General Purpose Transistors

NPN Silicon

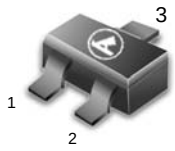
LBC846AWT1G,BWT1G
LBC847AWT1G,BWT1G
CWT1G
LBC848AWT1G,BWT1G
CWT1G
S-LBC846AWT1G,BWT1G
S-LBC847AWT1G,BWT1G
CWT1G
S-LBC848AWT1G,BWT1G
CWT1G

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.

ORDERING INFORMATION (Pb–Free)

Device	Package	Shipping
LBC846AWT1G S-LBC846AWT1G	SC-70	3000/Tape&Reel
LBC846AWT3G S-LBC846AWT3G	SC-70	10000/Tape&Reel



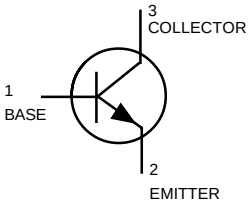
SOT–323 /SC–70

MAXIMUM RATINGS

Rating	Symbol	BC846	BC847	BC848	Unit
Collector–Emitter Voltage	V_{CEO}	65	45	30	V
Collector–Base Voltage	V_{CBO}	80	50	30	V
Emitter–Base Voltage	V_{EBO}	6.0	6.0	5.0	V
Collector Current — Continuous	I_C	100	100	100	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation	P_D	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction and Storage Temperature	T_J , T_{stg}	–55 to +150	°C



DEVICE MARKING

LBC846AWT1G = 1A; LBC846BWT1G = 1B; LBC847AWT1G = 1E; LBC847BWT1G = 1F;
LBC847CWT1G = 1G; LBC848AWT1G = 1J; LBC848BWT1G = 1K; LBC848CWT1G = 1L;

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)	LBC846 Series	$V_{(BR)CEO}$	65	—	—	v
	LBC847 Series		45	—	—	
	LBC848 Series		30	—	—	
Collector–Emitter Breakdown Voltage (I_C = 10 µA, V_{EB} = 0)	LBC846 Series	$V_{(BR)CES}$	80	—	—	v
	LBC847 Series		50	—	—	
	LBC848 Series		30	—	—	
Collector–Base Breakdown Voltage (I_C = 10 µA)	LBC846 Series	$V_{(BR)CBO}$	80	—	—	v
	LBC847 Series		50	—	—	
	LBC848 Series		30	—	—	
Emitter–Base Breakdown Voltage (I_E = 1.0 µA)	LBC846 Series	$V_{(BR)EBO}$	6.0	—	—	v
	LBC847 Series		6.0	—	—	
	LBC848 Series		5.0	—	—	
Collector Cutoff Current (V_{CB} = 30 V)		I_{CBO}	—	—	15	nA
(V_{CB} = 30 V, T_A = 150°C)			—	—	5.0	µA

1.FR–5=1.0 x 0.75 x 0.062in

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G

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

Characteristic		Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				
(I_C = 2.0 mA, V_{CE} = 5.0 V)	LBC846A, LBC847A, LBC848A		110	180	220	
	LBC846B, LBC847B, LBC848B		200	290	450	
	LBC847C, LBC848C		420	520	800	
Collector–Emitter Saturation Voltage (I_C = 10 mA, I_B = 0.5 mA)		$V_{CE(sat)}$	—	—	0.25	V
(I_C = 100 mA, I_B = 5.0 mA)			—	—	0.6	
Base–Emitter Saturation Voltage (I_C = 10 mA, I_B = 0.5 mA)		$V_{BE(sat)}$	—	0.7	—	V
(I_C = 100 mA, I_B = 5.0 mA)			—	0.9	—	
Base–Emitter Voltage (I_C = 2.0 mA, V_{CE} = 5.0 V)		$V_{BE(on)}$	580	660	700	mV
(I_C = 10 mA, V_{CE} = 5.0 V)			—	—	770	
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}	—	—	4.5	pF
Noise Figure (I_C = 0.2 mA,	LBC846A, LBC847A,L BC848A	NF				dB
V_{CE} = 5.0 V_{dc}, R_S = 2.0 kΩ,	LBC846B, LBC847B,L BC848B		—	—	10	
f = 1.0 kHz, BW = 200 Hz)	LBC847C, LBC848C		—	—	4.0	

