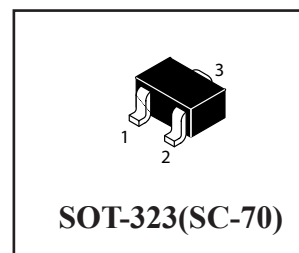
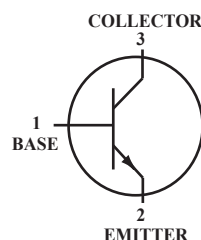


General Purpose Transistor NPN Silicon

 **Lead(Pb)-Free**



Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Rating		Symbol	Value	Unit
Collector-Emitter Voltage	BC846	V_{CE0}	65	Vdc
	BC847		45	
	BC848		30	
Collector-Base Voltage	BC846	V_{CBO}	80	Vdc
	BC847		50	
	BC848		30	
Emitter-Base Voltage	BC846	V_{EBO}	6.0	Vdc
	BC847		6.0	
	BC848		5.0	
Collector Current-Continuous		I_C	100	mAdc

Thermal Characteristics

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

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
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Off Characteristics

Collector-Emitter Breakdown Voltage (IC= 10mA)	BC846A Series BC847A Series BC848A Series	V(BR)CEO	65 45 30	- - -	- - -	V
Collector-Emitter Breakdown Voltage (IC=10 uA ,VEB=0)	BC846A Series BC847A Series BC848A Series	V(BR)CES	80 50 30	- - -	- - -	V
Collector-Base Breakdown Voltage (IC=10 uA)	BC846A Series BC847A Series BC848A Series	V(BR)CBO	80 50 30	- - -	- - -	V
Emitter-Base Breakdown Voltage (IE=1.0 uA)	BC846A Series BC847A Series BC848A Series	V(BR)EBO	6.0 6.0 5.0	- - -	- - -	V
Collector Cutoff Current (VCB=30V) (VCB=30V, TA=150°C)		ICBO	- -	- -	15 5.0	nA mA

On Characteristics

DC Current Gain (IC= 10uA, VCE=5.0V)	BC846A, BC847A, BC848A BC846B, BC847B, BC848B BC847C, BC848C	hFE	- - -	90 150 270	- - -	-
(IC= 2.0mA, VCE=5.0V)	BC846A, BC847A, BC848A BC846B, BC847B, BC848B BC847C, BC848C,		110 200 420	180 290 520	220 450 800	
Collector-Emitter Saturation Voltage (IC= 10mA, IB=0.5mA) (IC= 100mA, IB=5.0mA)		VCE(sat)	- -	- -	0.25 0.6	V
Base-Emitter Saturation Voltage (IC= 10mA, IB=0.5mA) (IC= 100mA, IB=5.0mA)		VBE(sat)	- -	-0.7 -0.9	- -	V
Base-Emitter On Voltage (IC= 2.0mA, VCE=5.0V) (IC= 10mA, VCE=5.0V)		VBE(on)	580 -	660 -	700 770	V

Small-signal Characteristics

Current-Gain-Bandwidth Product (IC= 10mA, VCE= 5.0Vdc, f=100MHz)	fT	100	-	-	MHz
Output Capacitance (VCB= 10V, f=1.0MHz)	Cobo	-	-	4.5	pF
Noise Figure (IC= 0.2mA, VCE= 5.0Vdc, Rs=2.0 kΩ, f=1.0 kHz, BW=200Hz)	NF	- -	- -	10	dB

