

General Purpose Transistors

PNP Silicon

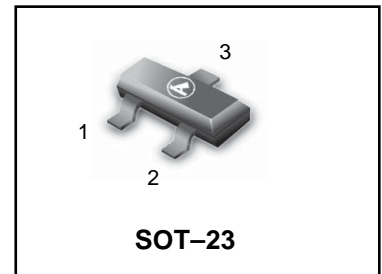
FEATURE

- Collector current capability $I_C = -500$ mA.
- Collector-emitter voltage $V_{CEO(max)} = -45$ V.
- General purpose switching and amplification.
- PNP complement: LBC807 Series.
- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

LBC807-16LT1G
LBC807-25LT1G
LBC807-40LT1G
S-LBC807-16LT1G
S-LBC807-25LT1G
S-LBC807-40LT1G

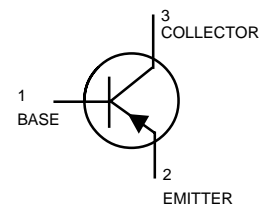
DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBC807-16LT1G	5A1	3000/Tape&Reel
LBC807-16LT3G	5A1	10000/Tape&Reel
LBC807-25LT1G	5B1	3000/Tape&Reel
LBC807-25LT3G	5B1	10000/Tape&Reel
LBC807-40LT1G	5C1	3000/Tape&Reel
LBC807-40LT3G	5C1	10000/Tape&Reel



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}	-5.0	V
Collector Current — Continuous	I_C	-500	mAdc



THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (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, (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.

**LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
S-LBC807-16LT1G, S-LBC807-25LT1G, S-LBC807-40LT1G**

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = -10\text{ mA}$)	$V_{(BR)CEO}$	-45	—	—	V
Collector–Emitter Breakdown Voltage ($V_{EB} = 0, I_C = -10\ \mu\text{A}$)	$V_{(BR)CES}$	-50	—	—	V
Emitter–Base Breakdown Voltage ($I_E = -1.0\ \mu\text{A}$)	$V_{(BR)EBO}$	-5.0	—	—	V
Collector Cutoff Current ($V_{CB} = -20\text{ V}$)	I_{CBO}	—	—	-100	nA
($V_{CB} = -20\text{ V}, T_J = 150^\circ\text{C}$)		—	—	-5.0	μA

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

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

DC Current Gain ($I_C = -100\text{ mA}, V_{CE} = -1.0\text{ V}$)	h_{FE}				—
	LBC807-16	100	—	250	
	LBC807-25	160	—	400	
	LBC807-40	250	—	600	
($I_C = -500\text{ mA}, V_{CE} = -1.0\text{ V}$)		40	—	—	
Collector–Emitter Saturation Voltage ($I_C = -500\text{ mA}, I_B = -50\text{ mA}$)	$V_{CE(sat)}$	—	—	-0.7	V
Base–Emitter On Voltage ($I_C = -500\text{ mA}, V_{CE} = -1.0\text{ V}$)	$V_{BE(on)}$	—	—	-1.2	V

SMALL-SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = -10\text{ mA}, V_{CE} = -5.0\text{ V}_{dc}, f = 100\text{ MHz}$)	f_T	100	—	—	MHz
Output Capacitance ($V_{CB} = -10\text{ V}, f = 1.0\text{ MHz}$)	C_{obo}	—	10	—	pF

**LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
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TYPICAL CHARACTERISTICS – LBC807-16LT1G