LBC846A, LBC847A, LBC848A

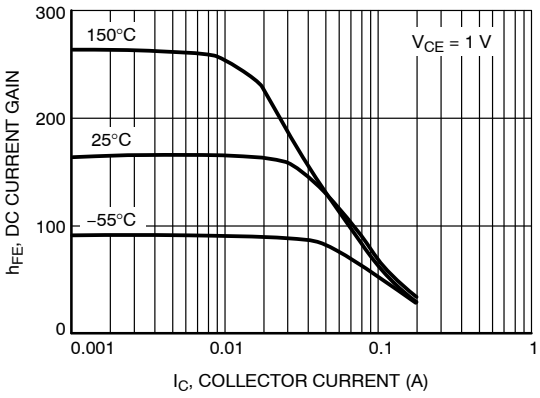


Figure 1. DC Current Gain vs. Collector Current

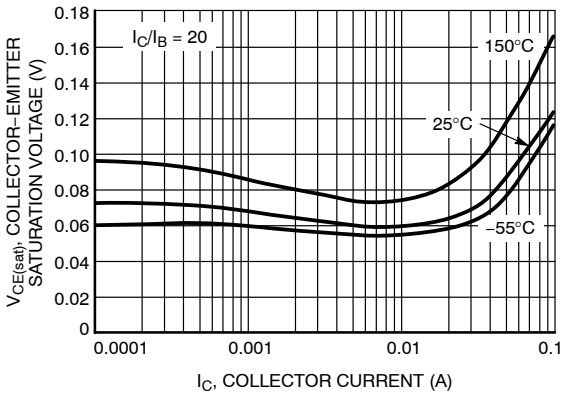


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

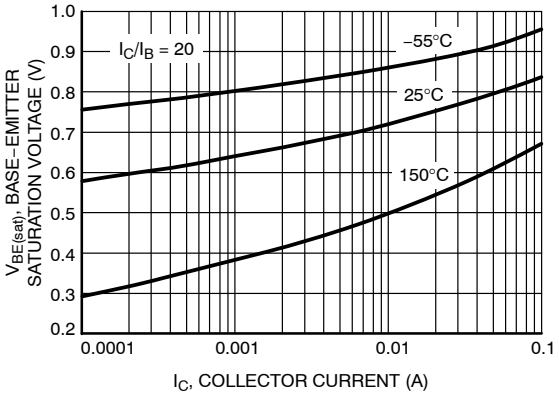


Figure 3. Base Emitter Saturation Voltage vs. Collector Current

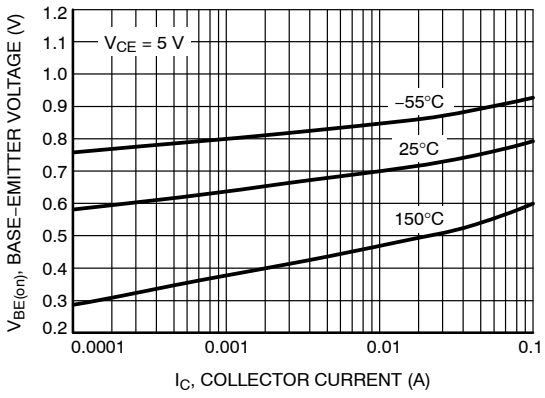


Figure 4. Base Emitter Voltage vs. Collector Current

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G

LBC846A, LBC847A, LBC848A

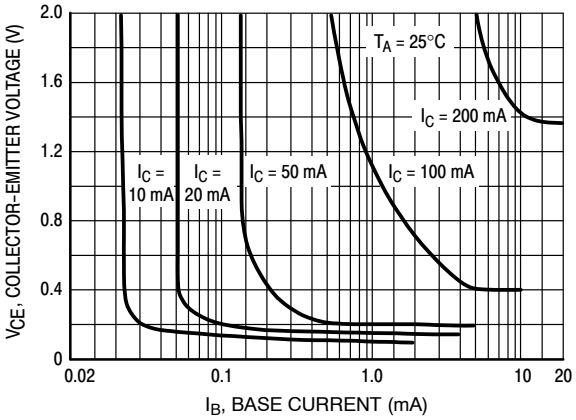


Figure 5. Collector Saturation Region

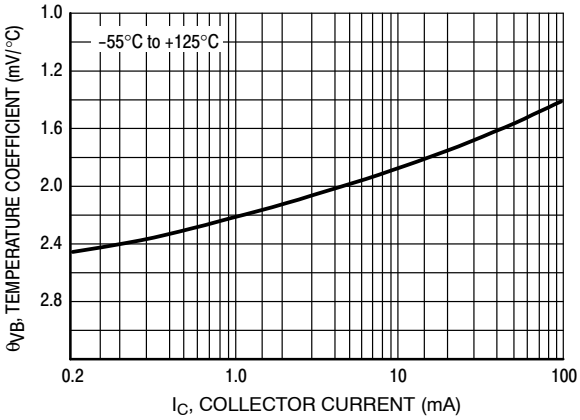


Figure 6. Base−Emitter Temperature Coefficient

