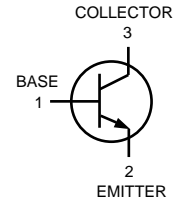
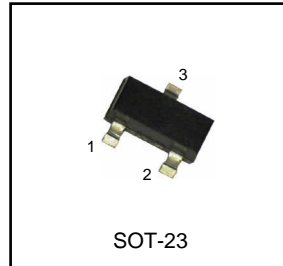


General Purpose Transistor

NPN Silicon

BC847A,B,C



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	45	V _d c
Collector-Base Voltage	V _{CBO}	50	V _d c
Emitter-Base Voltage	V _{EBO}	6.0	V _d c
Collector Current-Continuous	I _C	100	mA _d c

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max.	Unit
Total Device Dissipation FR-5 Board ⁽¹⁾ T _A =25°C Derate above 25°C	P _D	225 1.8	mW mW / °C
Thermal Resistance Junction to Ambient	R _{θJA}	556	°C / W
Total Device Dissipation Alumina Substrate, ⁽²⁾ T _A =25°C Derate above 25°C	P _D	300 2.4	mW mW / °C
Thermal Resistance Junction to Ambient	R _{θJA}	417	°C / W
Junction and Storage Temperature	T _J ,T _{STG}	-55 to +150	°C

DEVICE MARKING

BC847A=1E; BC847B=1F; BC847C=1G

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdowe Voltage (I _C =10mA)	V _{(BR)CEO}	45	-	-	V _d c
Collector-Emitter Breakdowe Voltage (I _C =10 uA, V _{EB} =0)	V _{(BR)CES}	50	-	-	V _d c
Collector-Base Breakdowe Voltage (I _C =10 uA)	V _{(BR)CBO}	50	-	-	V _d c
Emitter-Base Breakdowe Voltage (I _E =1.0 uA)	V _{(BR)EBO}	6.0	-	-	V _d c
Collector Cutoff Current (V _{CB} =30 V) (V _{CB} =30 V, T _A = 150°C)	I _{CBO}	- -	- -	15 5.0	nA _d c uA _d c

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

(2) Alumina=0.4 x 0.3 x 0.024in. 99.5% alumina.

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted) (Continued)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
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ON CHARACTERISTICS

DC Current Gain (IC= 10 μ A, VCE= 5.0 V) (IC= 2.0 mA, VCE= 5.0 V)	BC847A	-	90	-	-
	BC847B	-	150	-	
	BC847C	-	270	-	
	HFE			220	
	BC847A	110	180		
	BC847B	200	290	450	
BC847C	420	520	800		
Collector-Emitter Saturation Voltage (IC= 10 mA, IB= 0.5 mA) (IC= 100 mA, IB= 5.0 mA)	VCE(sat)	-	-	0.25 0.60	V
Base-Emitter Saturation Voltage (IC= 10 mA, IB= 0.5 mA) (IC= 100 mA, IB= 5.0 mA)	VBE(sat)	-	0.7 0.9	-	V
Base-Emitter Voltage (IC= 2.0 mA, VCE= 5.0V) (IC= 10 mA, VCE= 5.0V)	VBE(on)	580 -	660 -	700 770	mV

SMALL-SIGNAL CHARACTERISTIC

Current-Gain-Bandwidth Product (IC= 10 mA, VCE= 5.0 V, f=100 MHz)	f _T	100	-	-	MHz
Output Capacitance (VCB= 10 V, f=1.0 MHz)	C _{obo}	-	-	4.5	pF
Noise Figure (VCE= 5.0 Vdc, IC= 0.2 mA, RS= 2.0k ohms, f=1.0 kHz, BW = 200Hz)	NF	-	-	10	dB