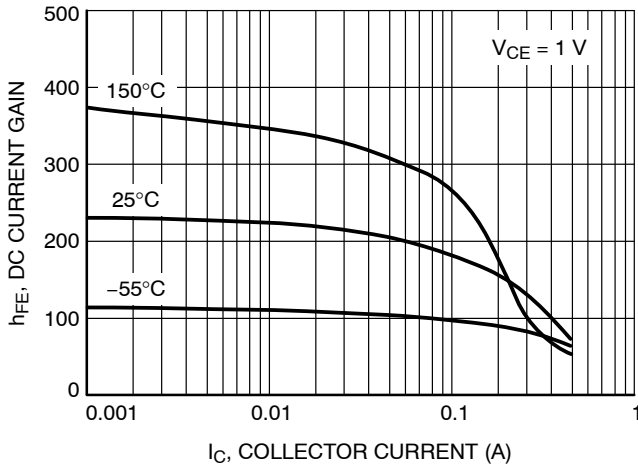


Figure 1. DC Current Gain vs. Collector Current

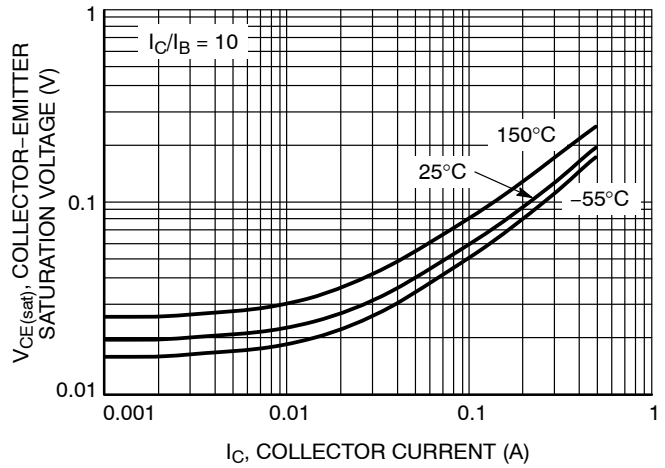


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

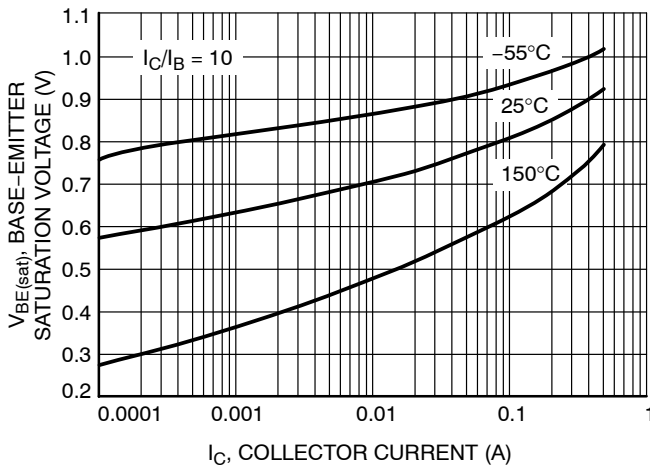


Figure 3. Base Emitter Saturation Voltage vs. Collector Current

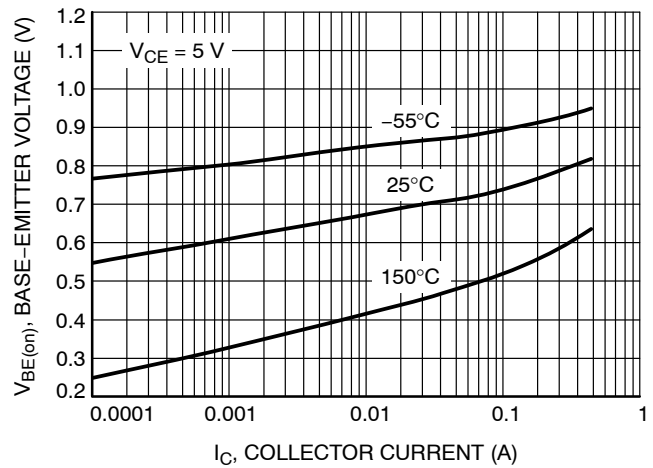


Figure 4. Base Emitter Voltage vs. Collector Current

LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
 S-LBC807-16LT1G, S-LBC807-25LT1G, S-LBC807-40LT1G

