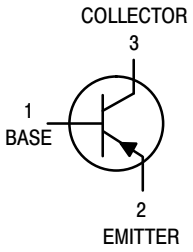
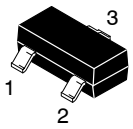
General Purpose Transistors

PNP Silicon

BC807-16L, BC807-25L, BC807-40L





SOT−23
CASE 318
STYLE 6

Features

- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector − Emitter Voltage	V_{CEO}	−45	V
Collector − Base Voltage	V_{CBO}	−50	V
Emitter − Base Voltage	V_{EBO}	−6.0	V
Collector Current − Continuous	I_C	−500	mAdc

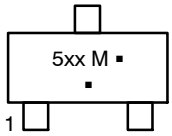
THERMAL CHARACTERISTICS

Characteristic	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)	$R_{\theta JA}$	436	°C/W
Total Device Dissipation Alumina Substrate, (Note 1) 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	T_J, T_{stg}	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. FR−4 Board, 1 oz. Cu, 100mm^2.
2. Alumina = 0.4 x 0.3 x 0.024 in 99.5% alumina.

MARKING DIAGRAM



5xx = Device Code
xx = A1, B1, or C
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector − Emitter Breakdown Voltage (I_C = −10 mA)		$V_{(BR)CEO}$	−45	−	−	V
Collector − Emitter Breakdown Voltage (V_{EB} = 0, I_C = −10 μA)		$V_{(BR)CES}$	−50	−	−	V
Emitter − Base Breakdown Voltage (I_E = −1.0 μA)		$V_{(BR)EBO}$	−6.0	−	−	V
Collector Cutoff Current		I_{CBO}				
(V_{CB} = −20 V)			−	−	−100	nA
(V_{CB} = −20 V, T_J = 150°C)			−	−	−5.0	μA
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				−
(I_C = −100 mA, V_{CE} = −1.0 V)	BC807−16, SBC80−16L		100	−	250	
	BC807−25, SBC807−25L		160	−	400	
	BC807−40, SBC807−40L		250	−	600	
(I_C = −500 mA, V_{CE} = −1.0 V)			40	−	−	
Collector − Emitter Saturation Voltage (I_C = −500 mA, I_B = −50 mA)		$V_{CE(sat)}$	−	−	−0.7	V
Base − Emitter On Voltage (I_C = −500 mA, V_{CE} = −1.0 V)		$V_{BE(on)}$	−	−	−1.2	V
SMALL−SIGNAL CHARACTERISTICS						
Current − Gain − Bandwidth Product (I_C = −10 mA, V_{CE} = −5.0 Vdc, f = 100 MHz)		f_T	100	−	−	MHz
Output Capacitance (V_{CB} = −10 V, f = 1.0 MHz)		C_{obo}	−	10	−	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

ORDERING INFORMATION

Device	Specific Marking	Package	Shipping†
BC807−16LT1G	5A1	SOT−23 (Pb−Free)	3000 / Tape & Reel
SBC807−16LT1G*			
BC807−16LT3G	5A1		10,000 / Tape & Reel
SBC807−16LT3G*			
BC807−25LT1G	5B1		3000 / Tape & Reel
SBC807−25LT1G*			
BC807−25LT3G	5B1		10,000 / Tape & Reel
SBC807−25LT3G*			
BC807−40LT1G	5C		3000 / Tape & Reel
SBC807−40LT1G*			
BC807−40LT3G	5C		10,000 / Tape & Reel
SBC807−40LT3G*			

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable.

