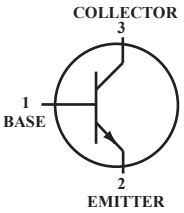
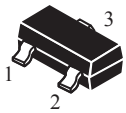
QUNHAN TECH

BC846A/B-BC847A/B/C
BC848A/B/C-BC849B/C
BC850B/C

General Purpose Transistor
NPN Silicon

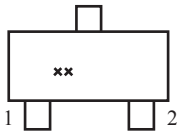
*Moisture Sensitivity Level: 1
*ESD Rating - Human Body Model:>4000V
-Machine Model:>400V





SOT-23

MARKING DIAGRAM



XX = Device Code (See Table Below)

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

Rating		Symbol	Value	Unit
Collector-Emitter Voltage	BC846	V_{CEO}	65	Vdc
	BC847, BC850		45	
	BC848, BC849		30	
Collector-Base Voltage	BC846	V_{CBO}	80	Vdc
	BC847, BC850		50	
	BC848, BC849		30	
Emitter-Base VOltage	BC846	V_{EBO}	6.0	Vdc
	BC847, BC850		6.0	
	BC848, BC849		5.0	
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	225 1.8	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1.)	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (Note 2.) T_A=25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 2.)	$R_{\theta JA}$	417	°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;BC849B=2B; BC849C=2C; BC850B=2F; BC850C=2G

1.FR-5=1.0 x 0.75 x 0.062 in.
2.Alumina=0.4 x 0.3 x 0.024 in. 99.5% alumina

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

Characteristics		Symbol	Min	Typ	Max	Unit
Off Characteristics						
Collector-Emitter Breakdown Voltage (I_C= 10mA)	BC846A,B BC847A,B,C BC850B.C BC848A,B,C BC849B,C	V(BR)CEO	65 45 30	- - -	- - -	V
Collector-Emitter Breakdown Voltage (I_C=10 μA ,V_{EB}=0)	BC846A,B BC847A,B,C BC850B.C BC848A,B,C BC849B,C	V(BR)CES	80 50 30	- - -	- - -	V
Collector-Base Breakdown Voltage (I_C=10 μA)	BC846A,B BC847A,B,C BC850B.C BC848A,B,C BC849B,C	V(BR)CBO	80 50 30	- - -	- - -	V
Emitter-Base Breakdown Voltage (I_E=1.0 μA)	BC846A,B BC847A,B,C BC850B.C BC848A,B,C BC849B,C	V(BR)EBO	6.0 6.0 5.0	- - -	- - -	V
Collector Cutoff Current (V_{CB}=30V) (V_{CB}=30V, T_A=150°C)		ICBO	- -	- -	15 5.0	nA mA
On Characteristics						
DC Current Gain (I_C= 10μA, V_{CE}=5.0V)	BC846A, BC847A, BC848A BC846B, BC847B, BC848B BC847C, BC848C	hFE	- - -	90 150 270	- - -	-
(I_C= 2.0mA, V_{CE}=5.0V)	BC846A, BC847A, BC848A BC846B, BC847B, BC848B BC849B. BC850B, BC847C, BC848C, BC849C, BC850C		110 200 420	180 290 520	220 450 800	
Collector-Emitter Saturation Voltage (I_C= 10mA, IB=0.5mA) (I_C= 100mA, I_B=5.0mA)		VCE(sat)	- -	- -	0.25 0.6	V
Base-Emitter Saturation Voltage (I_C= 10mA, I_B=0.5mA) (I_C= 100mA, I_B=5.0mA)		VBE(sat)	- -	-0.7 -0.9	- -	V
Base-Emitter On Voltage (I_C= 2.0mA, V_{CE}=5.0V) (I_C= 10mA, VC_E=5.0V)		VBE(on)	580 -	660 -	700 770	V
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 kw, f=1.0 kHz, BW=200Hz)	BC846A,B, BC847A,B,C, BC848A,B,C, BC849B,C, BC850B,C	NF	- -	- -	10 4.0	dB

BC847/BC848/BC849/BC850 Series

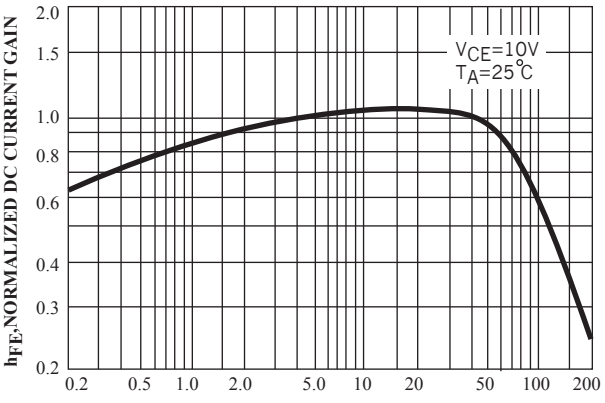
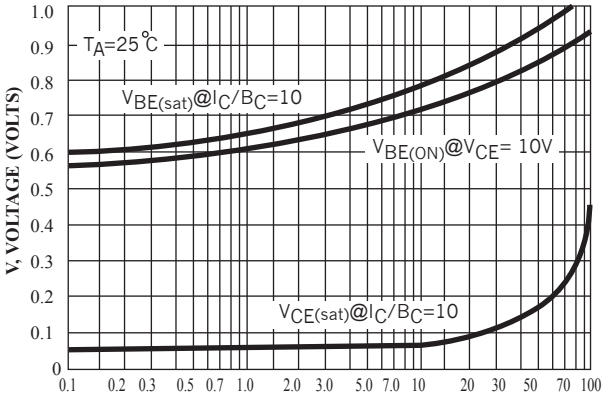