TYPICAL CHARACTERISTICS - LBC807-16LT1G

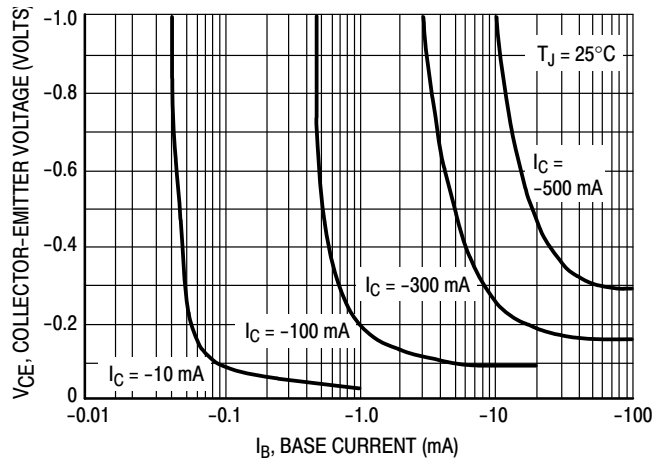


Figure 5. Saturation Region

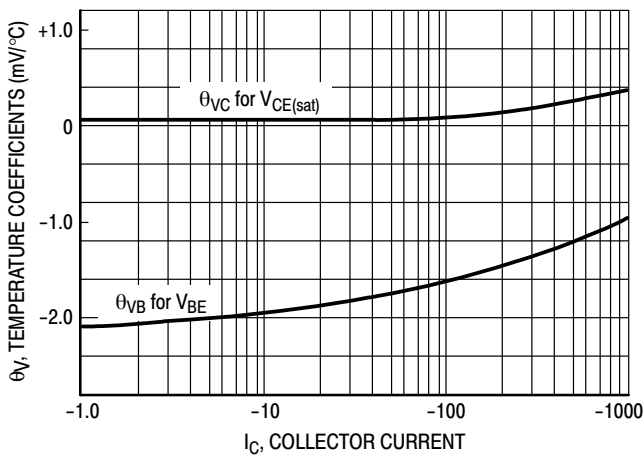


Figure 6. Temperature Coefficients

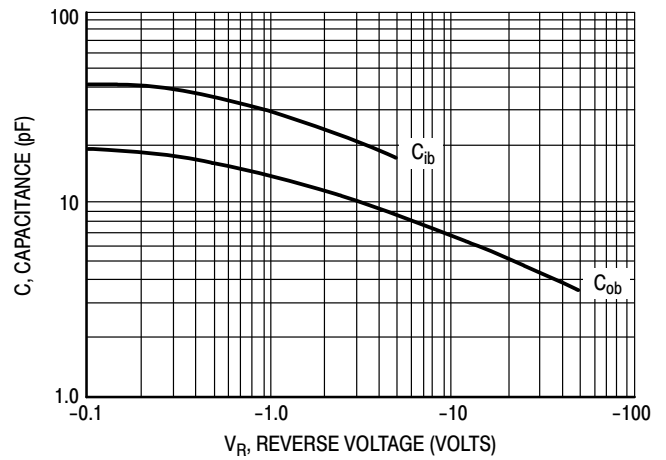


Figure 7. Capacitances

LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
S-LBC807-16LT1G, S-LBC807-25LT1G, S-LBC807-40LT1G

