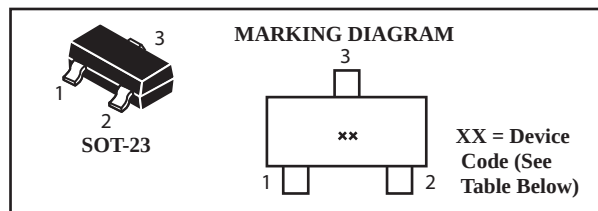
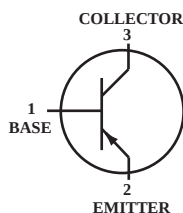


General Purpose Transistor

PNP Silicon

 **Lead(Pb)-Free**



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

Rating	Symbol	Value	Unit
Collector-Emitter Voltage BC856 BC857 BC858,BC859	V_{CEO}	-65 -45 -30	V
Collector-Base Voltage BC856 BC857 BC858,BC859	V_{CBO}	-80 -50 -30	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Collector Current-Continuous	I_C	-100	mAdc

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board ⁽¹⁾ (Note 1.) $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}\text{C/W}$
Total Device Dissipation Alumina Substrate, (Note 2.) $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^{\circ}\text{C/W}$
Junction and Storage, Temperature	T_J, T_{stg}	-55 to +150	$^{\circ}\text{C}$

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 ($T_A=25^{\circ}\text{C}$ Unless Otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
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Off Characteristics

Collector-Emitter Breakdown Voltage ($I_C = -10\text{mA}$)	BC856 Series BC857 Series BC858, BC859 Series	$V_{(BR)CEO}$	-65 -45 -30	- - -	- - -	V
Collector-Emitter Breakdown Voltage ($I_C = -10\mu\text{A}, V_{EB} = 0$)	BC856 Series BC857 Series BC858, BC859 Series	$V_{(BR)CES}$	-80 -50 -30	- - -	- - -	V
Collector-Base Breakdown Voltage ($I_C = -10\mu\text{A}$)	BC856 Series BC857 Series BC858, BC859 Series	$V_{(BR)CBO}$	-80 -50 -30	- - -	- - -	V
Emitter-Base Breakdown Voltage ($I_E = -1.0\mu\text{A}$)	BC856 Series BC857 Series BC858, BC859 Series	$V_{(BR)EBO}$	-5.0 -5.0 -5.0	- - -	- - -	V
Collector Cutoff Current ($V_{CB} = -30\text{V}$) ($V_{CB} = -30\text{V}, T_A = 150^{\circ}\text{C}$)		I_{CBO}	- -	- -	-15 -4.0	nA mA

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

Characteristics	Symbol	Min	Typ	Max	Unit
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On Characteristics

DC Current Gain ($I_C = -10\mu A, V_{CE} = -5.0V$) BC856A, BC857A, BC858A BC856B, BC857B, BC858B BC858C ($I_C = -2.0mA, V_{CE} = -5.0V$) BC856A, BC857A, BC858A BC856B, BC857B, BC858B, BC859B BC857C, BC858C, BC859C	h_{FE}	- - - 125 220 420	90 150 270 180 290 520	- - - 250 475 800	-
Collector-Emitter Saturation Voltage ($I_C = -10mA, I_B = -0.5mA$) ($I_C = -100mA, I_B = -5.0mA$)	$V_{CE(sat)}$	- -	- -	-0.3 -0.65	V
Base-Emitter Saturation Voltage ($I_C = -10mA, I_B = -0.5mA$) ($I_C = -100mA, I_B = -5.0mA$)	$V_{BE(sat)}$	- -	-0.7 -0.9	- -	V
Base-Emitter On Voltage ($I_C = -10mA, I_B = -0.5mA$) ($I_C = -100mA, I_B = -5.0mA$)	$V_{BE(on)}$	-0.6 -	- -	-0.75 -0.82	V