TYPICAL CHARACTERISTICS − BC807−16LT1

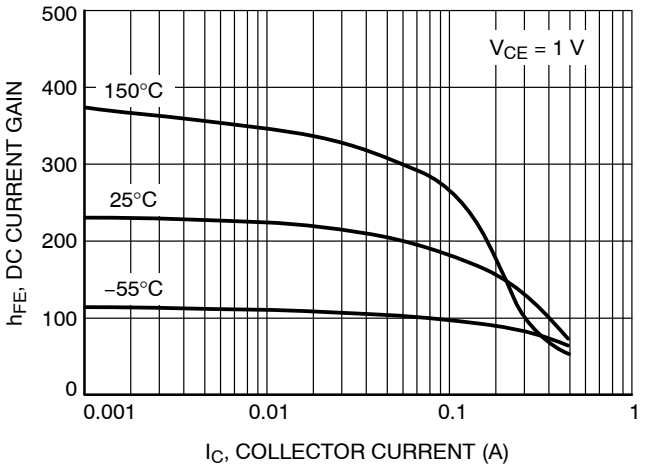

Figure 1. DC Current Gain vs. Collector Current

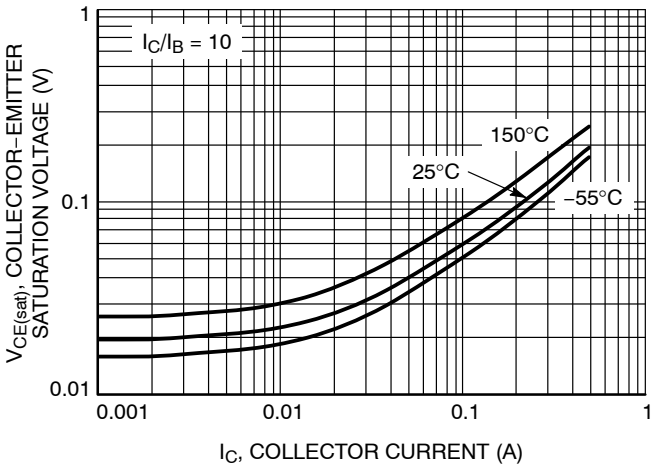

Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

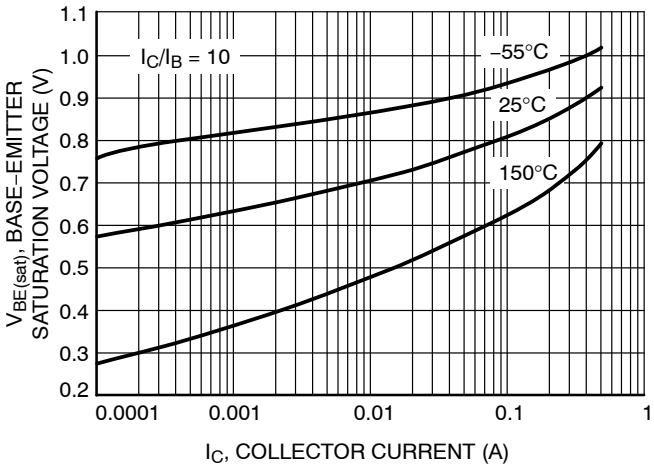

Figure 3. Base Emitter Saturation Voltage vs. Collector Current

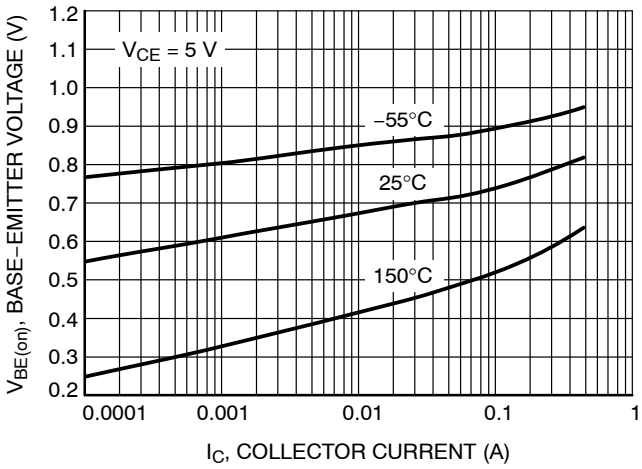