TYPICAL CHARACTERISTICS - LBC807-25LT1G

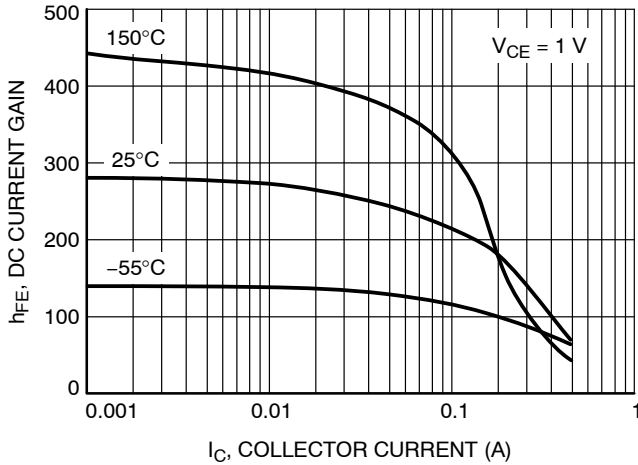


Figure 8. DC Current Gain vs. Collector Current

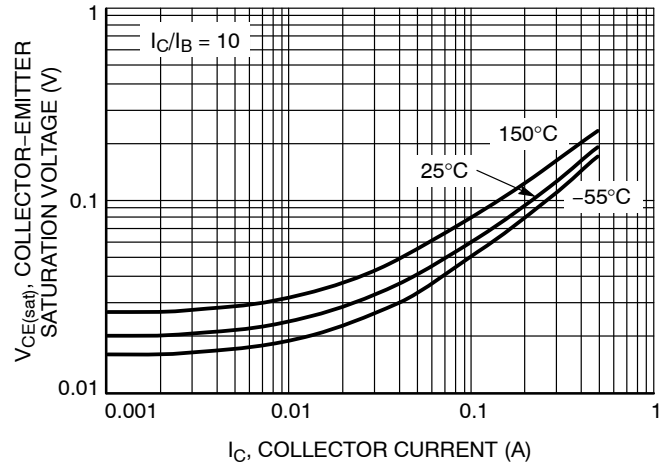


Figure 9. Collector Emitter Saturation Voltage vs. Collector Current

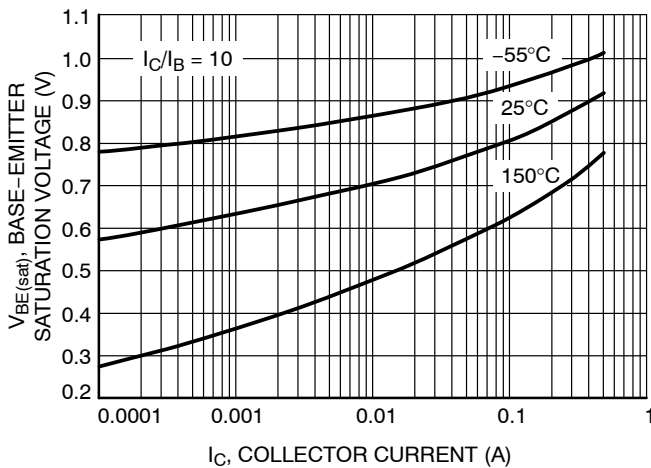


Figure 10. Base Emitter Saturation Voltage vs. Collector Current

