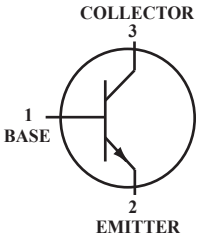
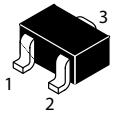
WEITRON

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

General Purpose Transistor
NPN Silicon

Lead(Pb)-Free





SOT-323(SC-70)

Maximum Ratings (T_A=25°C unless otherwise noted)

Rating		Symbol	Value	Unit
Collector-Emitter Voltage	BC846 BC847 BC848	V_{CEO}	65 45 30	Vdc
Collector-Base Voltage	BC846 BC847 BC848	V_{CBO}	80 50 30	Vdc
Emitter-Base VOltage	BC846 BC847 BC848	V_{EBO}	6.0 6.0 5.0	Vdc
Collector Current-Continuous		I_C	100	mAdc

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1.)T_A=25°C Derate above 25 C	P_D	150 2.4	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1.)	$R_{\theta JA}$	833	°C/W
Junction and Storage, Temperature Range	$T_{J,Tstg}$	-55 to +150	°C

Device Marking

BC846A=1A; BC846B=1B; BC847A=1E; BC847B=1F;BC847C=1G; BC848A=1J;
BC848B;=1K; BC848C=1L;

1.FR-5=1.0 x 0.75 x 0.062 in.

Electrical Characteristics (TA=25°C Unless Otherwise noted)

Characteristics		Symbol	Min	Typ	Max	Unit
Off Characteristics						
Collector-Emitter Breakdown Voltage (I_C= 10mA)	BC846A Series	V(BR)CEO	65	-	-	V
	BC847A Series		45	-	-	
	BC848A Series		30	-	-	
Collector-Emitter Breakdown Voltage (I_C=10 uA , V_{EB}=0)	BC846A Series	V(BR)CES	80	-	-	V
	BC847A Series		50	-	-	
	BC848A Series		30	-	-	
Collector-Base Breakdown Voltage (I_C=10 uA)	BC846A Series	V(BR)CBO	80	-	-	V
	BC847A Series		50	-	-	
	BC848A Series		30	-	-	
Emitter-Base Breakdown Voltage (I_E=1.0 uA)	BC846A Series	V(BR)EBO	6.0	-	-	V
	BC847A Series		6.0	-	-	
	BC848A Series		5.0	-	-	
Collector Cutoff Current (V_{CB}=30V)		ICBO	-	-	15	nA
(V_{CB}=30V, T_A=150°C)			-	-	5.0	mA
On Characteristics						
DC Current Gain (I_C= 10uA, V_{CE}=5.0V)	BC846A, BC847A, BC848A	hFE	-	90	-	-
	BC846B, BC847B, BC848B		-	150	-	
	BC847C, BC848C		-	270	-	
(I_C= 2.0mA, V_{CE}=5.0V)	BC846A, BC847A, BC848A		110	180	220	
	BC846B, BC847B, BC848B		200	290	450	
	BC847C, BC848C,		420	520	800	
Collector-Emitter Saturation Voltage (I_C= 10mA, IB=0.5mA)		VCE(sat)	-	-	0.25	V
(I_C= 100mA, I_B=5.0mA)			-	-	0.6	
Base-Emitter Saturation Voltage (I_C= 10mA, I_B=0.5mA)		VBE(sat)	-	-0.7	-	V
(I_C= 100mA, I_B=5.0mA)			-	-0.9	-	
Base-Emitter On Voltage (I_C= 2.0mA, V_{CE}=5.0V)		VBE(on)	580	660	700	V
(I_C= 10mA, VC_E=5.0V)			-	-	770	
Small-signal Characteristics						
Current-Gain-Bandwidth Product (I_C= 10mA, VCE= 5.0Vdc, f=100MHz)		f_T	100	-	-	MHz
Output Capacitance (V_{CB}= 10V, f=1.0MHz)		C_{obo}	-	-	4.5	pF
Noise Figure (I_C= 0.2mA, V_{CE}= 5.0Vdc, Rs=2.0 kΩ, f=1.0 kHz, BW=200Hz)	BC846A,B, BC847A,B,C, BC848A,B,C,	NF	-	-	10	dB
			-	-		