Small-signal Characteristics

Current-Gain-Bandwidth Product ($I_C = -10mA, V_{CE} = -5.0VDC, f = 100MHz$)	f_T	100	-	-	MHz
Output Capacitance ($V_{CB} = -10V, f = 1.0MHz$)	C_{obo}	-	-	4.5	pF
Noise Figure ($I_C = -0.2mA, V_{CE} = -5.0Vdc, R_s = 2.0k\Omega, f = 1.0kHz, BW = 200Hz$) BC856, BC857, BC858 Series BC859, Series	NF	- -	- -	10 4.0	dB

Device Marking

BC856A=3A; BC856B=3B; BC857A=3E; BC857B=3F; BC857C=3G
BC858A=3J; BC858B=3K; BC858C=3L; BC859B=4B; BC859C=4C

BC857/BC858/BC859 Series

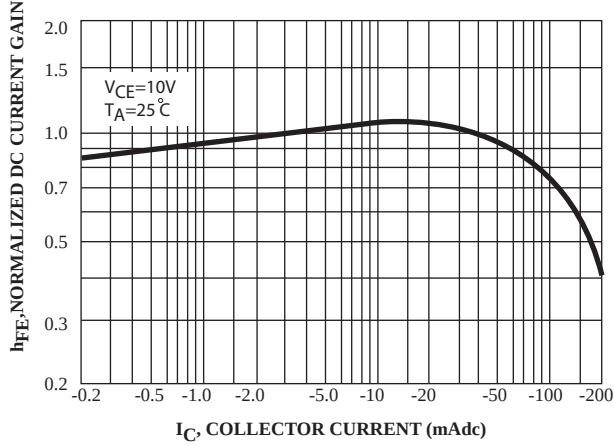


Figure1.Normalized DC Current Gain

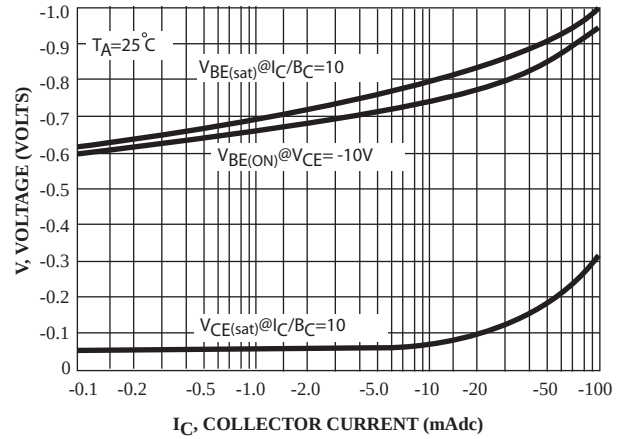


Figure2. "Saturation" And "On" Voltage

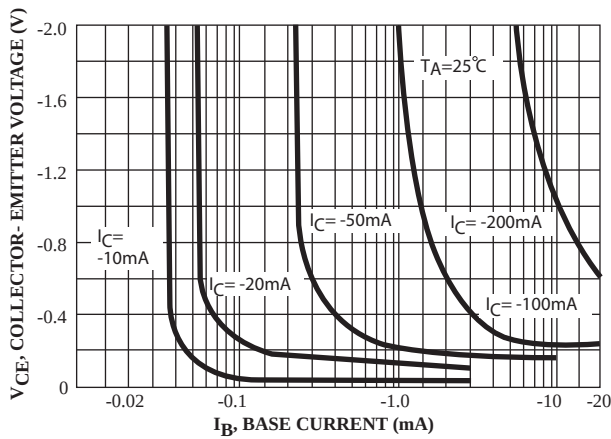


Figure 3. Collector Saturation Region

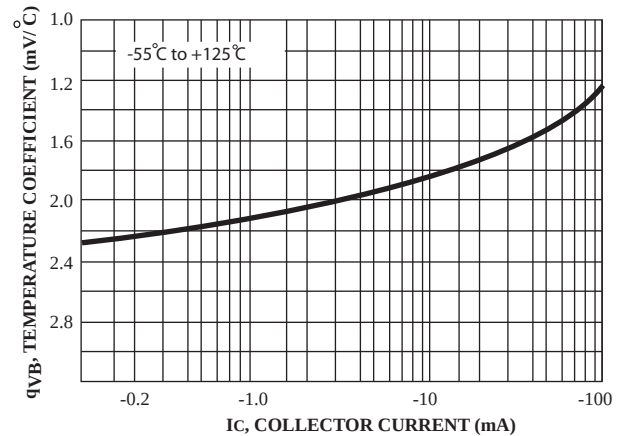


Figure 4. Base-Emitter Temperature Coefficient

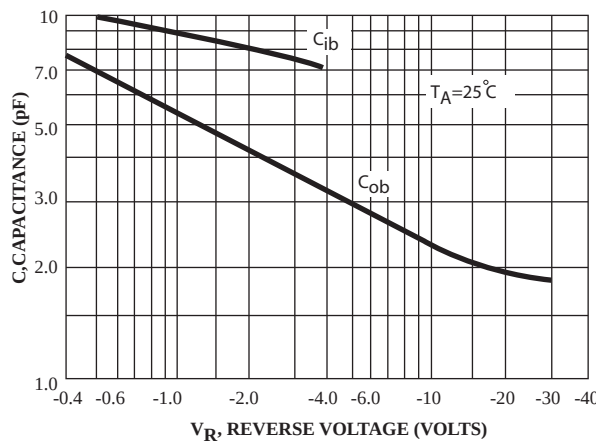


Figure 5. Capacitances

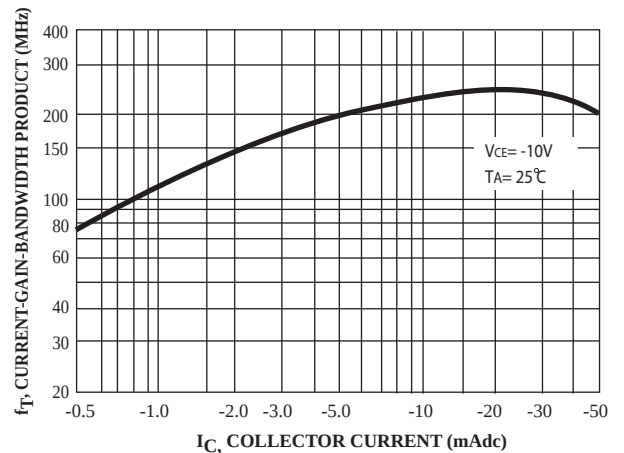


Figure 6. Current-Gain- Bandwidth Product