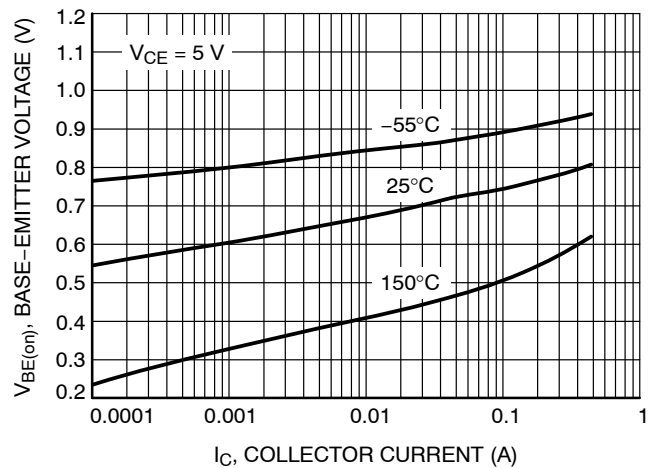


Figure 11. Base Emitter Voltage vs. Collector Current

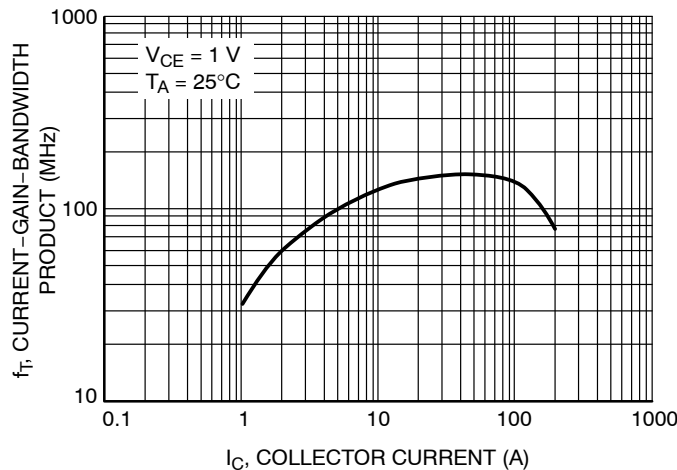


Figure 12. Current Gain Bandwidth Product vs. Collector Current

LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
 S-LBC807-16LT1G, S-LBC807-25LT1G, S-LBC807-40LT1G