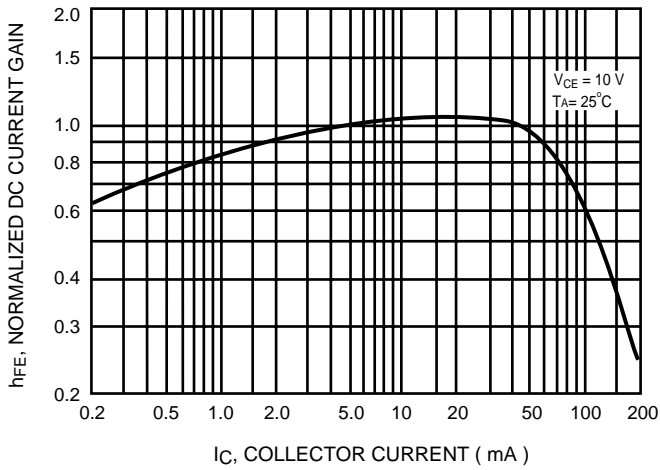


Figure 1. Normalized DC Current Gain

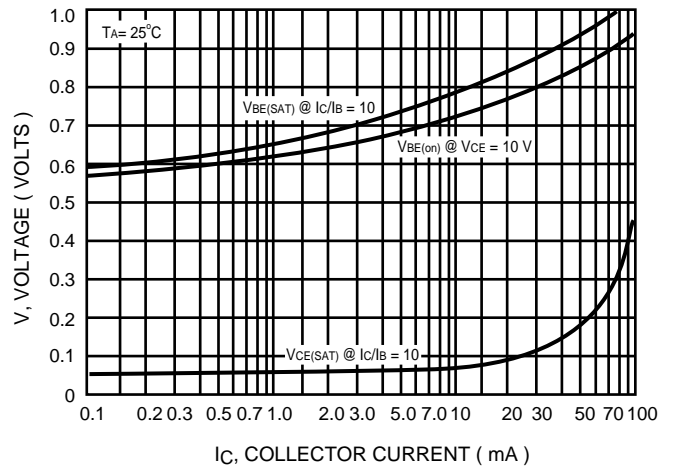


Figure 2. "Saturation" and "On" Voltage

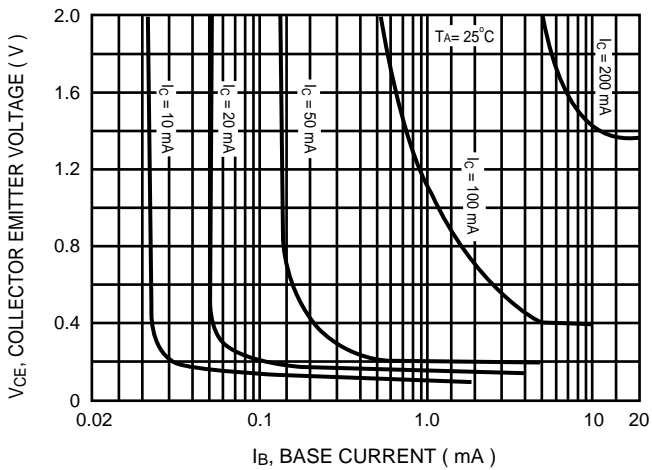


Figure 3. Collector Saturation Region

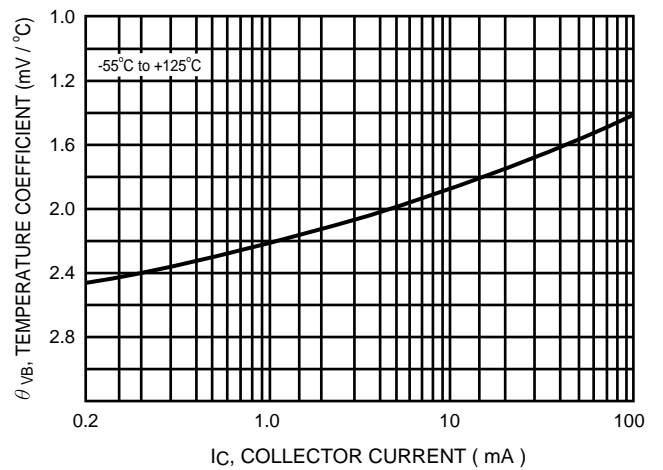


Figure 4. Base-Emitter Temperature Coefficient

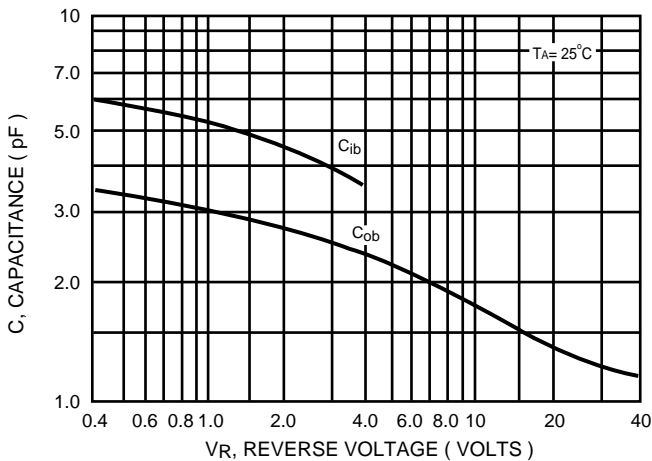


Figure 5. Capacitances