BC856 Series

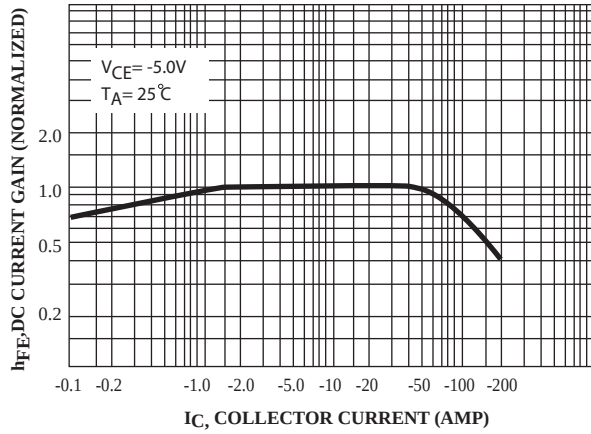


Figure 7. DC Current Gain

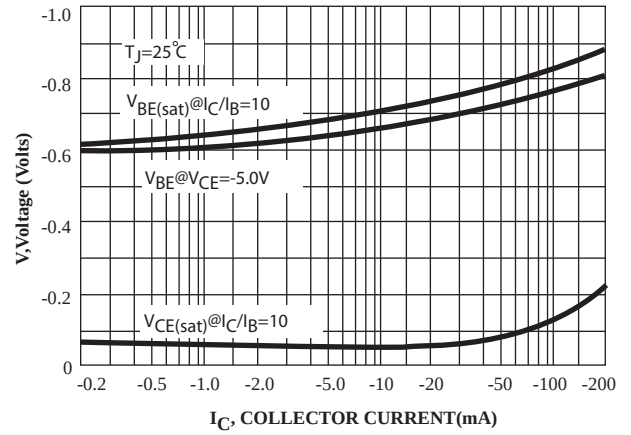


Figure 8. "ON" Voltage

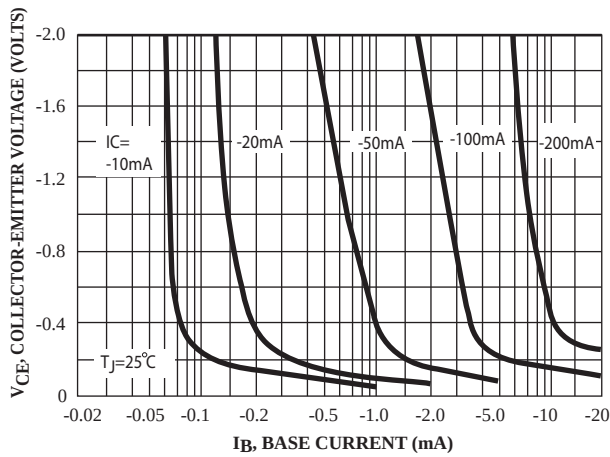


Figure 9. Collector Saturation Region

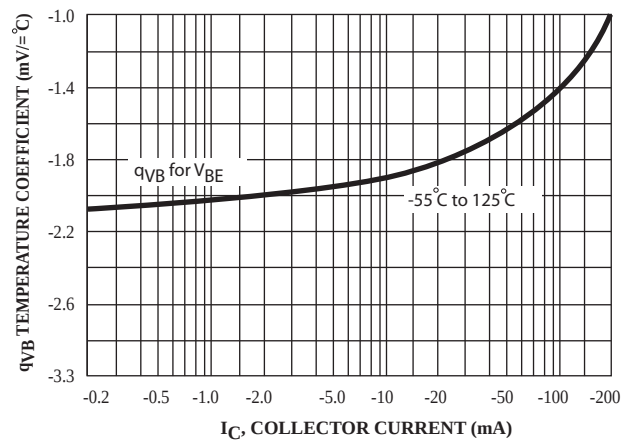


Figure 10. Base-Emitter Temperature Coefficient

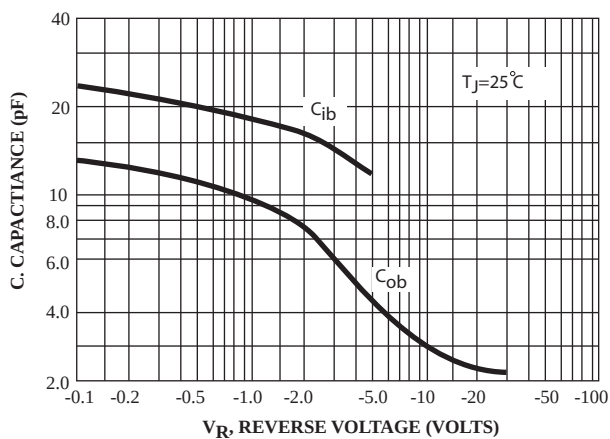


Figure 11. Capacitance

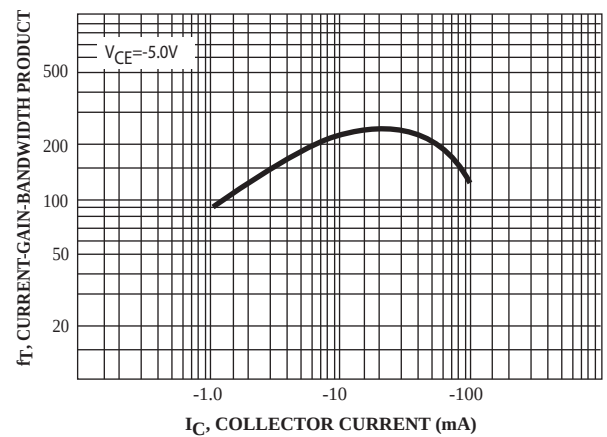


Figure 12. Current-Gain-Bandwidth Product