TYPICAL CHARACTERISTICS – LBC807-25LT1G

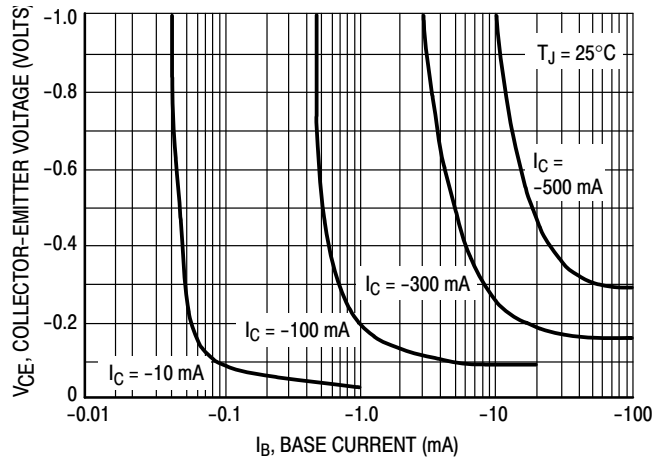


Figure 13. Saturation Region

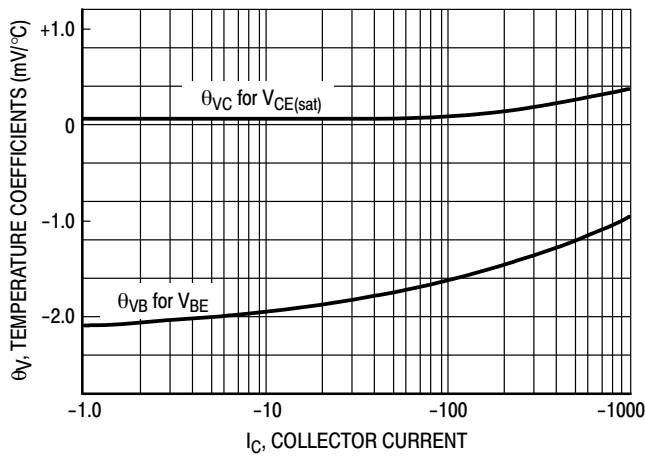


Figure 14. Temperature Coefficients

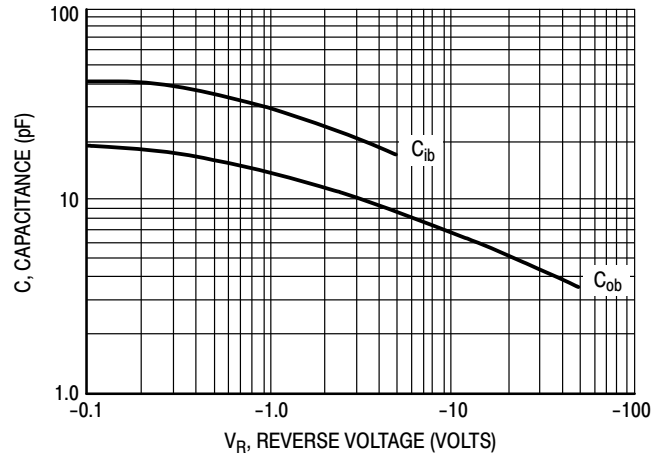


Figure 15. Capacitances

LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
S-LBC807-16LT1G, S-LBC807-25LT1G, S-LBC807-40LT1G