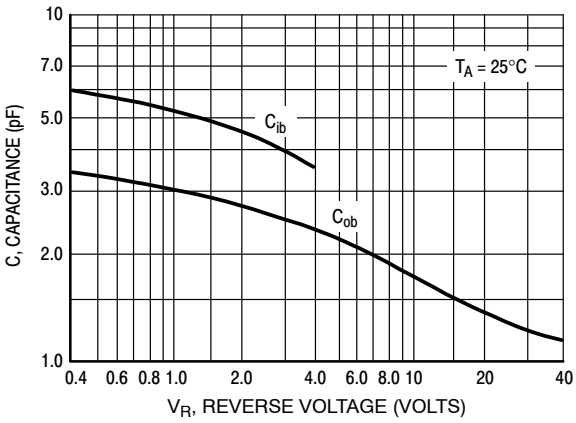


Figure 7. Capacitances

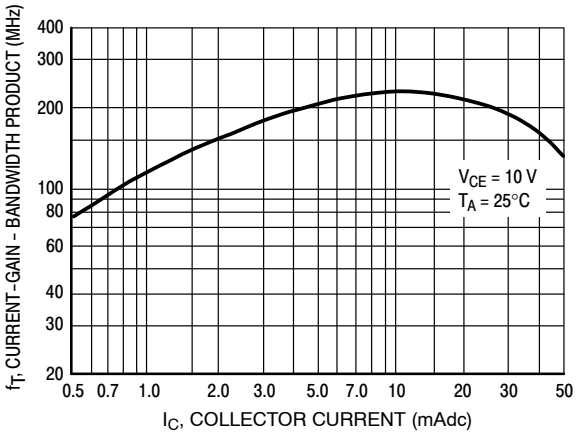


Figure 8. Current−Gain − Bandwidth Product

LBC846B

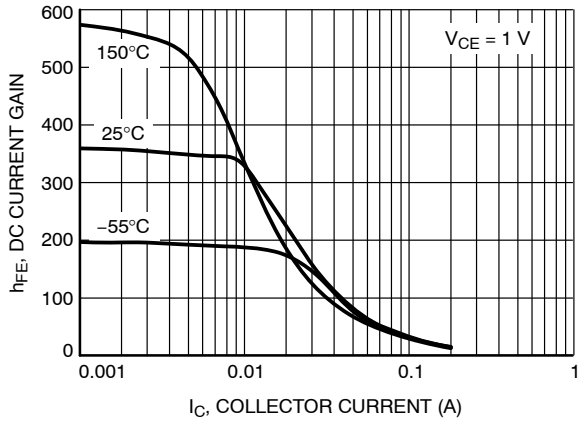


Figure 9. DC Current Gain vs. Collector Current

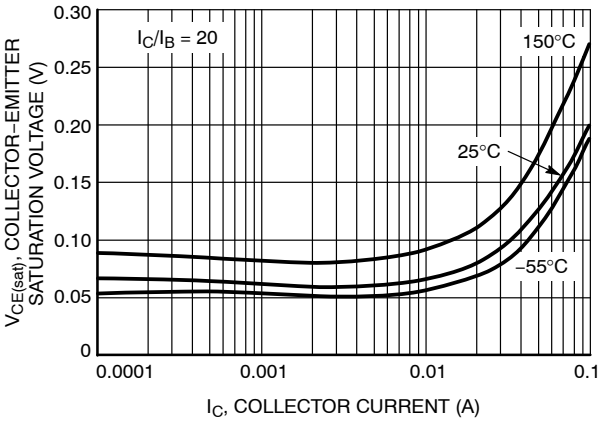


Figure 10. Collector Emitter Saturation Voltage vs. Collector Current

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G

LBC846B

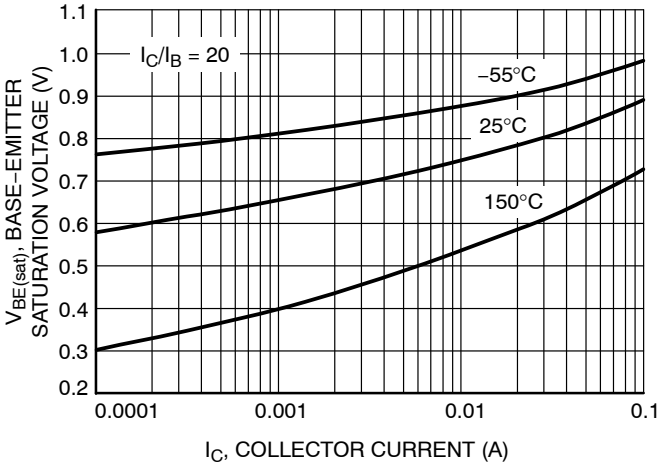


Figure 11. Base Emitter Saturation Voltage vs. Collector Current

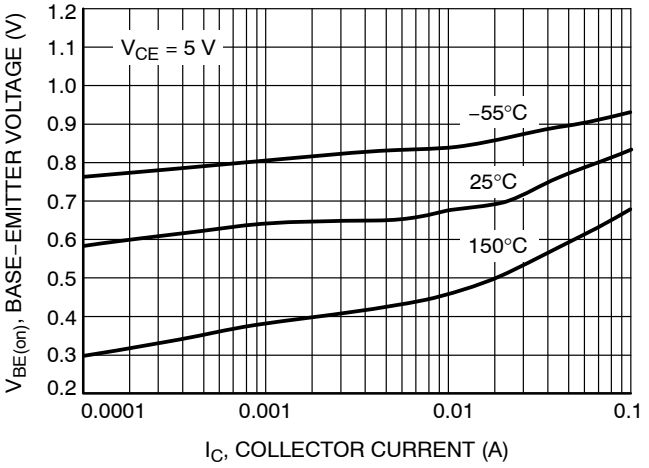


Figure 12. Base Emitter Voltage vs. Collector Current

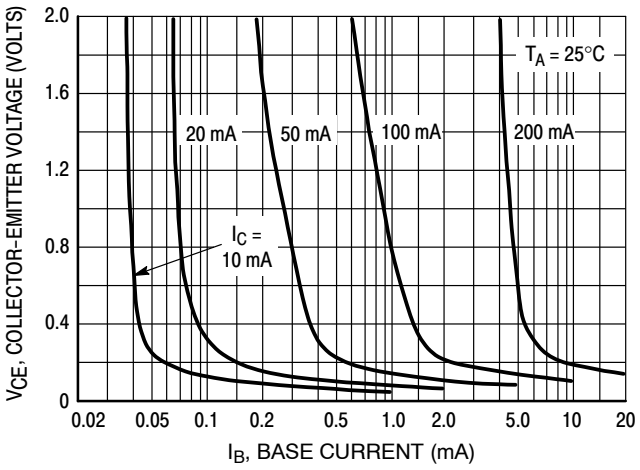