BC847 & BC848 Series

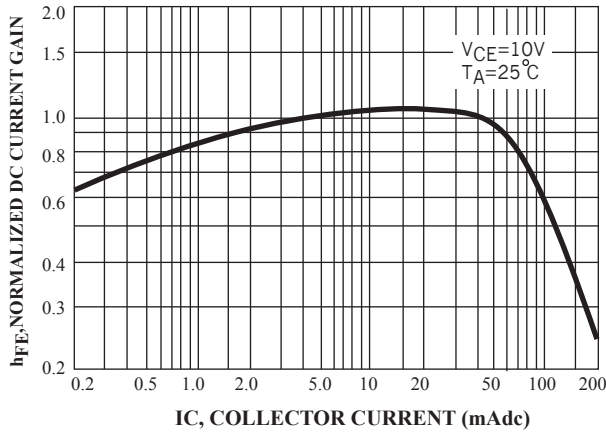


Figure 1. Normalized DC Current Gain

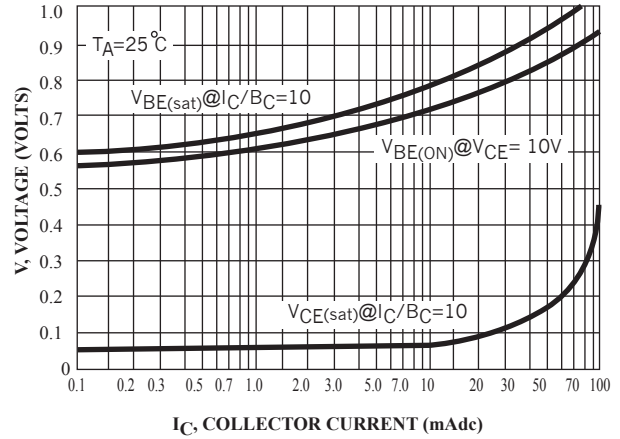


Figure 2. "Saturation" And "On" Voltage

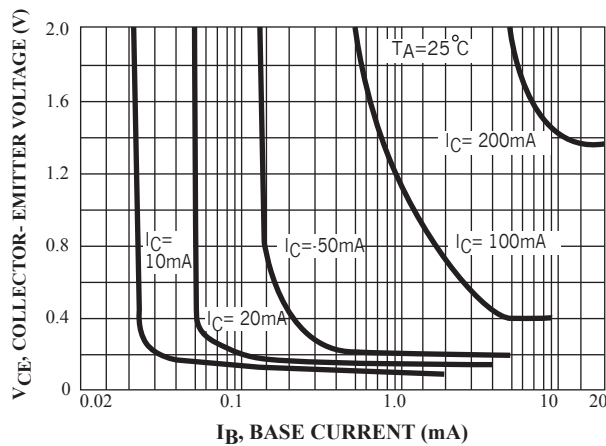


Figure 3. Collector Saturation Region

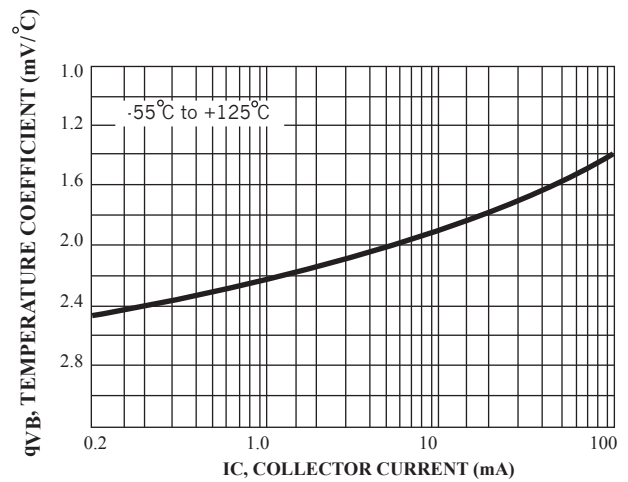


Figure 4. Base-Emitter Temperature Coefficient

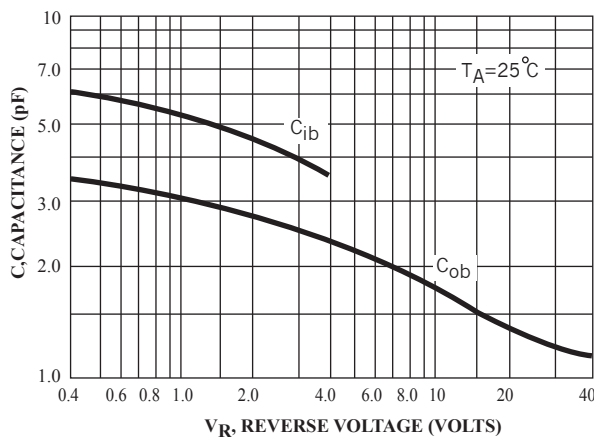


Figure 5. Capacitances

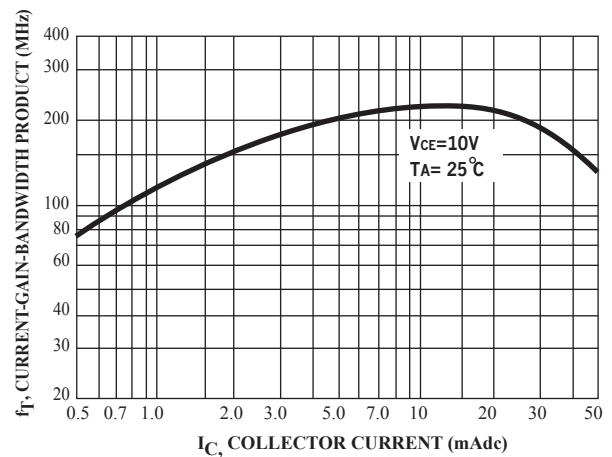


Figure 6. Current-Gain- Bandwidth Product

