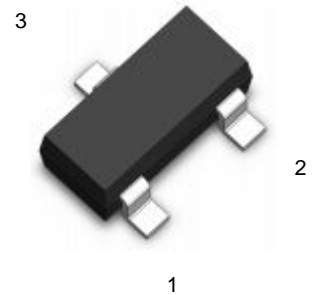


## General Purpose Transistors PNP Silicon

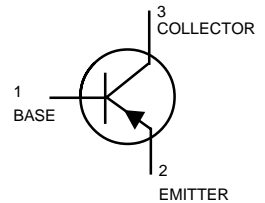
### Dimensions SOT-23

#### 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.



### Pin Configuration



#### 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 $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
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.)

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	$\mu\text{A}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

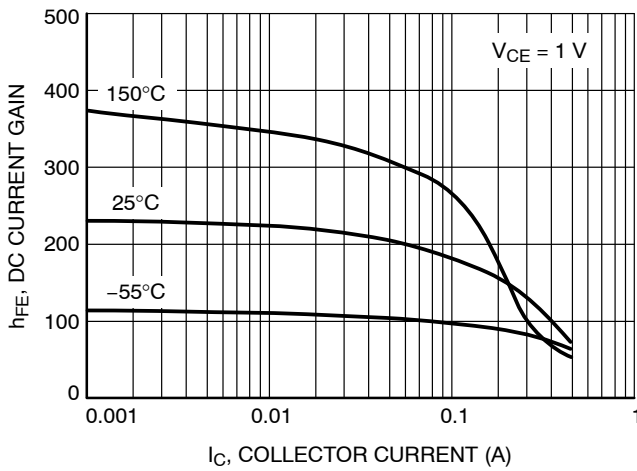
**ON CHARACTERISTICS**

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

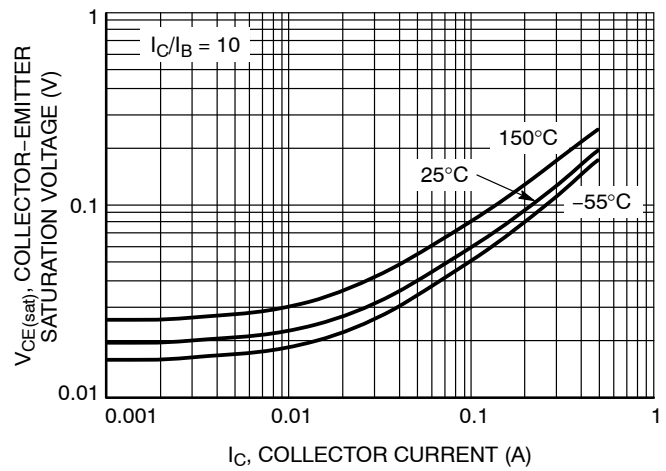
**SMALL-SIGNAL CHARACTERISTICS**

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

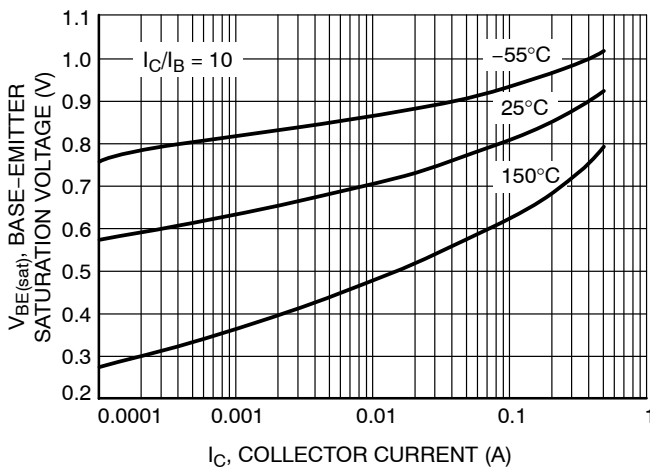
### TYPICAL CHARACTERISTICS –LBC807-16LT1G



