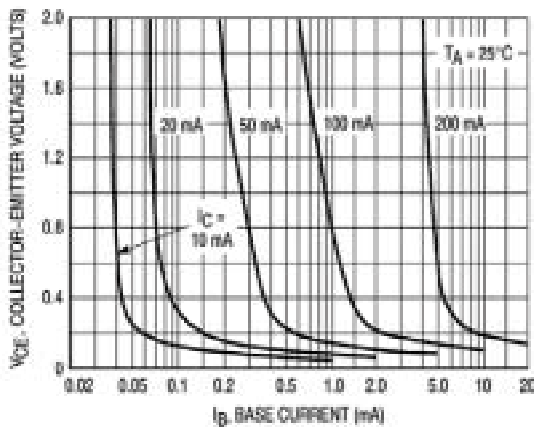


Figure 9. Collector Saturation Region

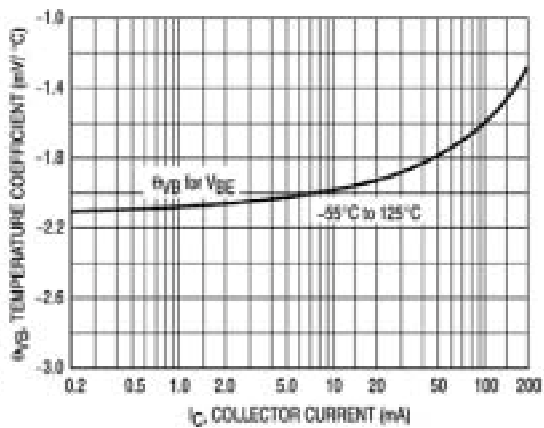


Figure 10. Base-Emitter Temperature Coefficient

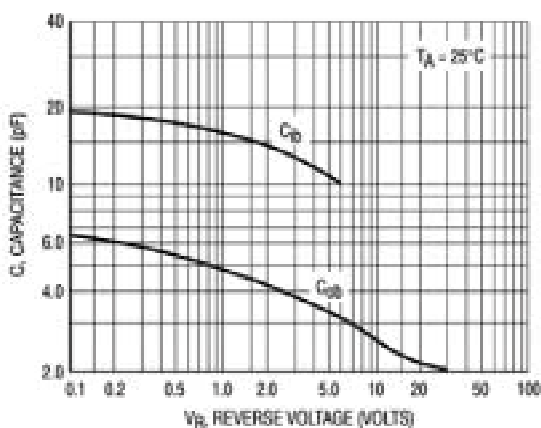


Figure 11. Capacitance

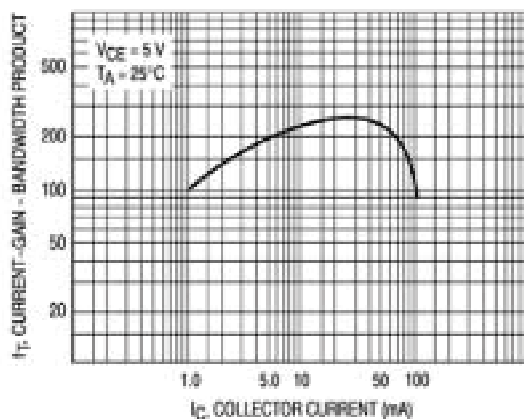


Figure 12. Current-Gain - Bandwidth Product



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