Figure1.Normalized DC Current Gain



Firure2. "Saturation" And "On" Voltage

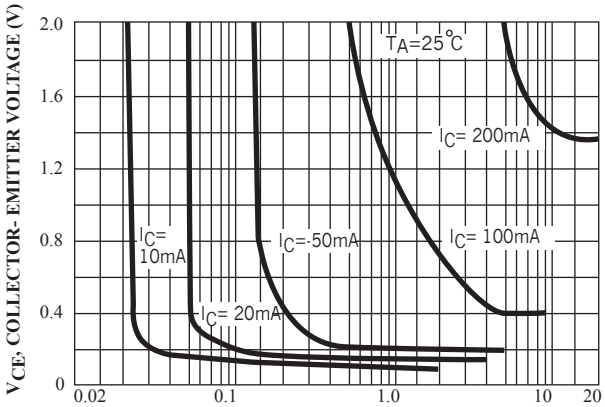


Figure 3. Collector Saturation Region

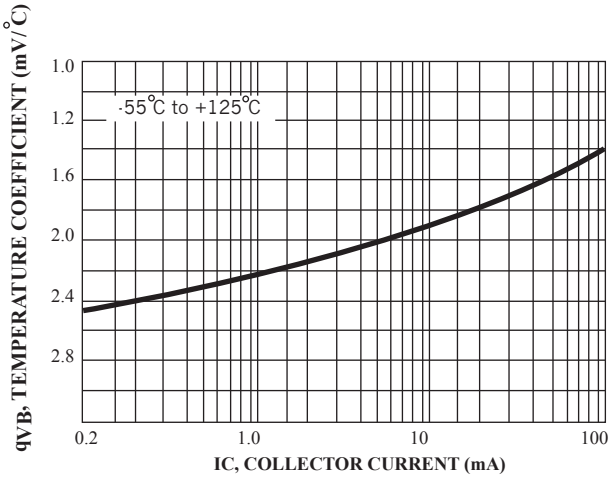


Figure 4. Base-Emitter Temperature Coefficient

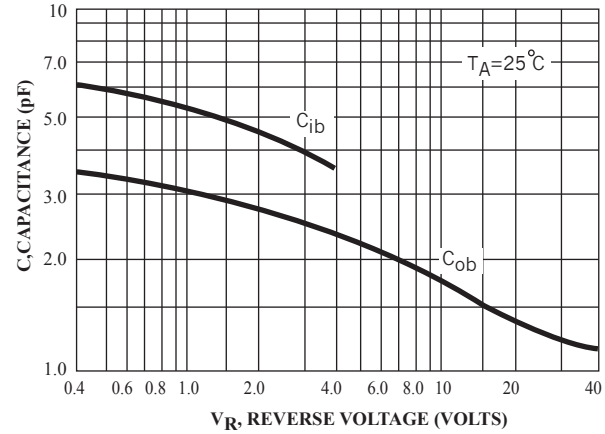


Figure 5. Capacitances

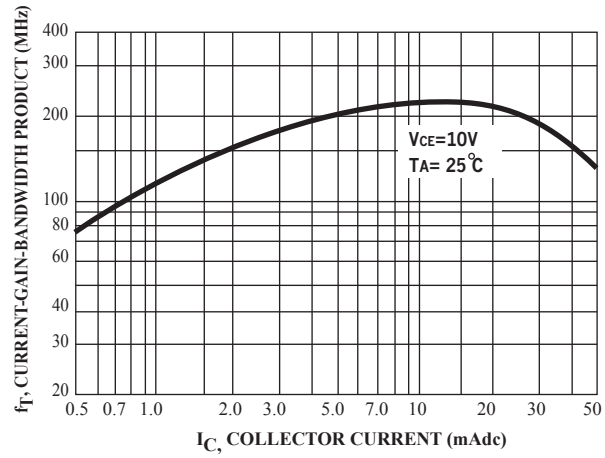


Figure 6. Current-Gain- Bandwidth Product

BC846 Series