BC847 & BC848 Series

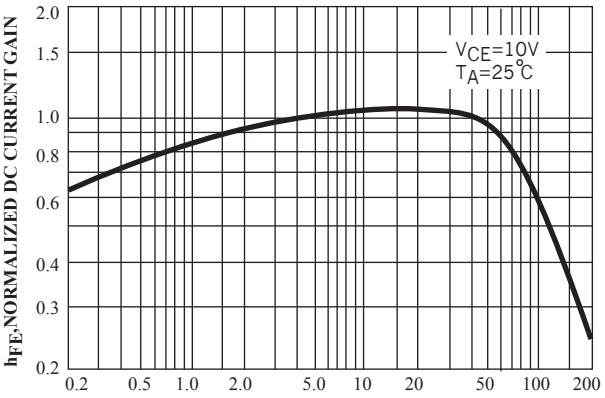
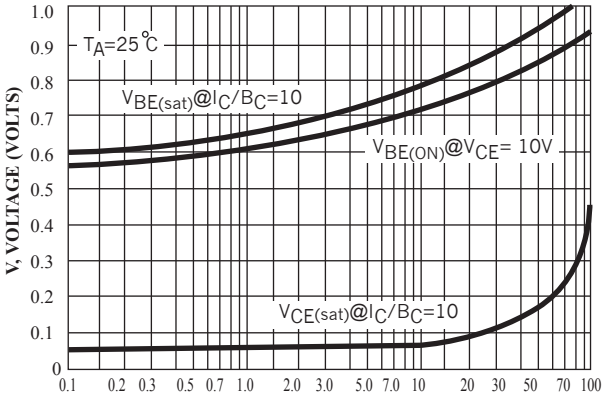