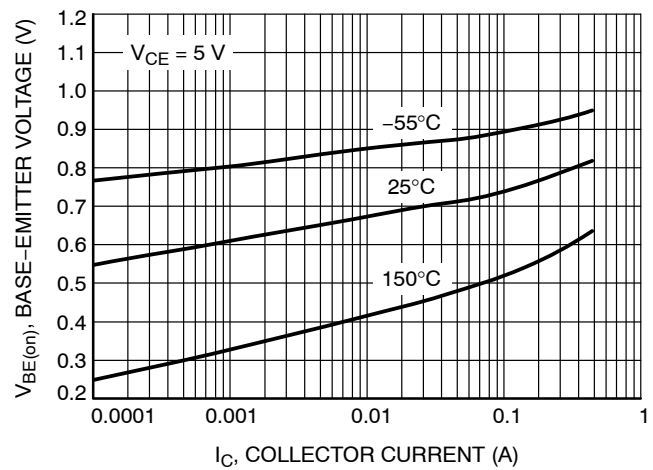
**Figure 1. DC Current Gain vs. Collector Current**



**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**

### TYPICAL CHARACTERISTICS - LBC807-16LT1G

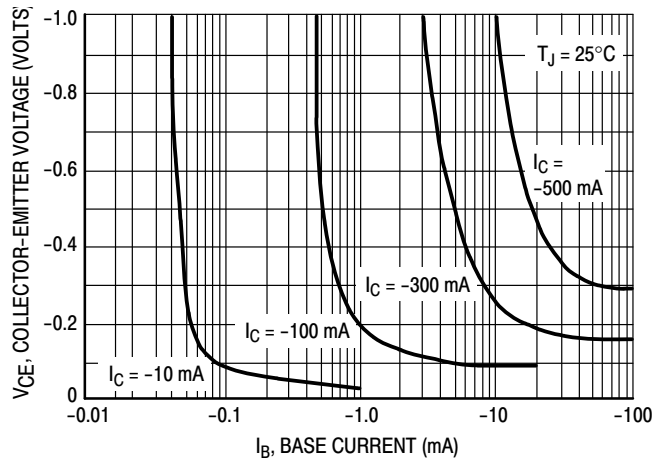


Figure 5. Saturation Region

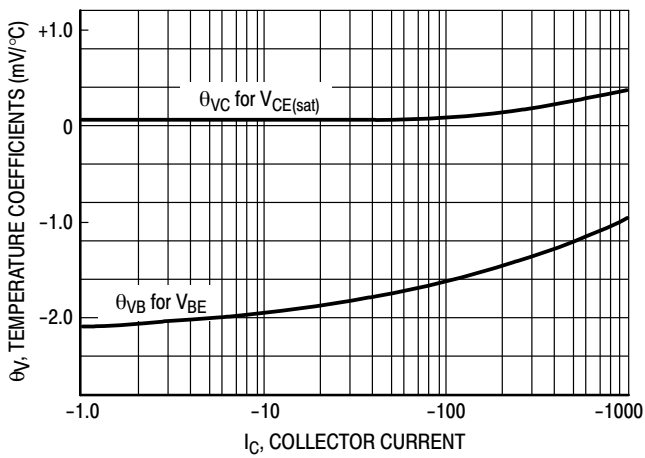


