



DESCRIPTION

The BC846AW~BC848CW are available in SC-70 Package.

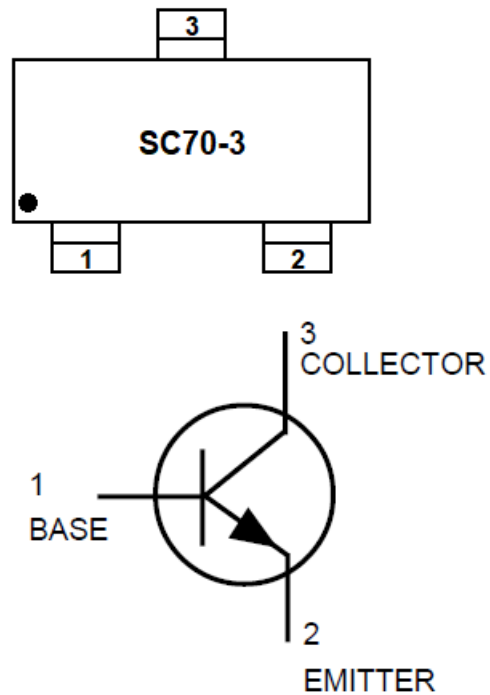
FEATURES

- Available in SC-70 Package

ORDERING INFORMATION

Package Type	Part Number
SC-70	BC846AW
	BC846BW
	BC847AW
	BC847BW
	BC847CW
	BC848BW
	BC848CW
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION





ABSOLUTE MAXIMUM RATINGS

Parameter	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			mAdc

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

Parameter	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

NOTE1: FR-5 = 1.0 x 0.75 x 0.062 in



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
OFF CHARACTERISTICS							
Collector–Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 10mA	BC846 series	65	-	-	V
			BC847 series	45	-	-	
			BC848 series	30	-	-	
Collector–Emitter Breakdown Voltage	V _{(BR)CES}	I _C = 10μA, V _{EB} = 0V	BC846 series	80	-	-	V
			BC847 series	50	-	-	
			BC848 series	30	-	-	
Collector–Base Breakdown Voltage	V _{(BR)CBO}	I _C = 10μA	BC846 series	80	-	-	V
			BC847 series	50	-	-	
			BC848 series	30	-	-	
Emitter–Base Breakdown Voltage	V _{(BR)EBO}	I _E = 1.0μA	BC846 series	6.0	-	-	V
			BC847 series	6.0	-	-	
			BC848 series	5.0	-	-	
Collector Cutoff Current	I _{CBO}	V _{CB} = 30V	-	-	15	nA	
		V _{CB} = 30V, T _A = 150°C	-	-	5.0	μA	
ON CHARACTERISTICS							
DC Current Gain	h _{FE}	I _C = 2.0mA, V _{CE} = 5.0V	BC846A BC847A	110	180	220	-
			BC846B BC847B BC848B	200	290	450	
			BC847C BC848C	420	520	800	
Collector–Emitter Saturation Voltage	V _{CE(sat)}	I _C = 10mA, I _B = 0.5mA	-	-	0.25	V	
		I _C = 100mA, I _B = 5.0mA	-	-	0.6		
Base–Emitter Saturation Voltage	V _{BE(sat)}	I _C = 10mA, I _B = 0.5mA	-	0.7	-	V	
		I _C = 100mA, I _B = 5.0mA	-	0.9	-		
Base–Emitter Voltage	V _{BE(on)}	I _C = 2.0mA, V _{CE} = 5.0V	580	660	700	mV	
		I _C = 10mA, V _{CE} = 5.0V	-	-	770		
SMALL–SIGNAL CHARACTERISTICS							
Current–Gain–Bandwidth Product	f _T	I _C = 10mA, V _{CE} = 5.0Vdc, f = 100MHz	100	-	-	MHz	
Output Capacitance	C _{obo}	V _{CB} = 10 V, f = 1.0 MHz	-	-	4.5	pF	
Noise Figure	NF	I _C = 0.2mA, V _{CE} = 5.0Vdc, R _S = 2.0kΩ, f = 1.0kHz, BW = 200Hz	BC846A BC847A BC846B BC847B BC848B	-	-	10	dB
			BC847C BC848C	-	-	4.0	