TYPICAL CHARACTERISTICS - LBC807-40LT1G

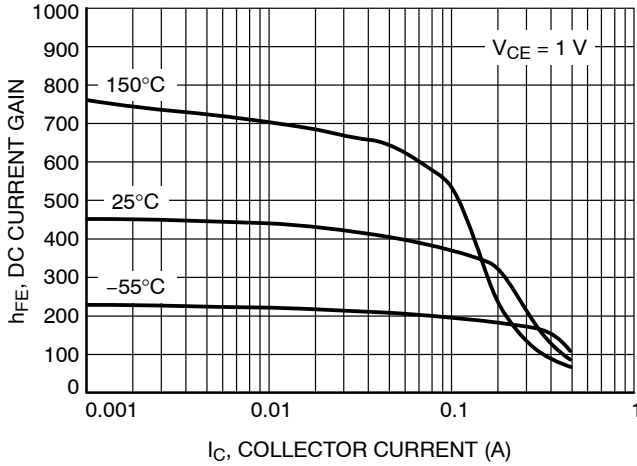


Figure 16. DC Current Gain vs. Collector Current

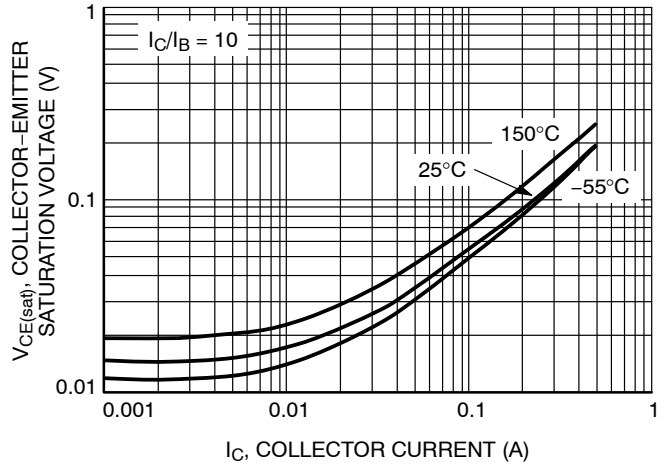


Figure 17. Collector Emitter Saturation Voltage vs. Collector Current

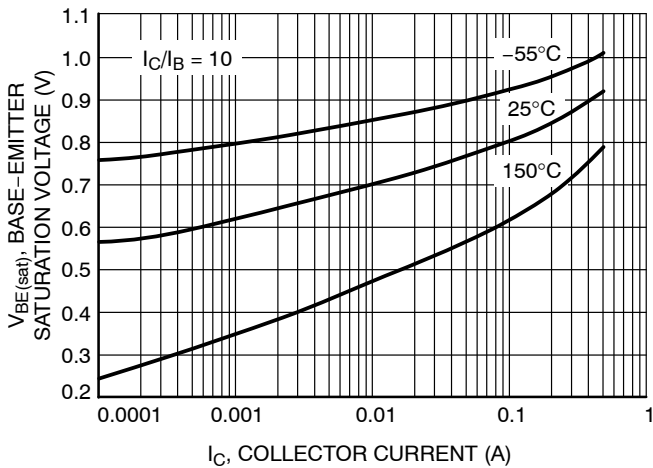


Figure 18. Base Emitter Saturation Voltage vs. Collector Current

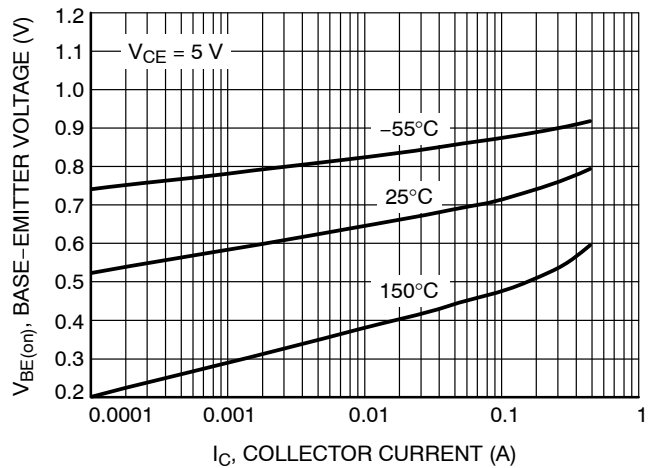


Figure 19. Base Emitter Voltage vs. Collector Current

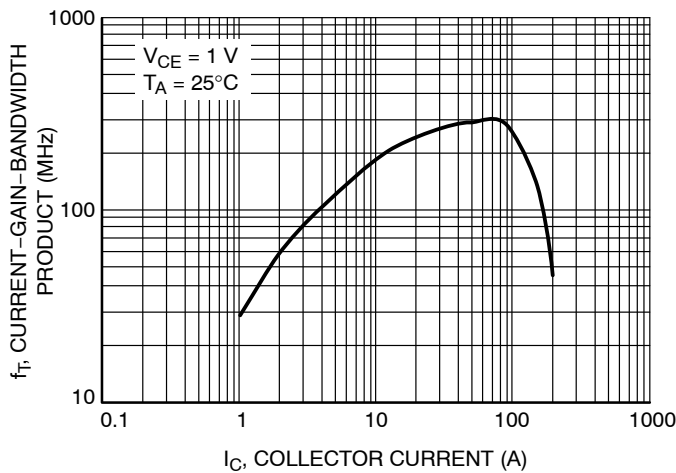


Figure 20. Current Gain Bandwidth Product vs. Collector Current

LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G
S-LBC807-16LT1G, S-LBC807-25LT1G, S-LBC807-40LT1G