Figure 6. Temperature Coefficients

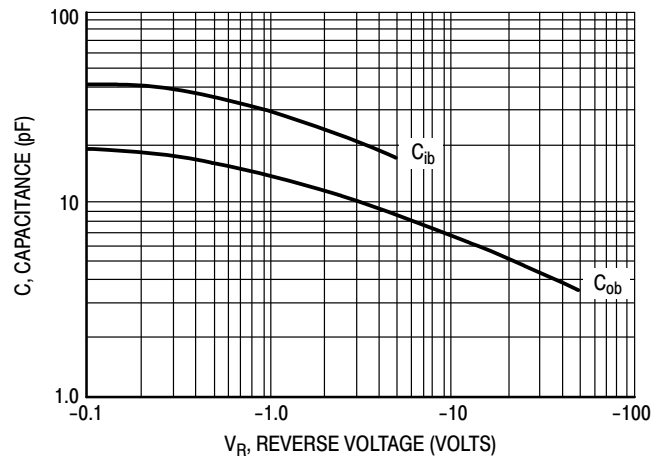
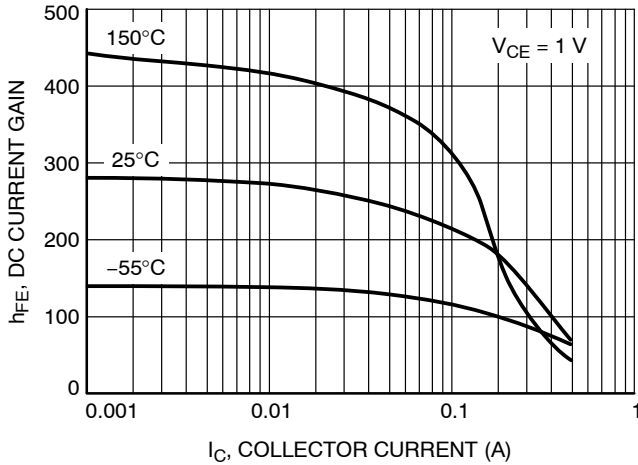
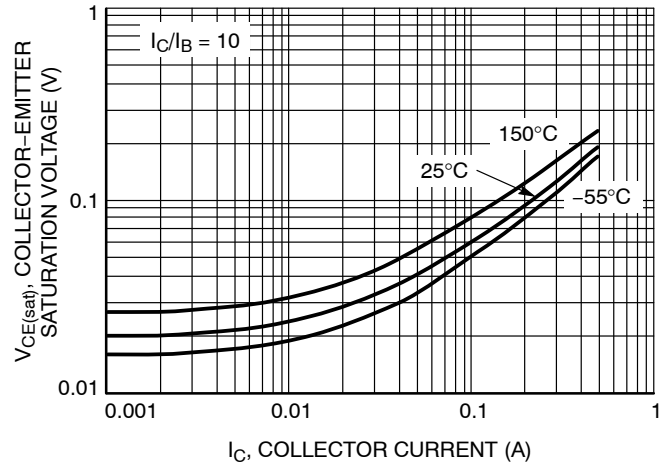


Figure 7. Capacitances

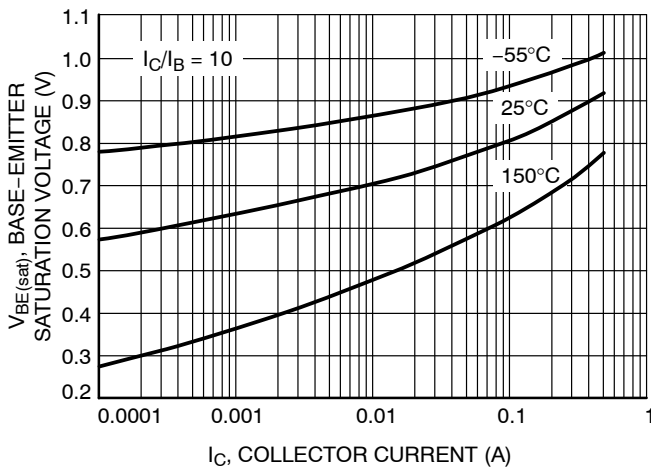
### TYPICAL CHARACTERISTICS - LBC807-25LT1G