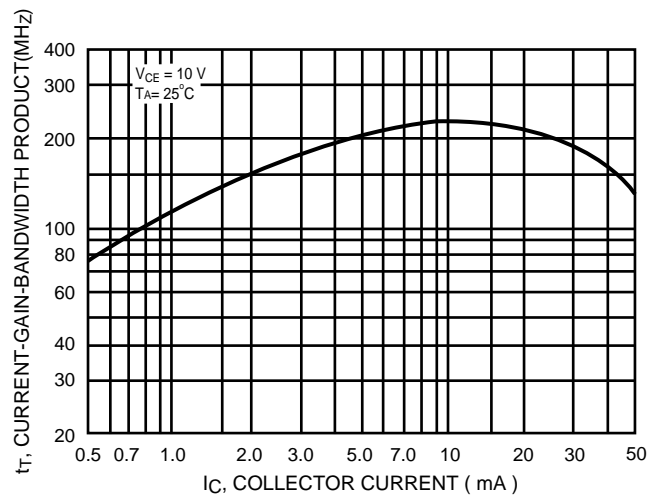


Figure 6. Current-Gain-Bandwidth Product

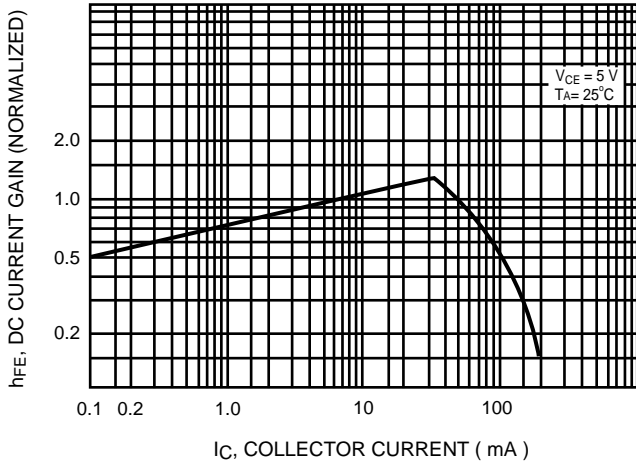


Figure 7. DC Current Gain

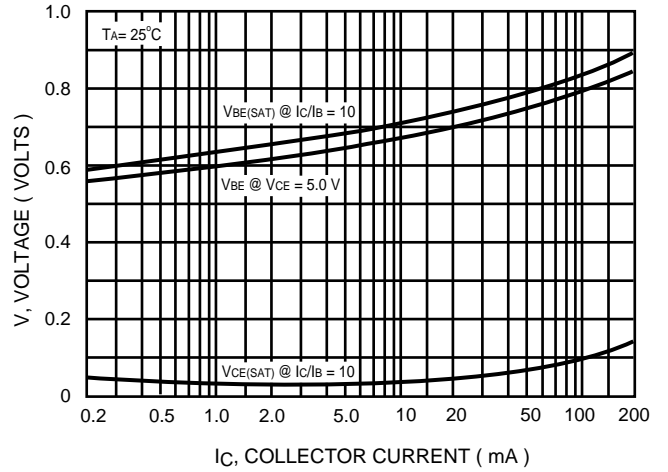


Figure 8. "On" Voltage

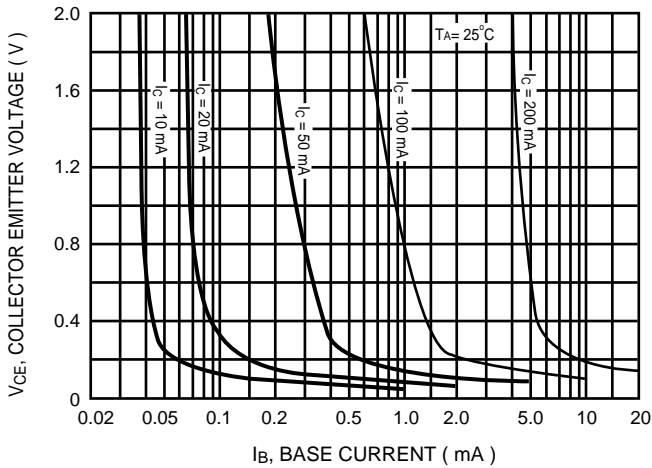


Figure 9. Collector Saturation Region

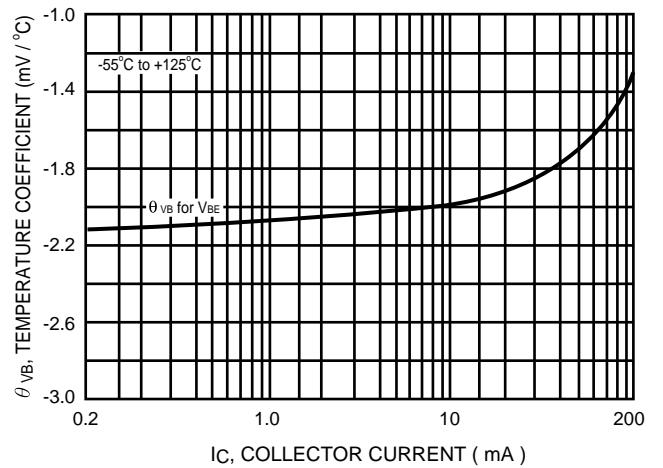


Figure 10. Base-Emitter Temperature Coefficient