Figure 13. Collector Saturation Region

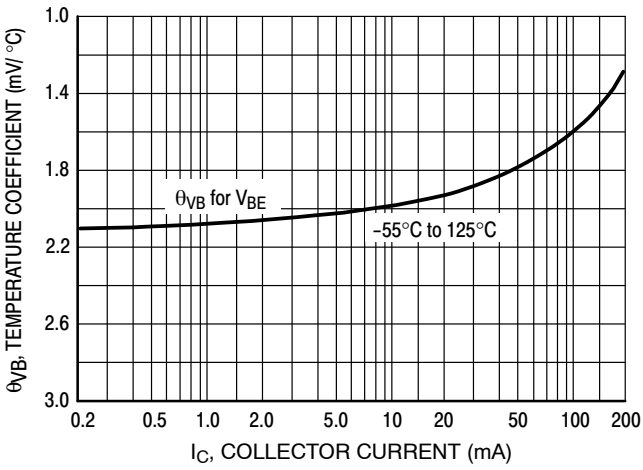


Figure 14. Base−Emitter Temperature Coefficient

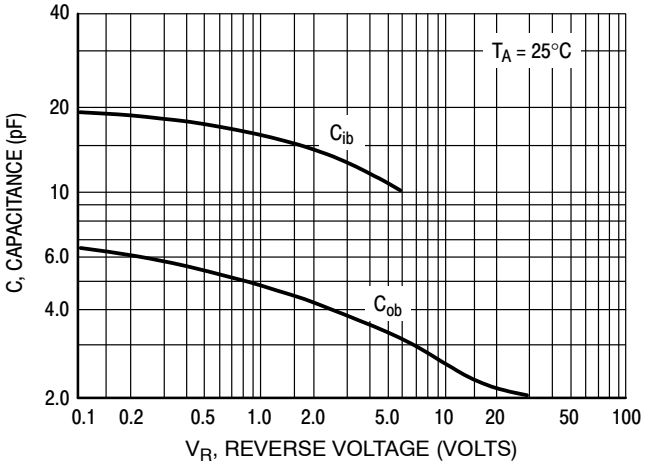


Figure 15. Capacitance

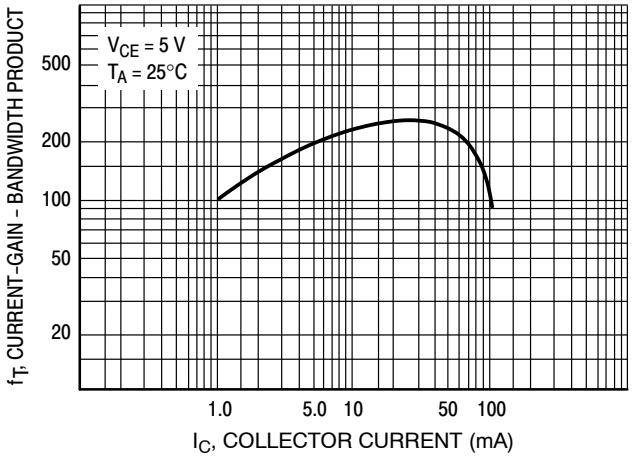


Figure 16. Current−Gain − Bandwidth Product

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G
LBC847B, LBC848B

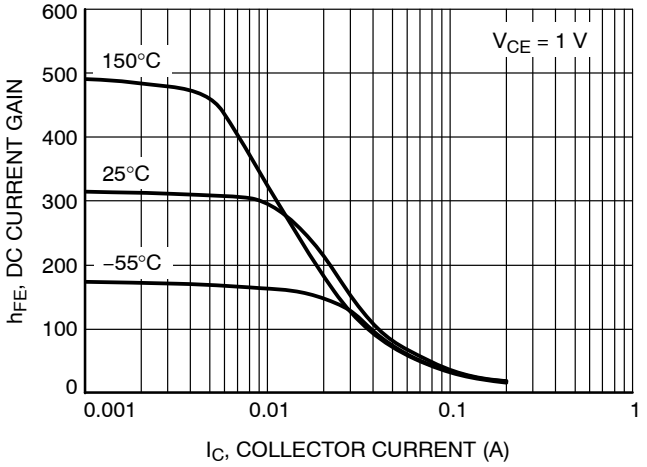


Figure 17. DC Current Gain vs. Collector Current

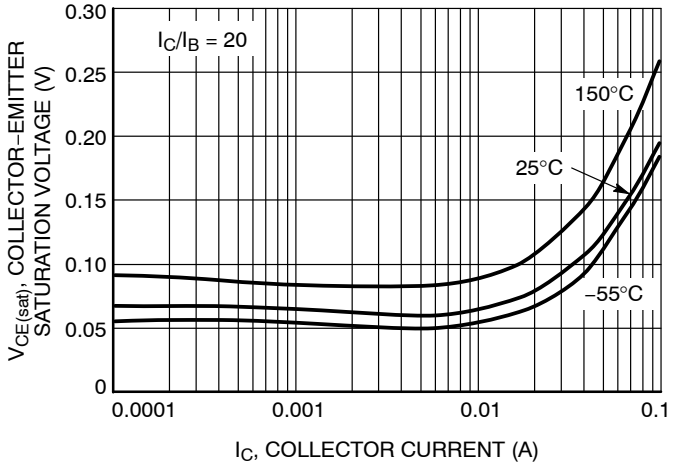


Figure 18. Collector Emitter Saturation Voltage vs. Collector Current

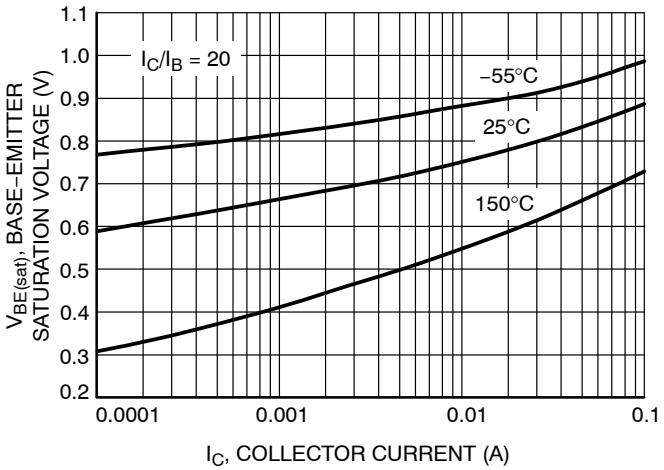


Figure 19. Base Emitter Saturation Voltage vs. Collector Current