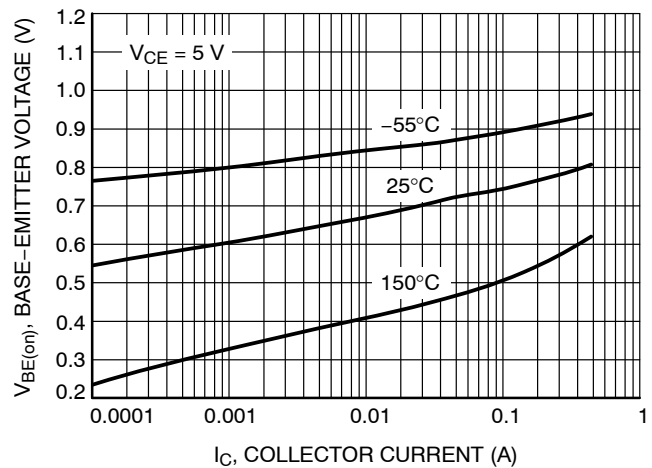
**Figure 8. DC Current Gain vs. Collector Current**



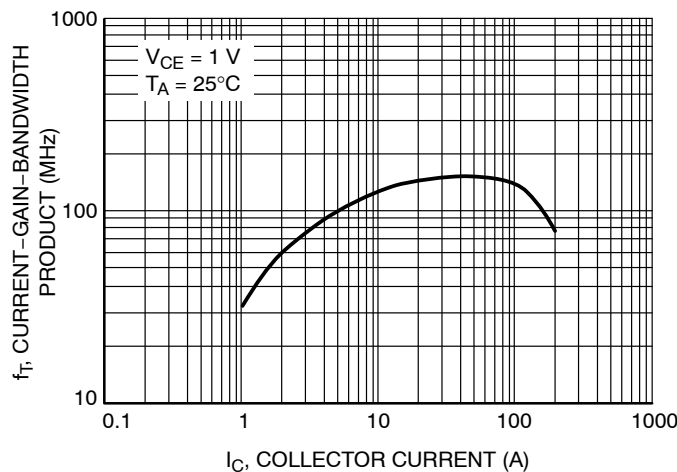
**Figure 9. Collector Emitter Saturation Voltage vs. Collector Current**