Figure 4. Base Emitter Voltage vs. Collector Current

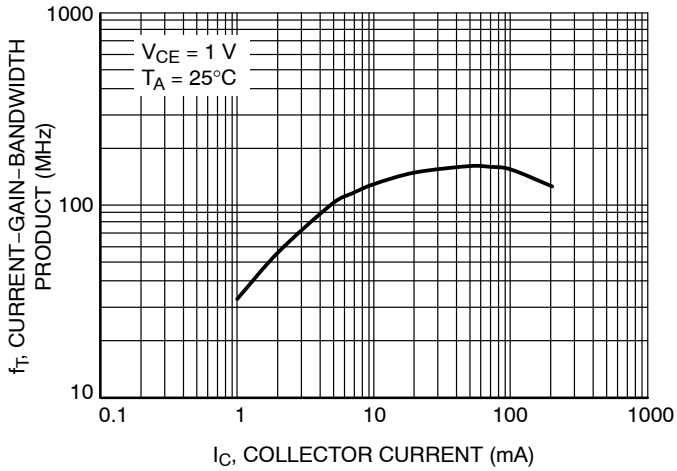

Figure 5. Current Gain Bandwidth Product vs. Collector Current

TYPICAL CHARACTERISTICS − BC807−16LT1

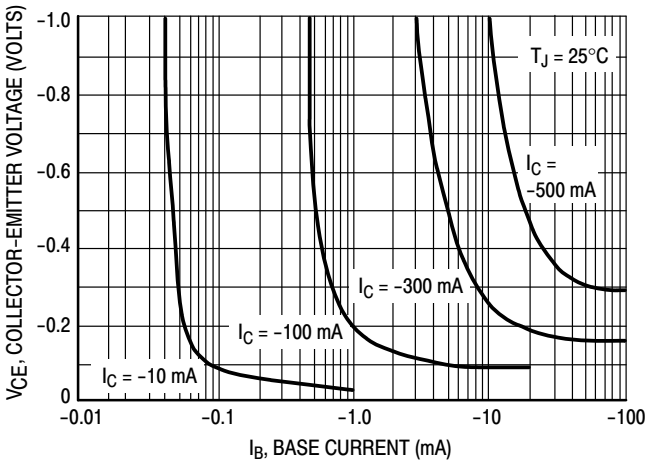

Figure 6. Saturation Region

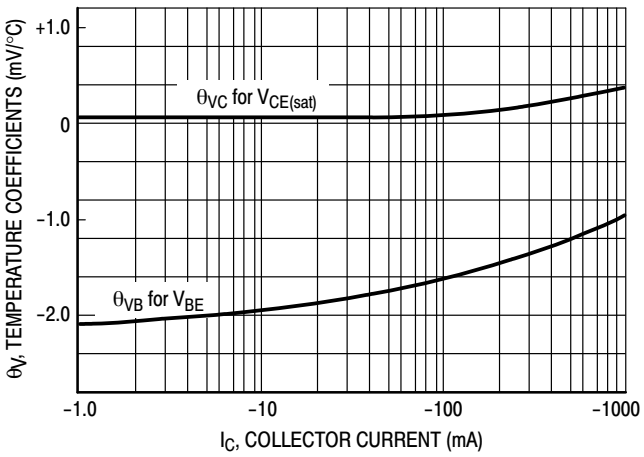

Figure 7. Temperature Coefficients