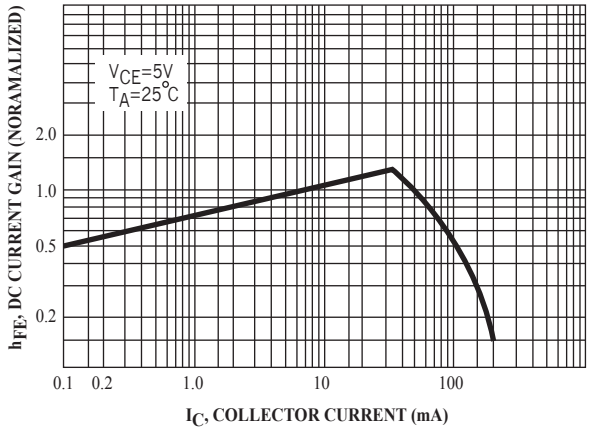


Figure 7.DC Current Gain

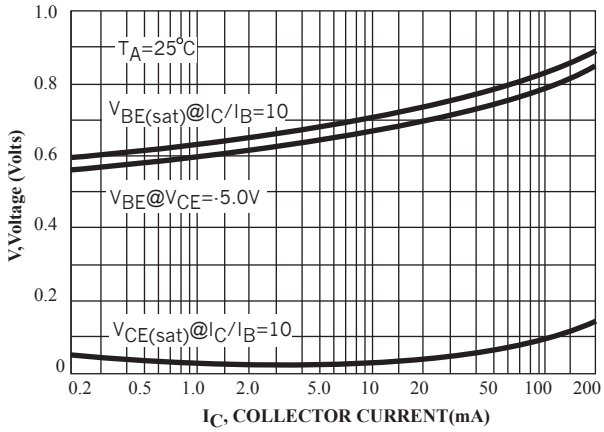


Figure 8. "ON" Voltage

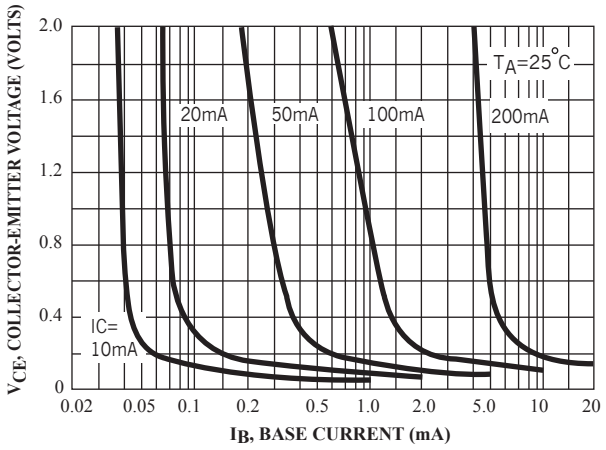


Figure 9. Collector Saturation Region

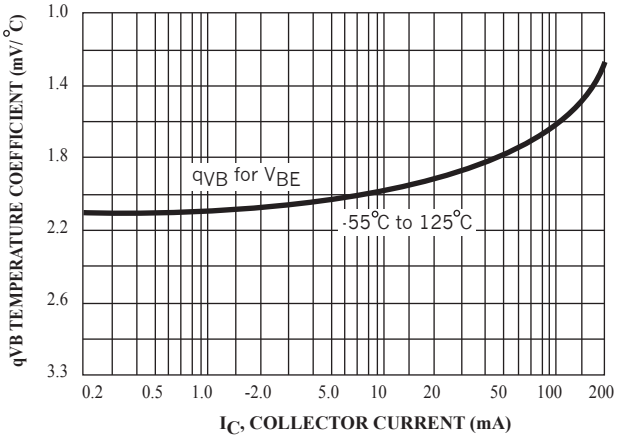


Figure 10. Base-Emitter Temperature Coefficient

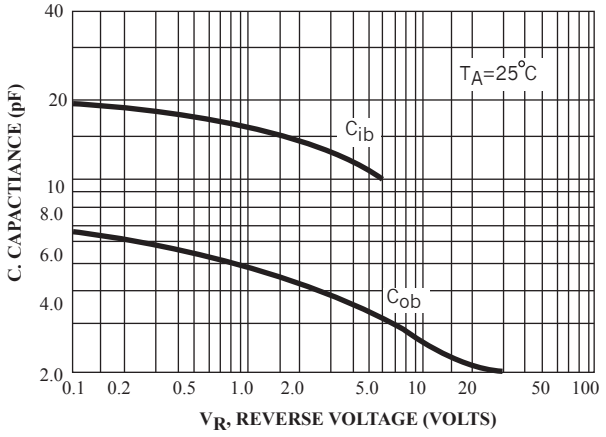


Figure 11. Capacitance

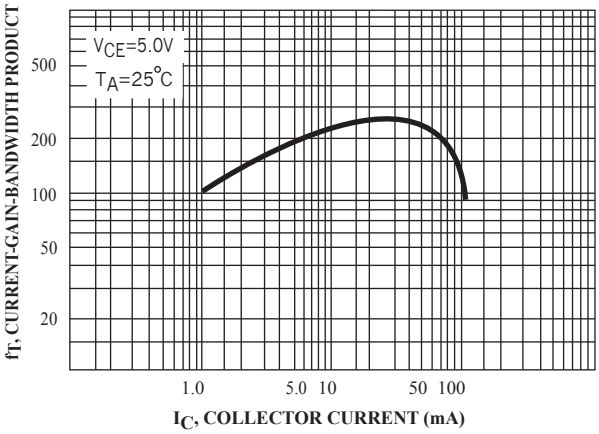


Figure 12.Current-Gain-Bandwidth Product