Figure1.Normalized DC Current Gain



Firure2. "Saturation" And "On" Voltage

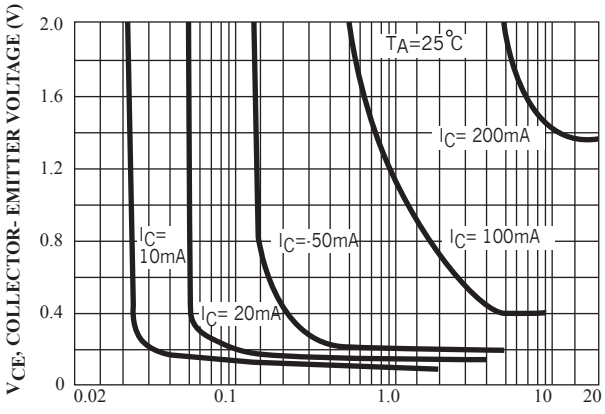


Figure 3. Collector Saturation Region

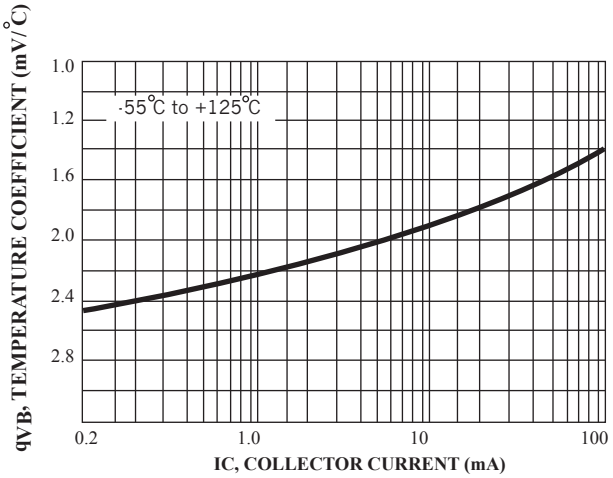


Figure 4. Base-Emitter Temperature Coefficient

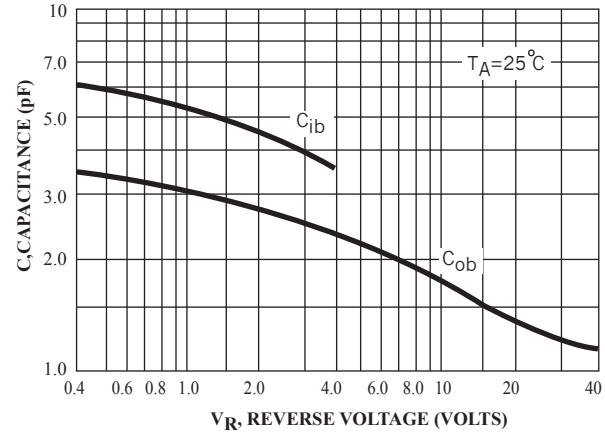


Figure 5. Capacitances

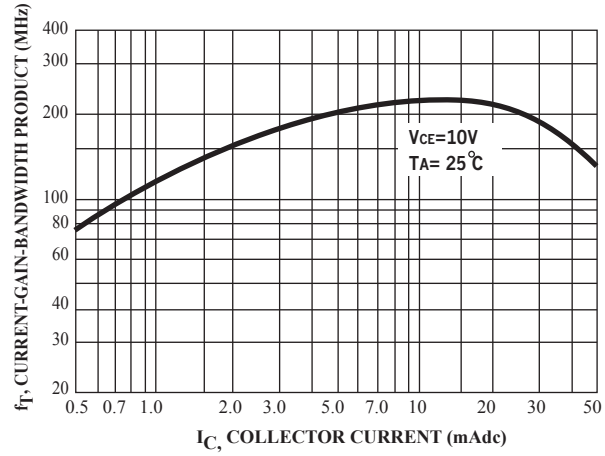


Figure 6. Current-Gain- Bandwidth Product

BC846 Series