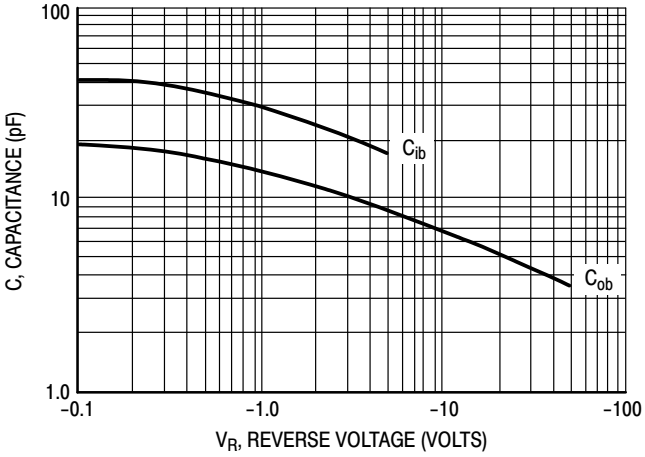

Figure 8. Capacitances

TYPICAL CHARACTERISTICS − BC807−25LT1

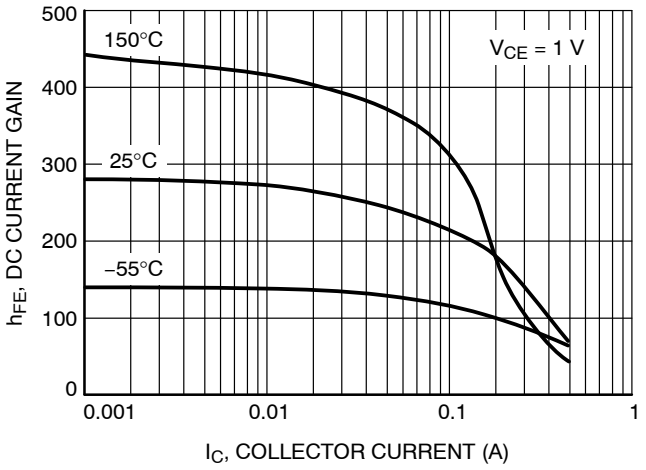

Figure 9. DC Current Gain vs. Collector Current

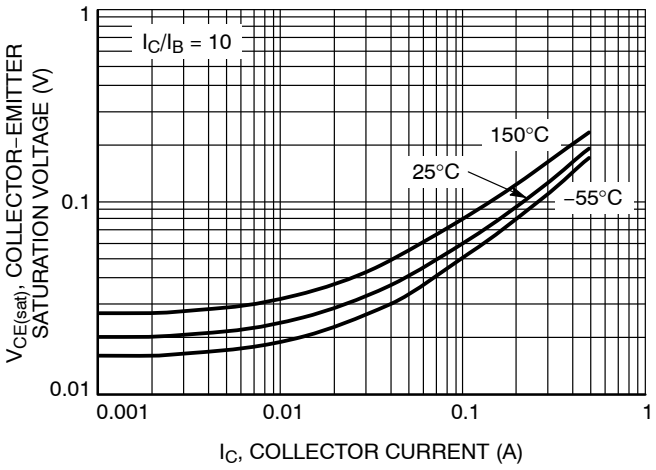

Figure 10. Collector Emitter Saturation Voltage vs. Collector Current

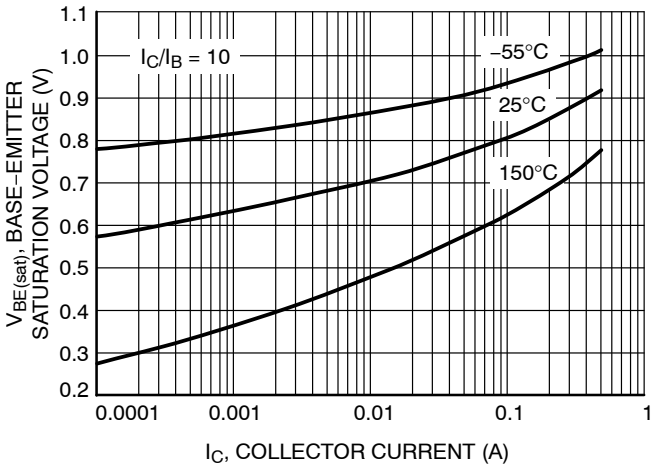

Figure 11. Base Emitter Saturation Voltage vs. Collector Current