TYPICAL CHARACTERISTICS – LBC807-40LT1G

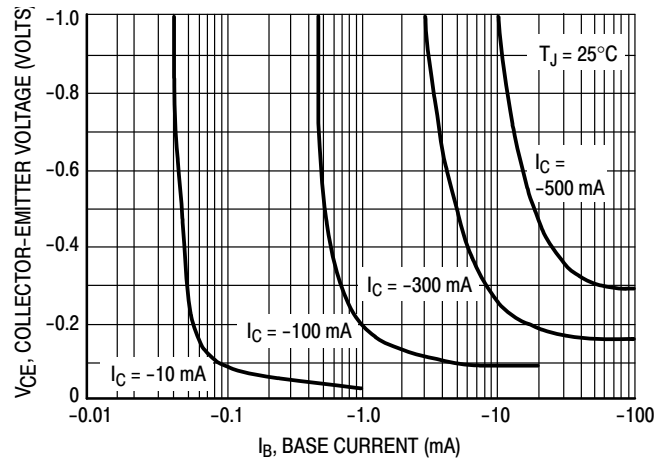


Figure 21. Saturation Region

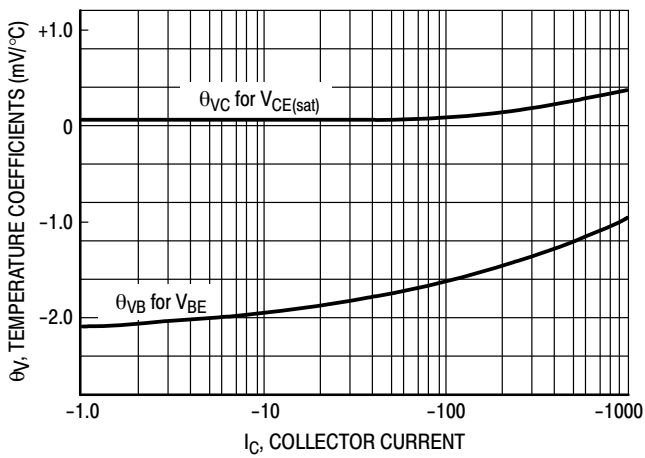


Figure 22. Temperature Coefficients

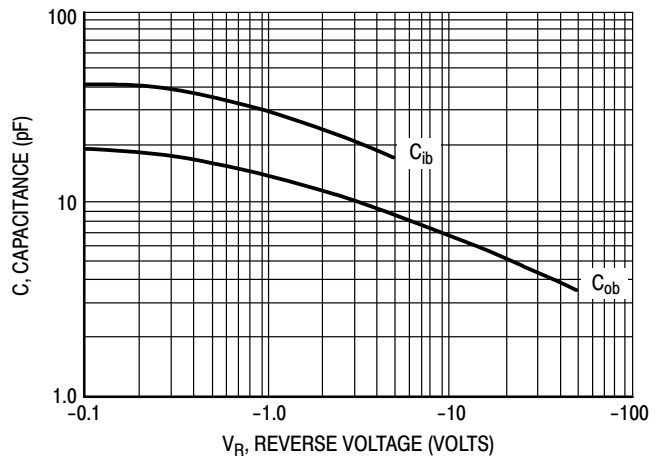
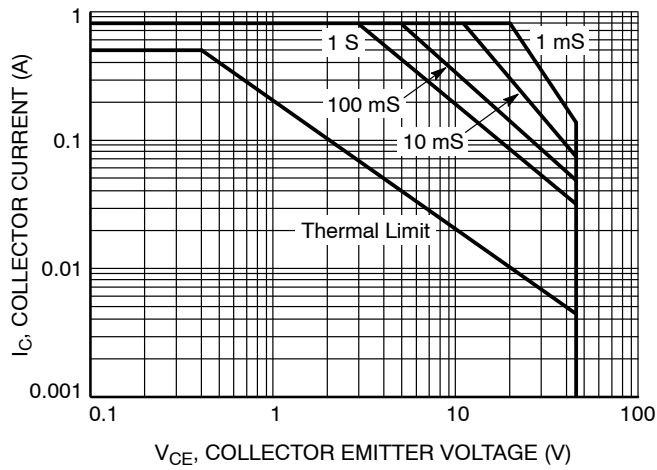
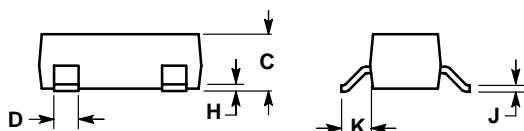
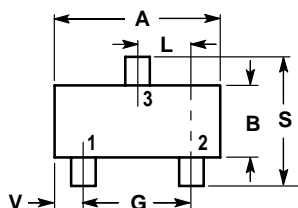


Figure 23. Capacitances

**LBC807-16LT1G,LBC807-25LT1G,LBC807-40LT1G
S-LBC807-16LT1G,S-LBC807-25LT1G,S-LBC807-40LT1G****TYPICAL CHARACTERISTICS –LBC807-16LT1G, LBC807-25LT1G, LBC807-40LT1G****Figure 24. Safe Operating Area**

**LBC807-16LT1G,LBC807-25LT1G,LBC807-40LT1G
S-LBC807-16LT1G,S-LBC807-25LT1G,S-LBC807-40LT1G**

SOT-23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