**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**

### TYPICAL CHARACTERISTICS – LBC807-25LT1G

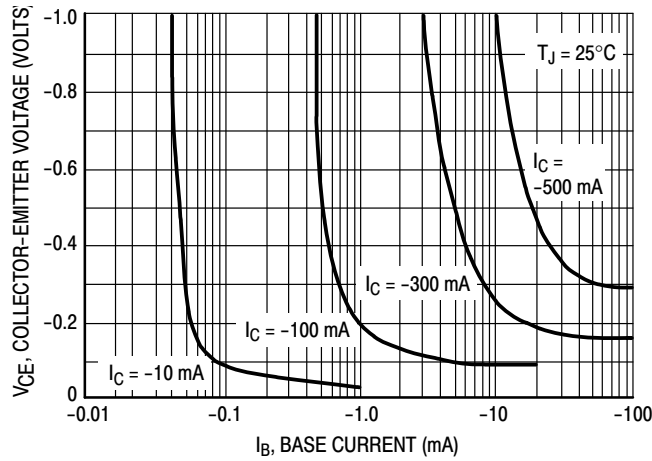


Figure 13. Saturation Region

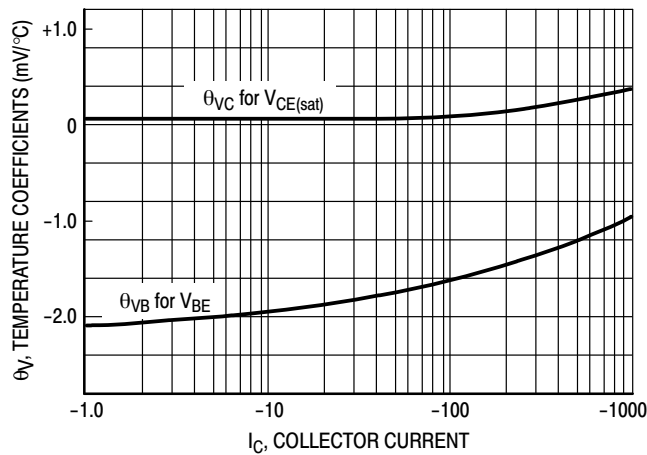


Figure 14. Temperature Coefficients

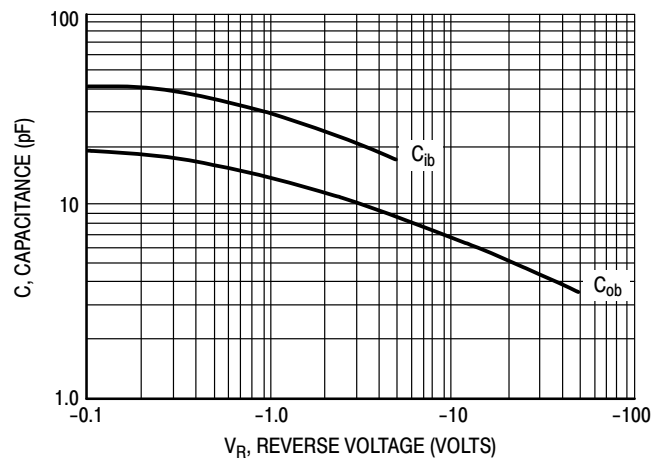
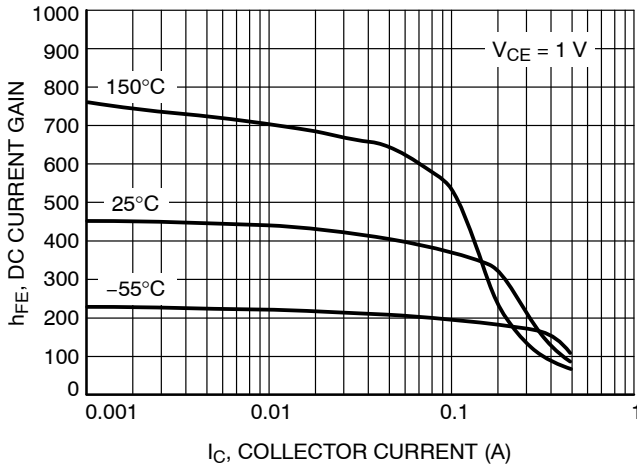
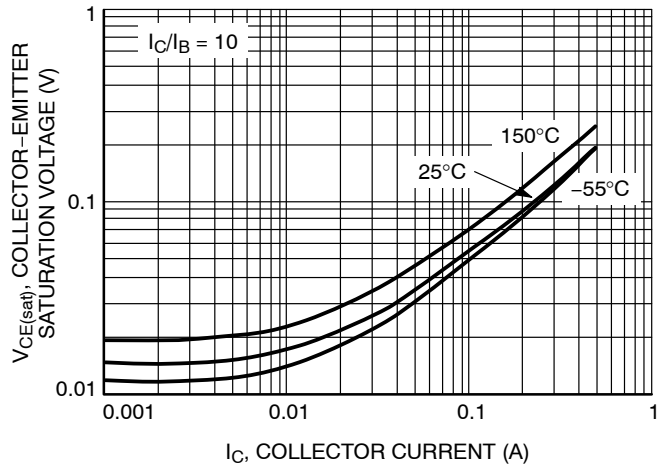