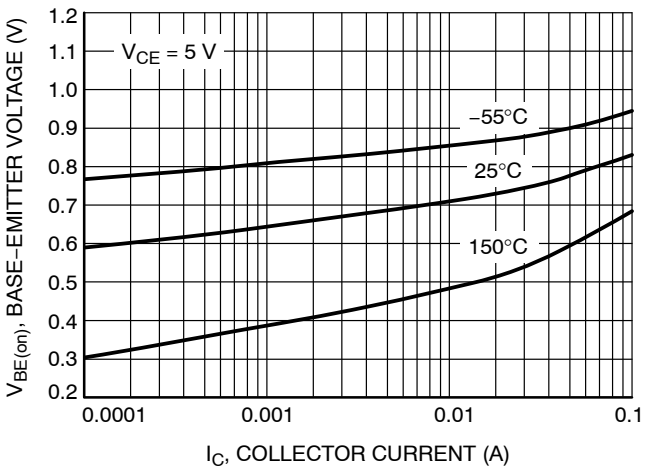


Figure 20. Base Emitter Voltage vs. Collector Current

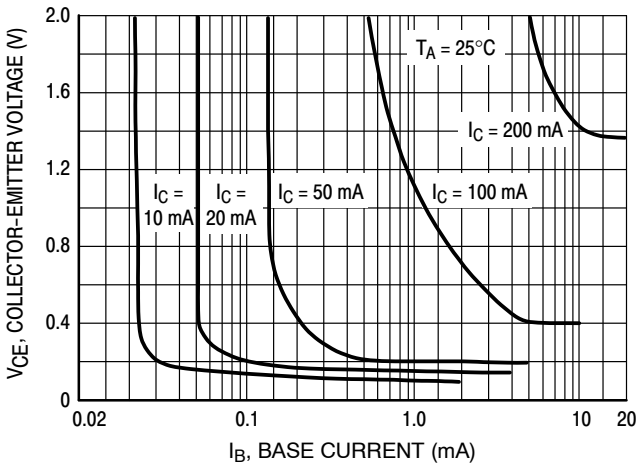


Figure 21. Collector Saturation Region

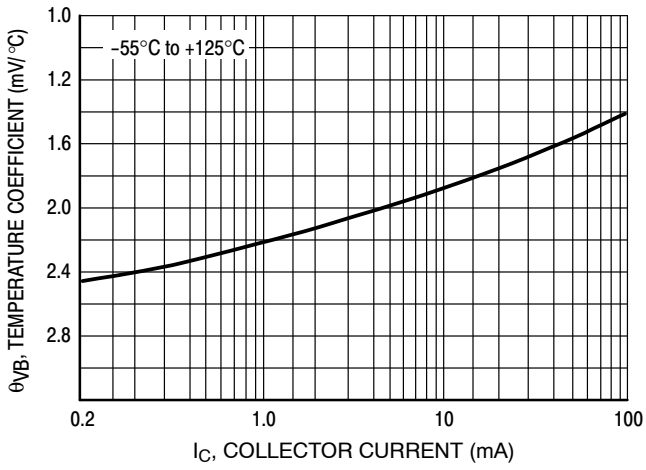


Figure 22. Base−Emitter Temperature Coefficient

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G

LBC847B, LBC848B

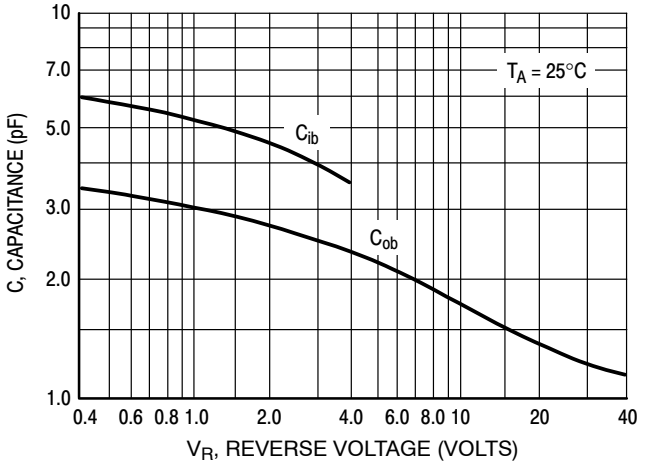


Figure 23. Capacitances

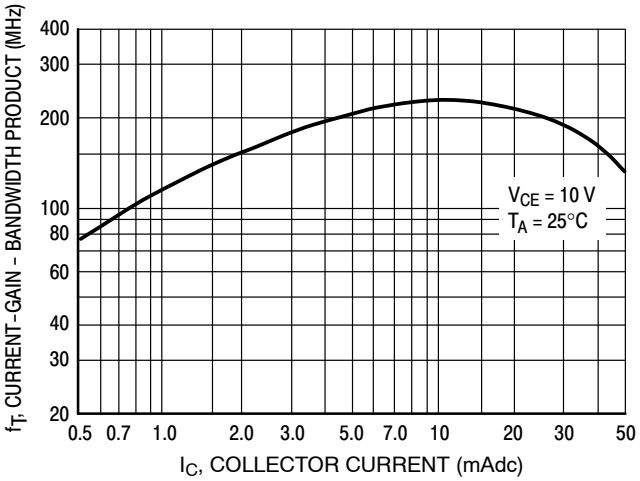


Figure 24. Current–Gain – Bandwidth Product

LBC847C, LBC848C, LBC849C, LBC850C

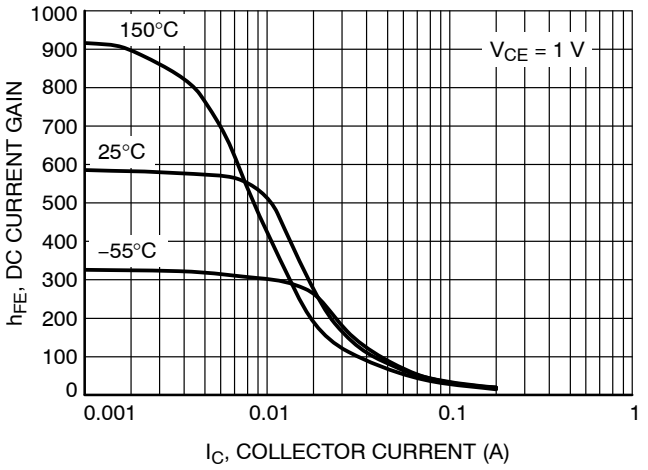


Figure 25. DC Current Gain vs. Collector Current

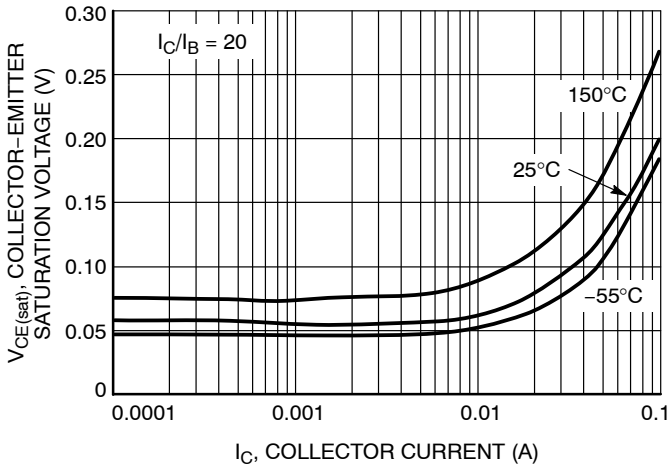