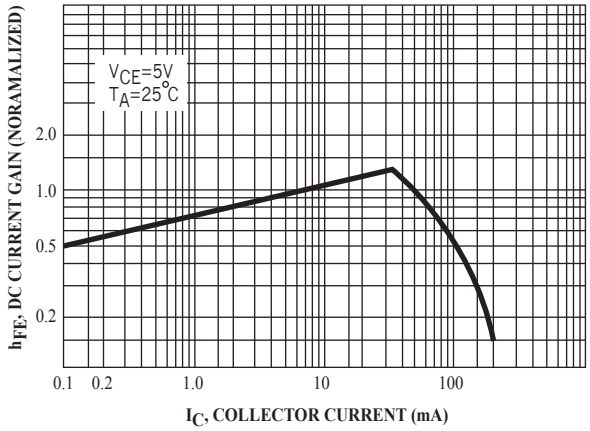


Figure 7.DC Current Gain

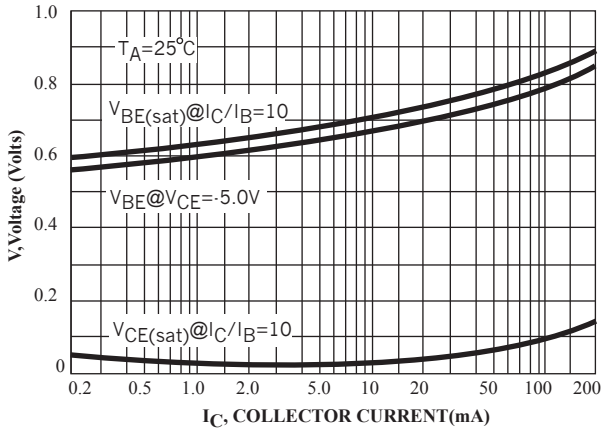


Figure 8. "ON" Voltage

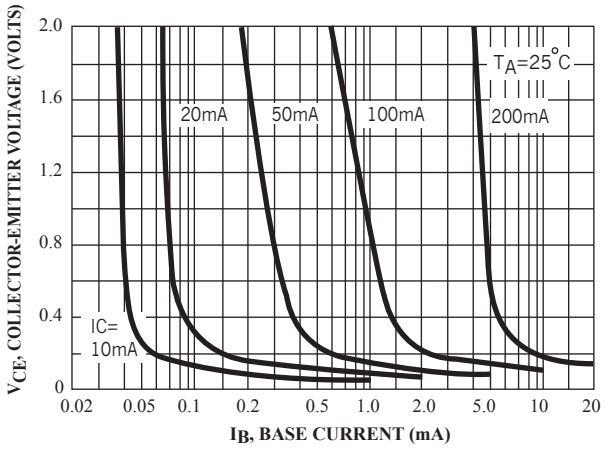


Figure 9. Collector Saturation Region

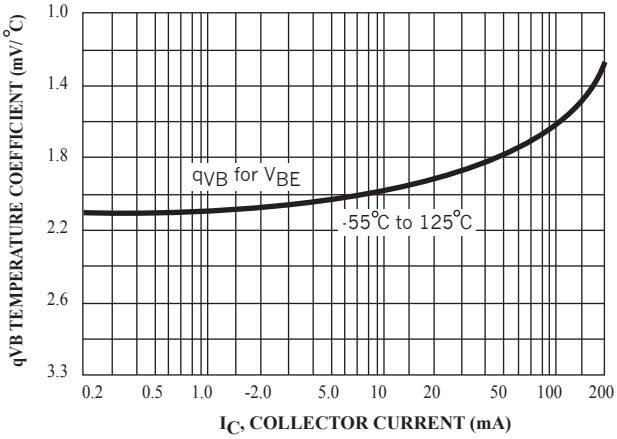


Figure 10. Base-Emitter Temperature Coefficient

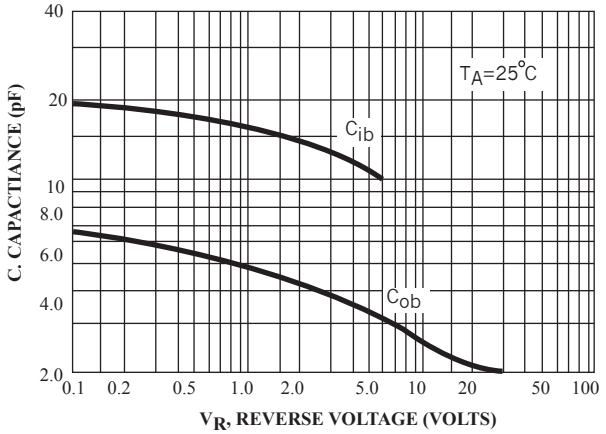


Figure 11. Capacitance

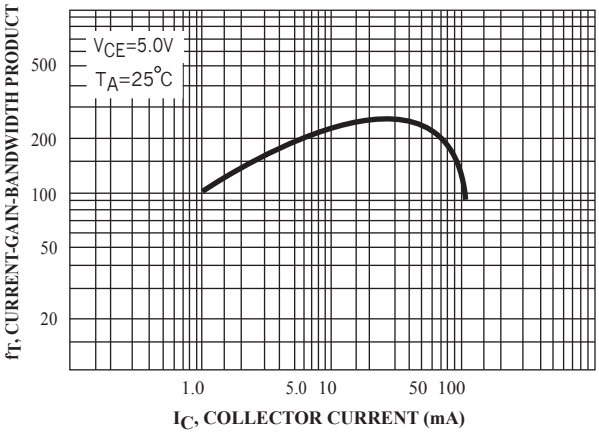


Figure 12.Current-Gain-Bandwidth Product