Figure 15. Capacitances

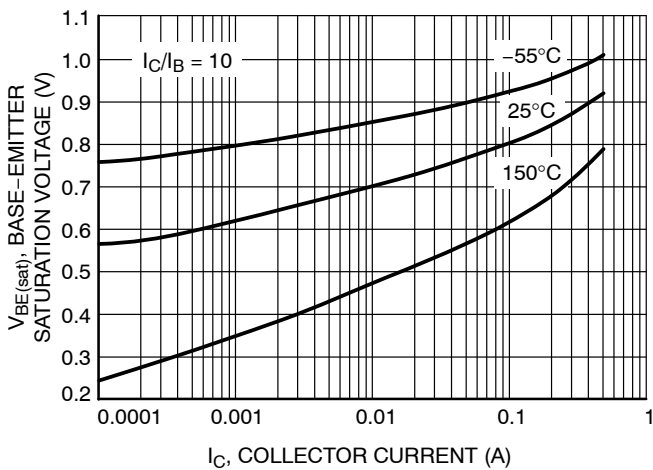
### TYPICAL CHARACTERISTICS - LBC807-40LT1G



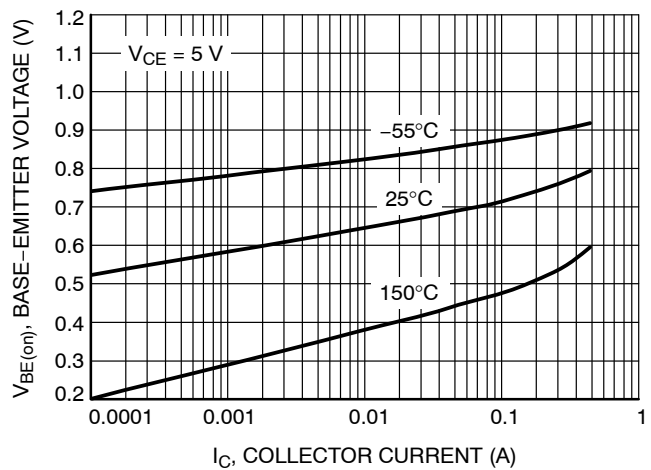
**Figure 16. DC Current Gain vs. Collector Current**



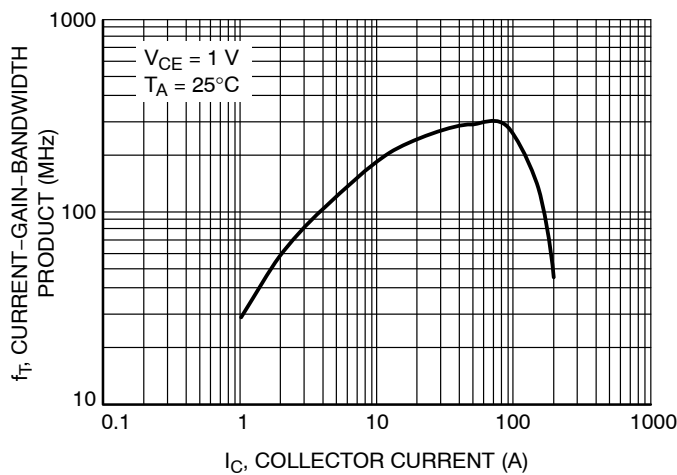
**Figure 17. Collector Emitter Saturation Voltage vs. Collector Current**