Figure 26. Collector Emitter Saturation Voltage vs. Collector Current

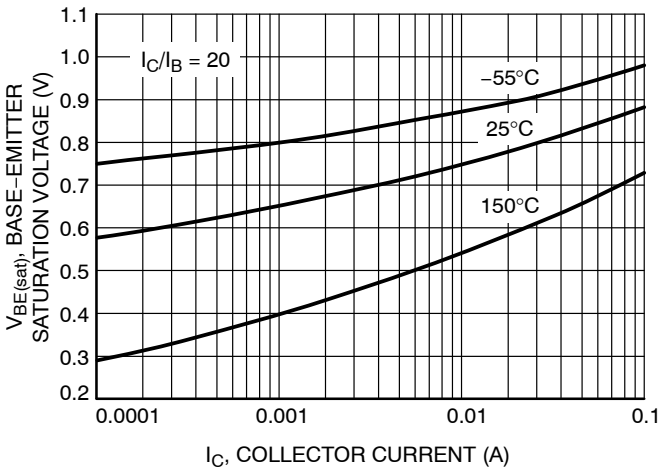


Figure 27. Base Emitter Saturation Voltage vs. Collector Current

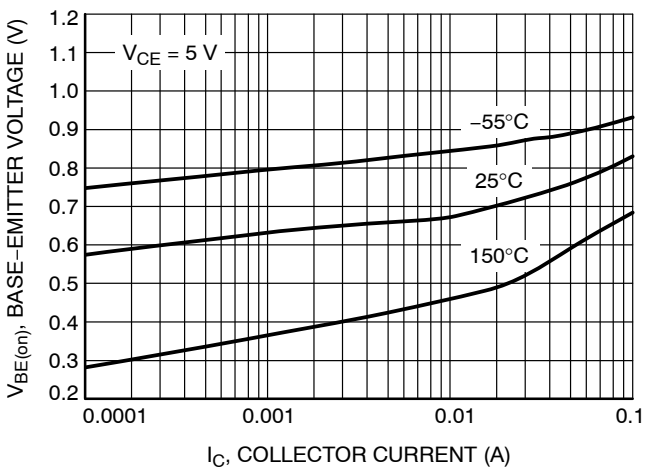


Figure 28. Base Emitter Voltage vs. Collector Current

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G

LBC847C, LBC848C

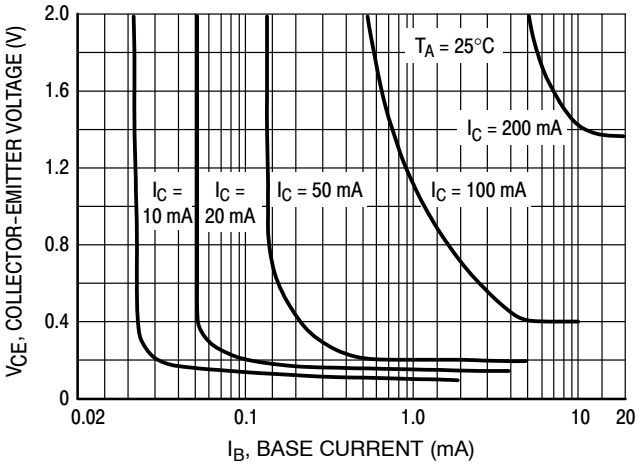


Figure 29. Collector Saturation Region

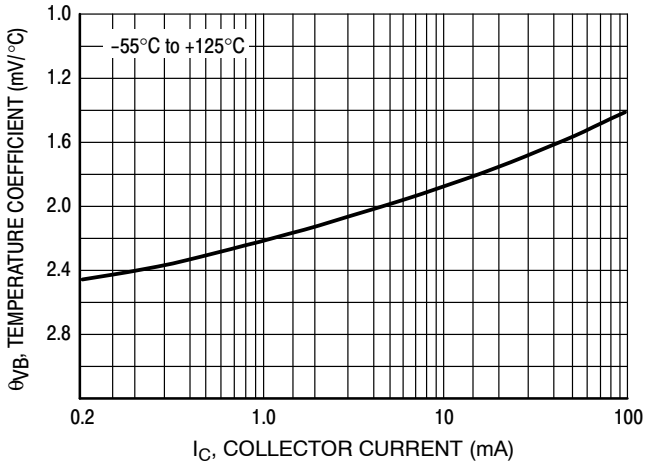


Figure 30. Base−Emitter Temperature Coefficient

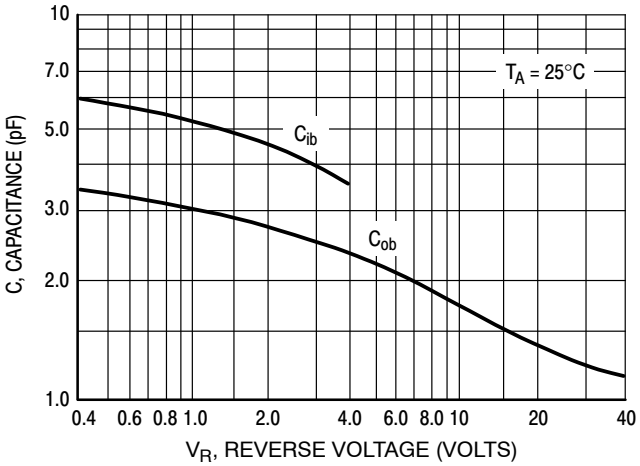


Figure 31. Capacitances

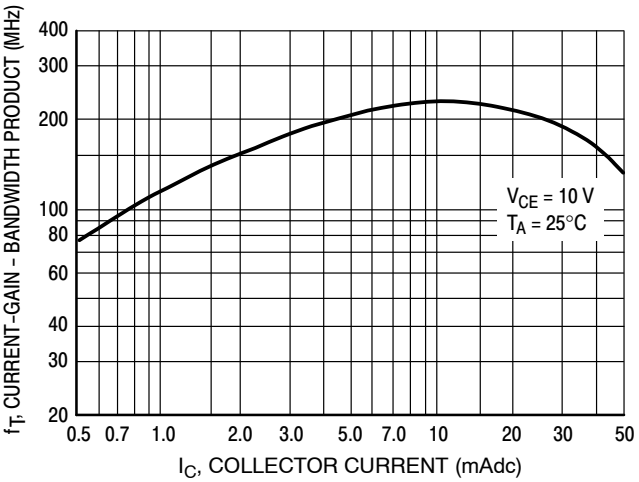


Figure 32. Current−Gain − Bandwidth Product