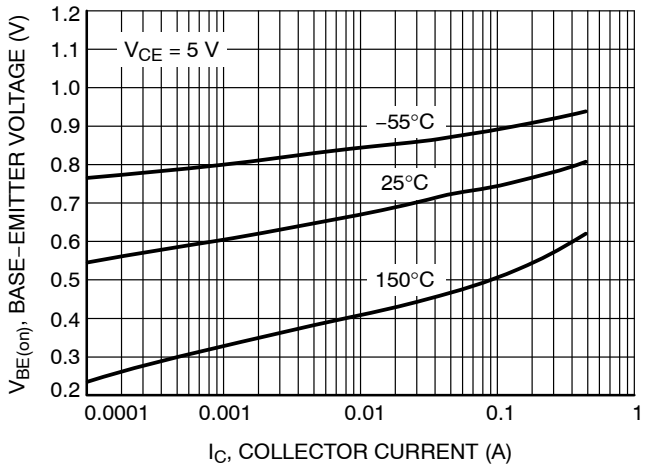

Figure 12. Base Emitter Voltage vs. Collector Current

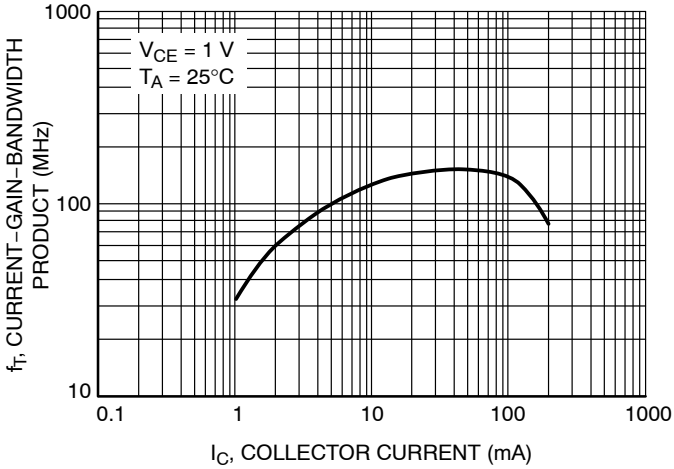

Figure 13. Current Gain Bandwidth Product vs. Collector Current

TYPICAL CHARACTERISTICS − BC807−25LT1

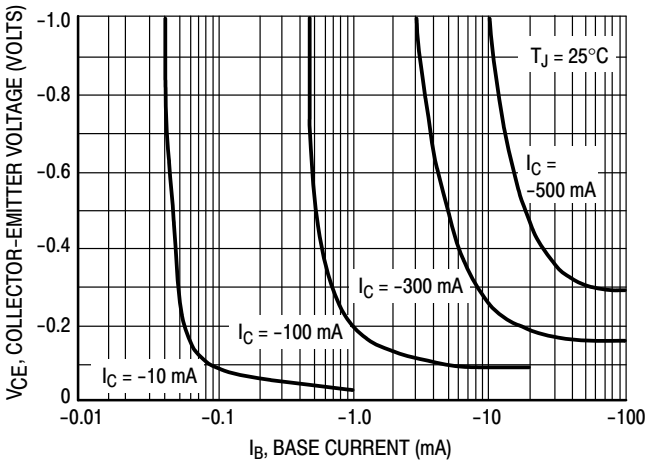

Figure 14. Saturation Region

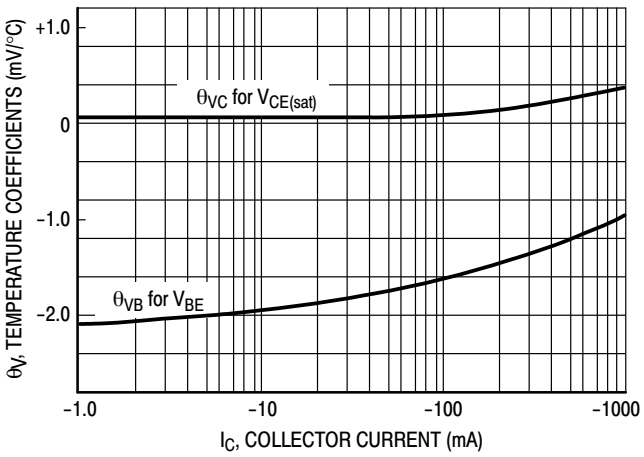