**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**

## TYPICAL CHARACTERISTICS – LBC807-40LT1G

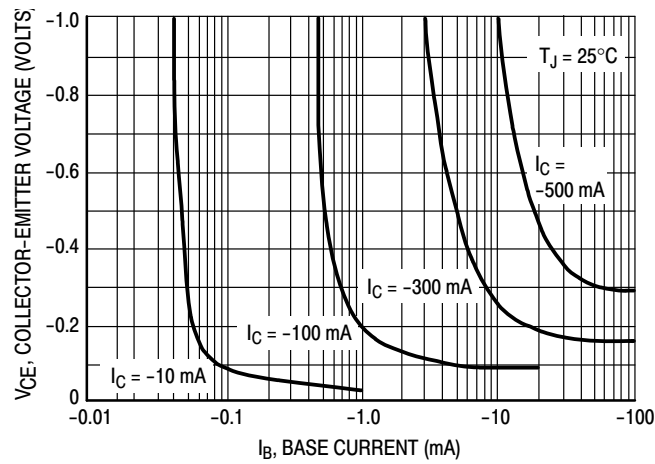


Figure 21. Saturation Region

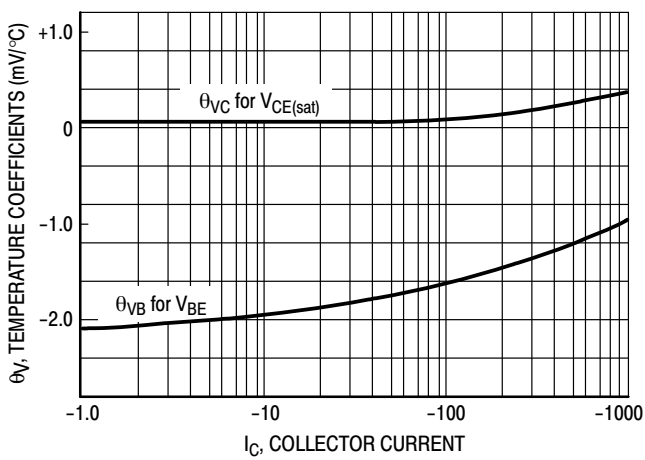


Figure 22. Temperature Coefficients

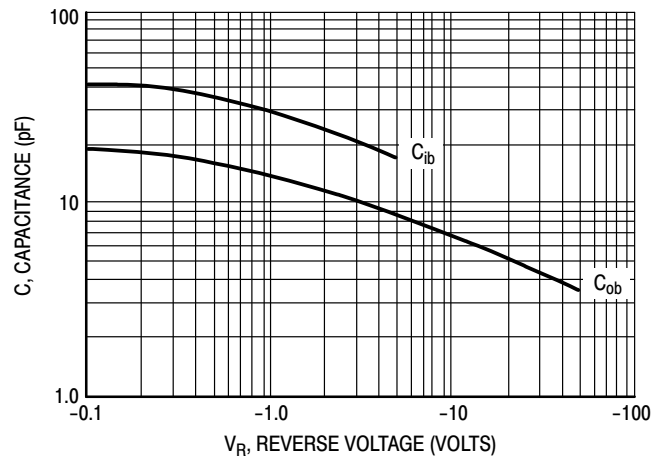


Figure 23. Capacitances



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

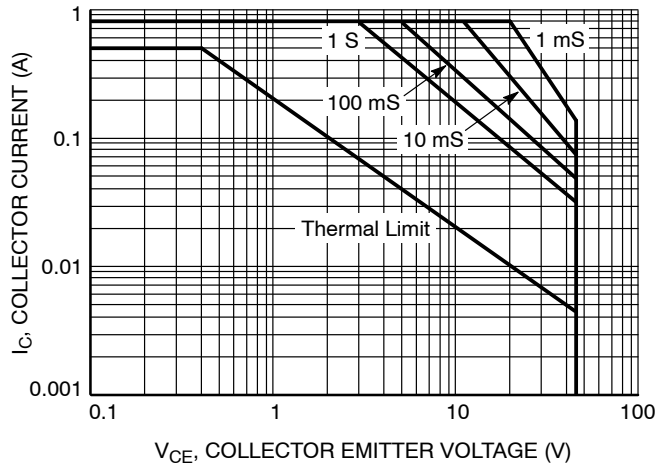
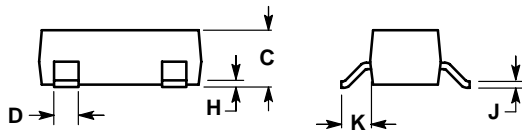
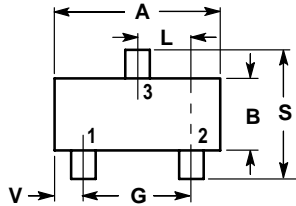


Figure 24. Safe Operating Area

## 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