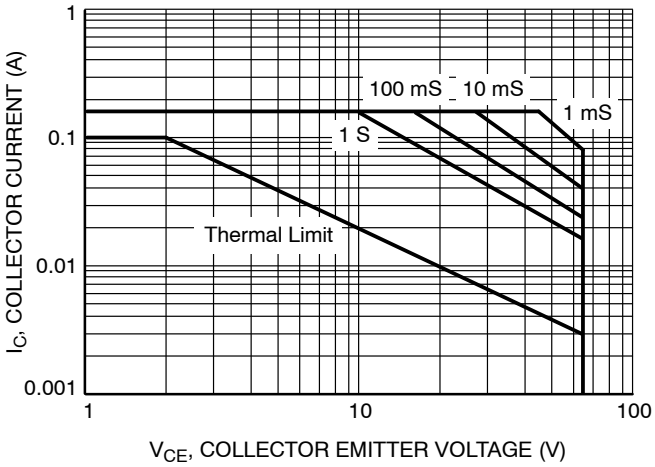


Figure 33. Safe Operating Area for LBC846A, LBC846B

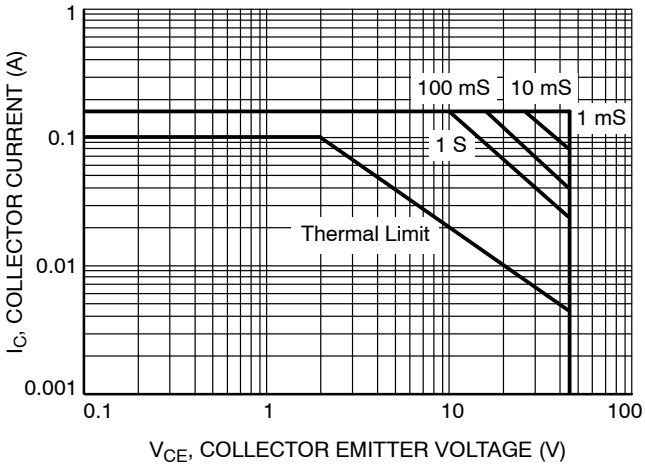


Figure 34. Safe Operating Area for LBC847A, LBC847B, LBC847C

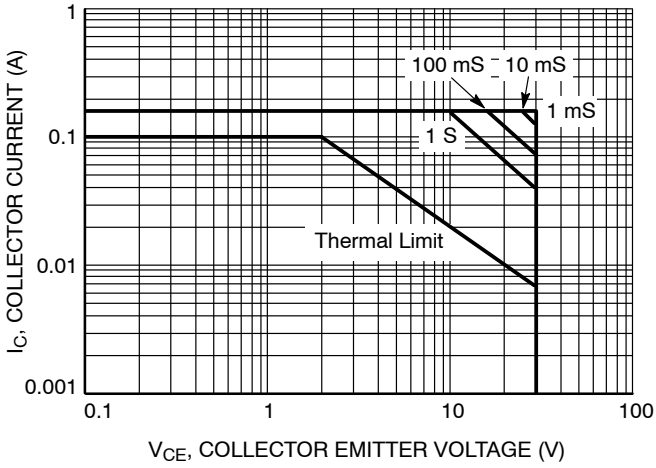
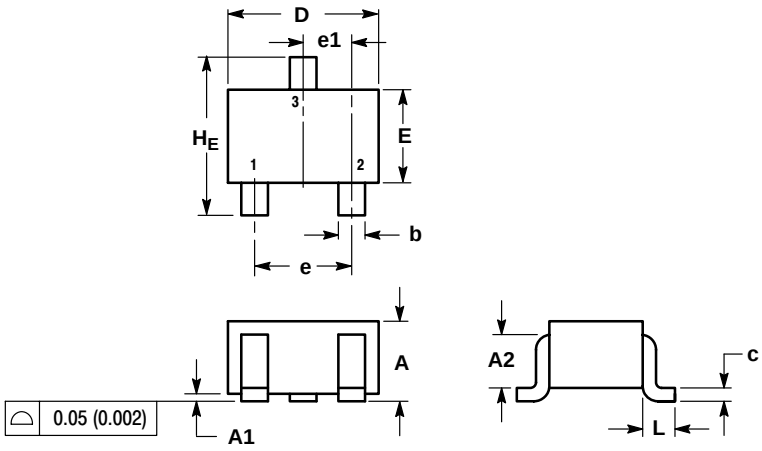


Figure 35. Safe Operating Area for LBC848A, LBC848B, LBC848C

LBC846AWT1G,BWT1G, LBC847AWT1G,BWT1G, CWT1G, LBC848AWT1G,BWT1G,CWT1G
S-LBC846AWT1G,BWT1G, S-LBC847AWT1G,BWT1G, CWT1G, S-LBC848AWT1G,BWT1G,CWT1G

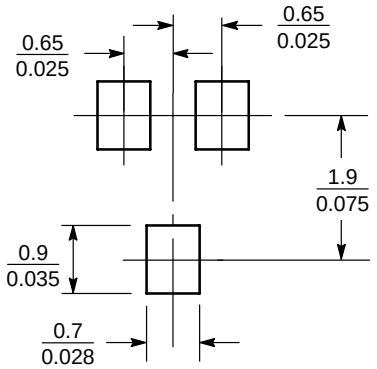
SC−70 / SOT−323



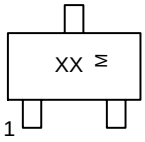
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2		0.7 REF			0.028 REF	
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1		0.65 BSC			0.026 BSC	
L		0.425 REF			0.017 REF	
H_E	2.00	2.10	2.40	0.079	0.083	0.095

SOLDERING FOOTPRINT*



GENERIC MARKING DIAGRAM



XX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

- Before you use our Products for new Project, you are requested to carefully read this document and fully under--stand its contents. LRC shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any LRC's Products against warning, caution or note contained in this document.

- All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using LRC's Products,please confirm the latest information with a LRC sales represe--ntative.

单击下面可查看定价，库存，交付和生命周期等信息

>>LRC(乐山无线电)