TYPICAL PERFORMANCE CHARACTERISTICS

BC846A, BC847A

Figure 1. DC Current Gain vs. Collector Current

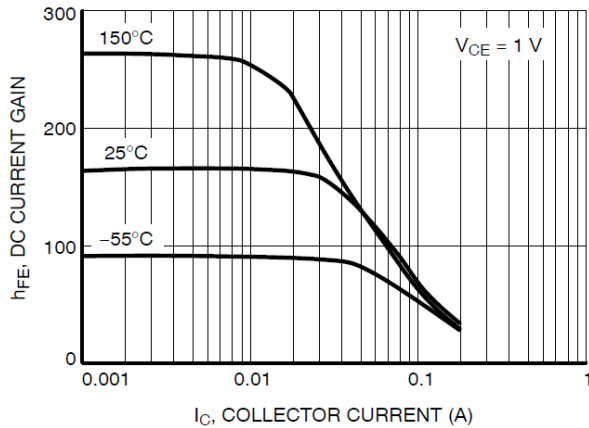


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

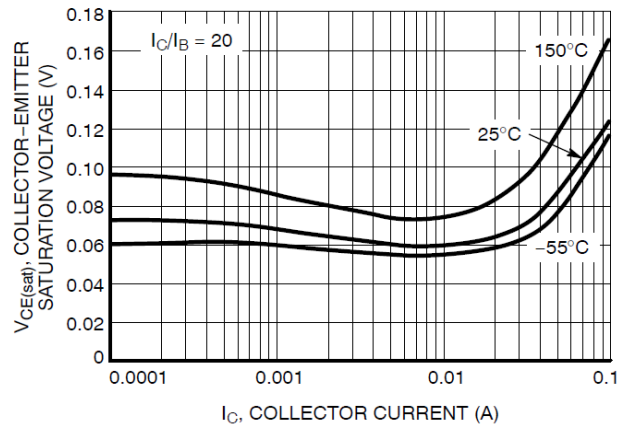


Figure 3. Base Emitter Saturation Voltage vs. Collector Current

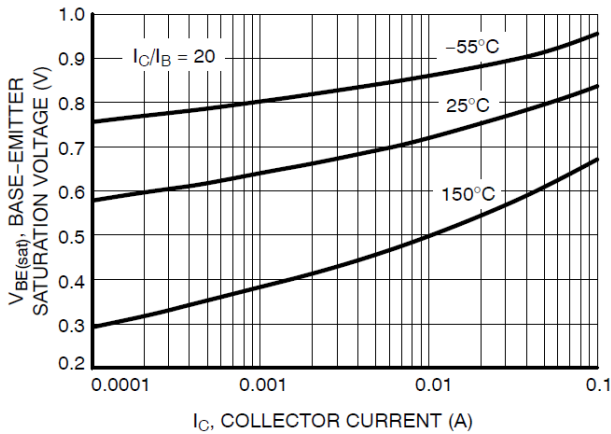


Figure 4. Base Emitter Voltage vs. Collector Current