Figure 15. Temperature Coefficients

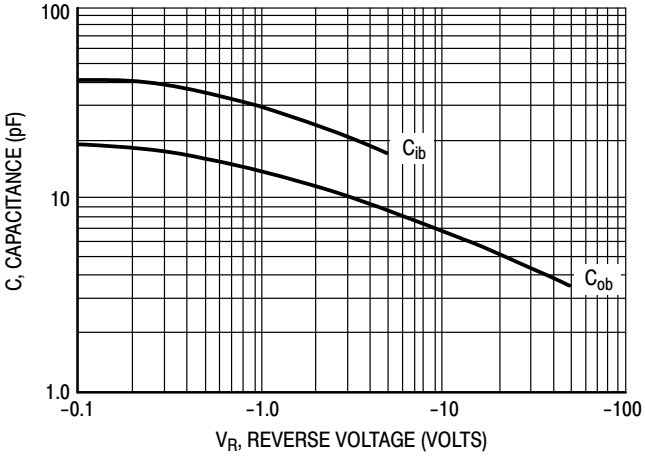

Figure 16. Capacitances

TYPICAL CHARACTERISTICS − BC807−40LT1

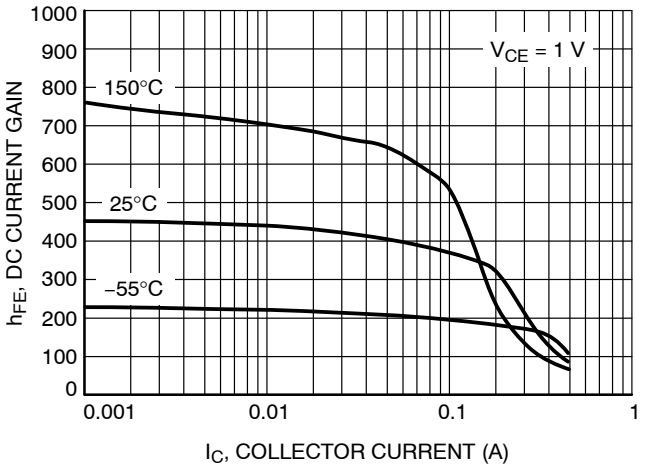

Figure 17. DC Current Gain vs. Collector Current

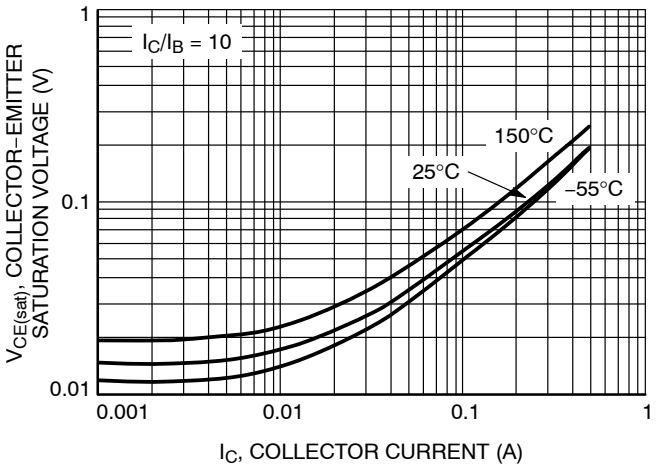

Figure 18. Collector Emitter Saturation Voltage vs. Collector Current