BC846 Series

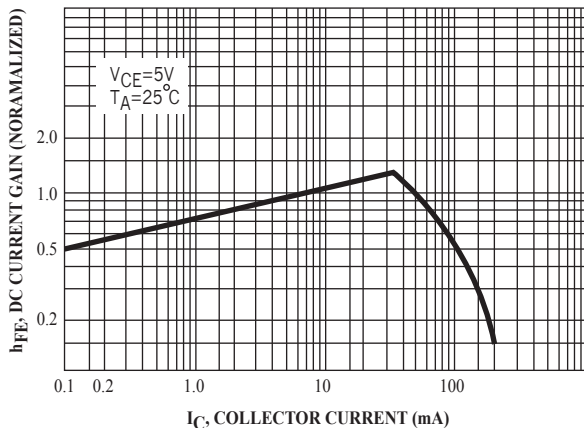


Figure 7. DC Current Gain

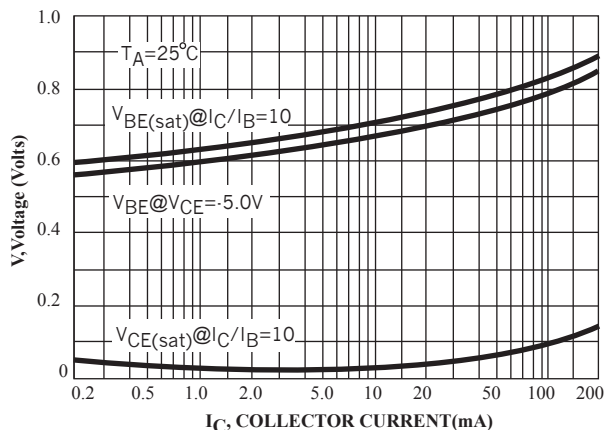


Figure 8. "ON" Voltage

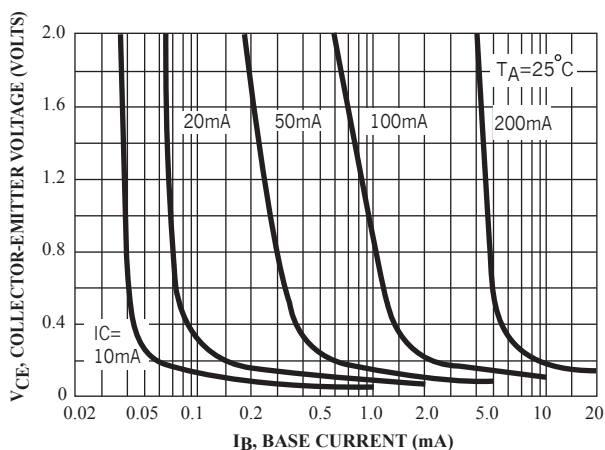


Figure 9. Collector Saturation Region

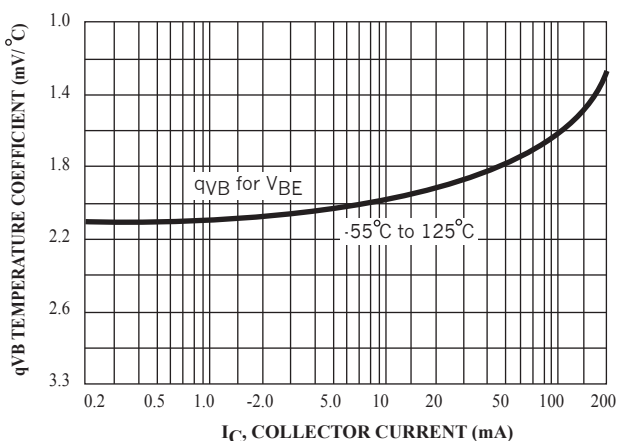


Figure 10. Base-Emitter Temperature Coefficient

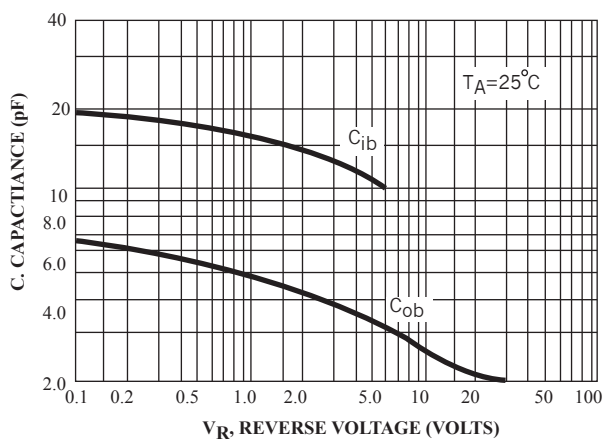


Figure 11. Capacitance

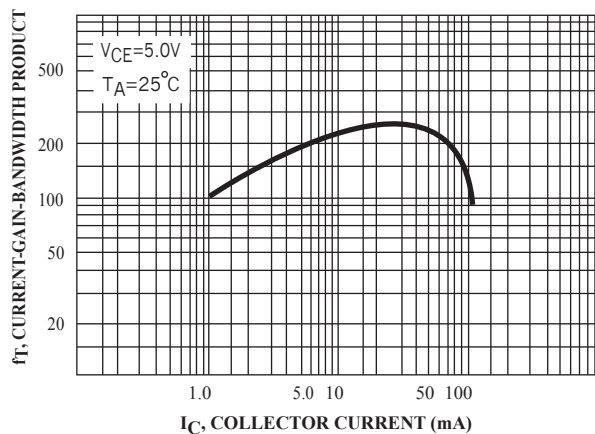


Figure 12. Current-Gain-Bandwidth Product