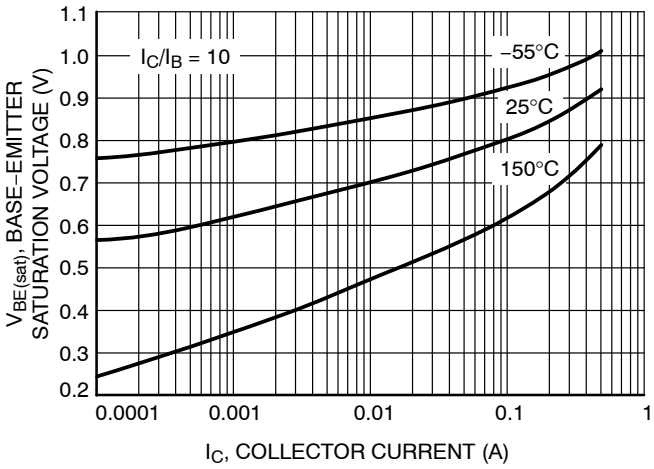

Figure 19. Base Emitter Saturation Voltage vs. Collector Current

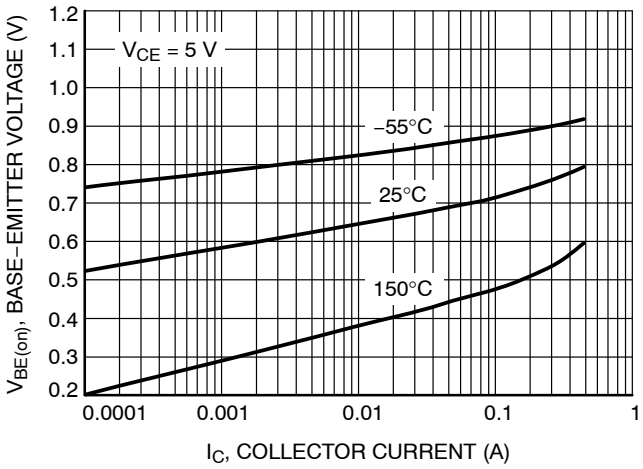

Figure 20. Base Emitter Voltage vs. Collector Current

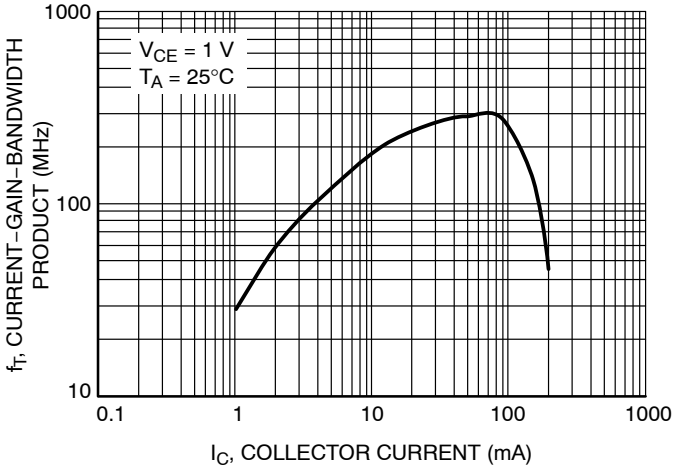

Figure 21. Current Gain Bandwidth Product vs. Collector Current

TYPICAL CHARACTERISTICS − BC807−40LT1

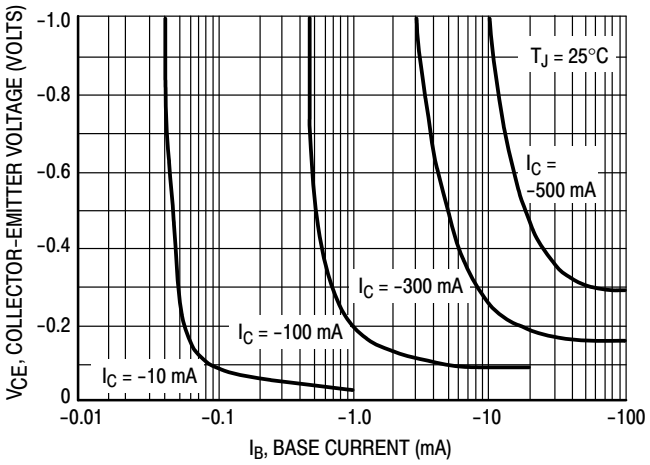

Figure 22. Saturation Region

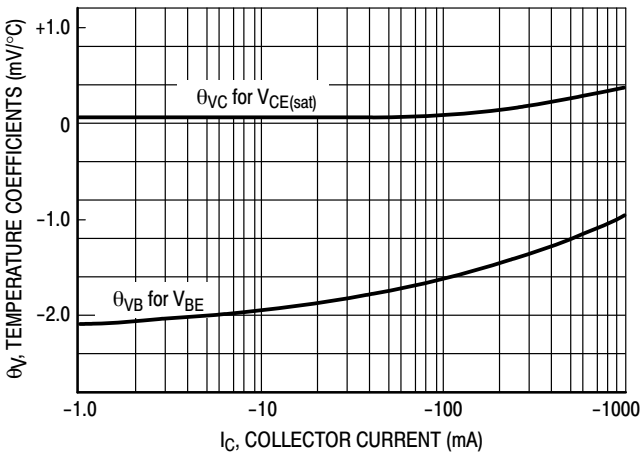

Figure 23. Temperature Coefficients

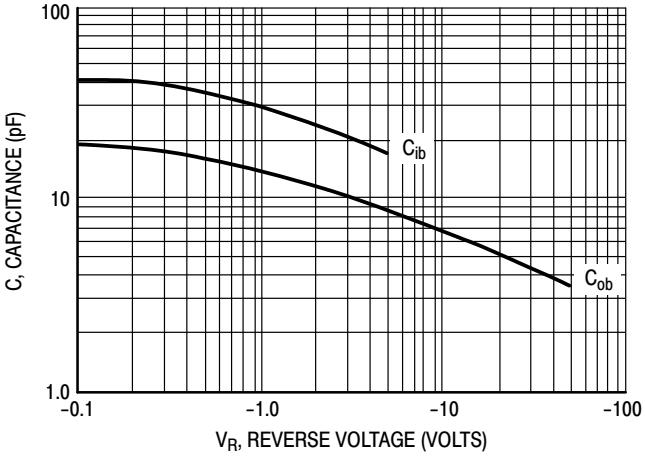

Figure 24. Capacitances

TYPICAL CHARACTERISTICS − BC807−16LT1, BC807−25LT1, BC807−40LT1

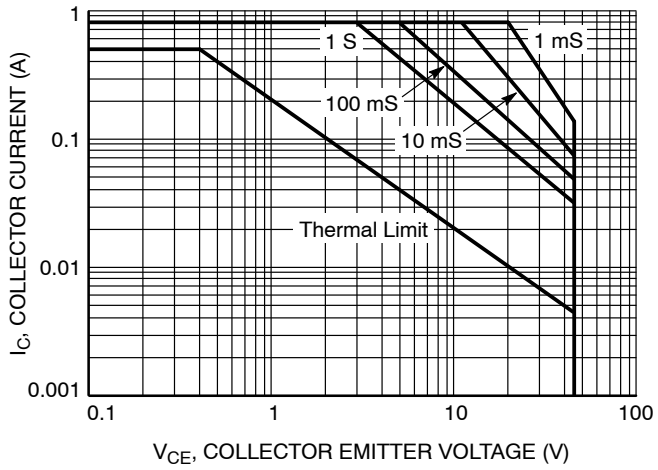

Figure 25. Safe Operating Area

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