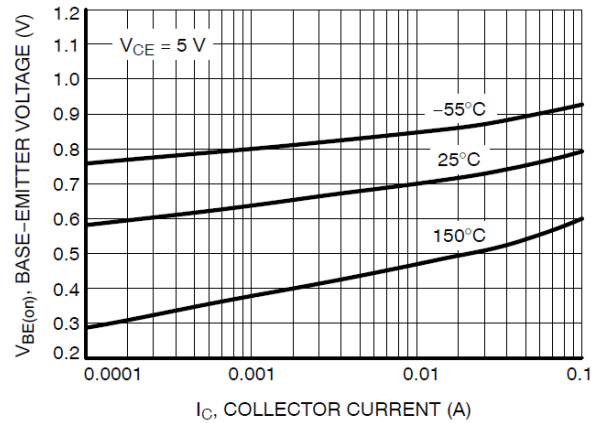


Figure 5. Collector Saturation Region

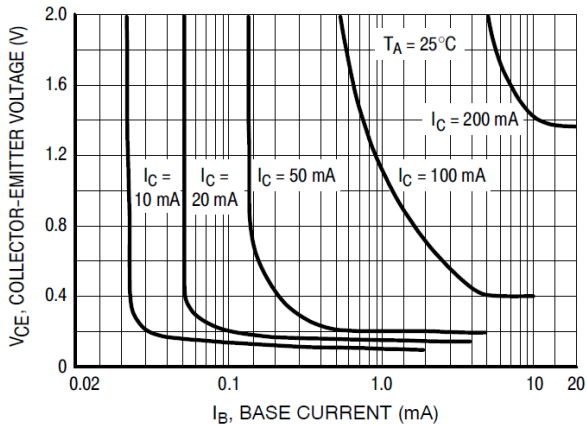


Figure 6. Base-Emitter Temperature Coefficient

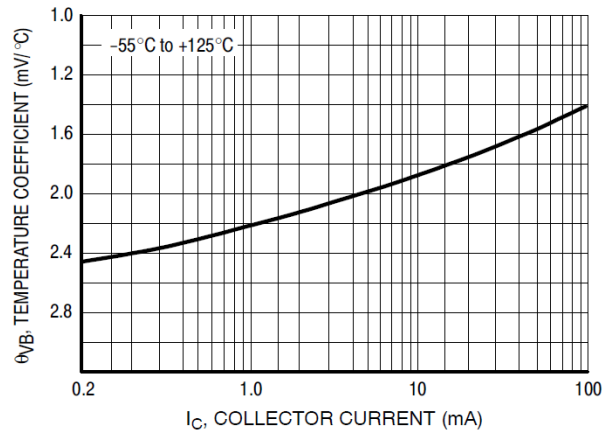




Figure 7. Capacitances

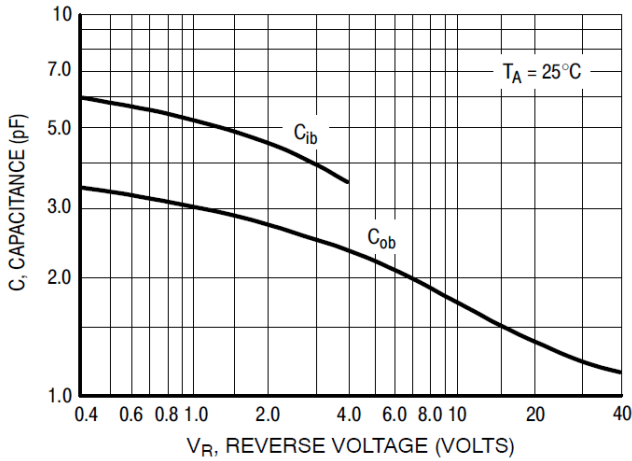
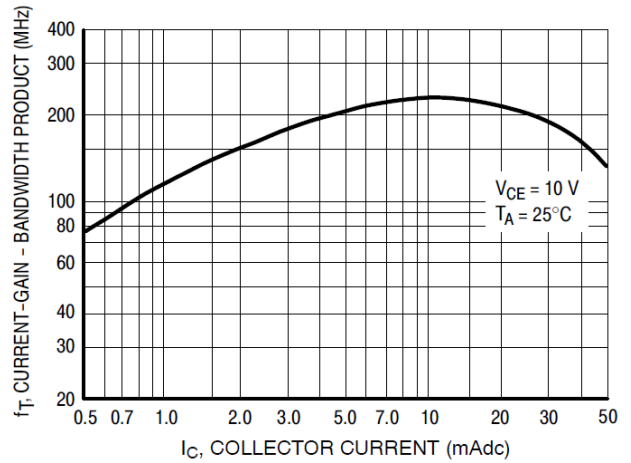


Figure 8. Current-Gain - Bandwidth Product



BC846B

Figure 9. DC Current Gain vs. Collector Current

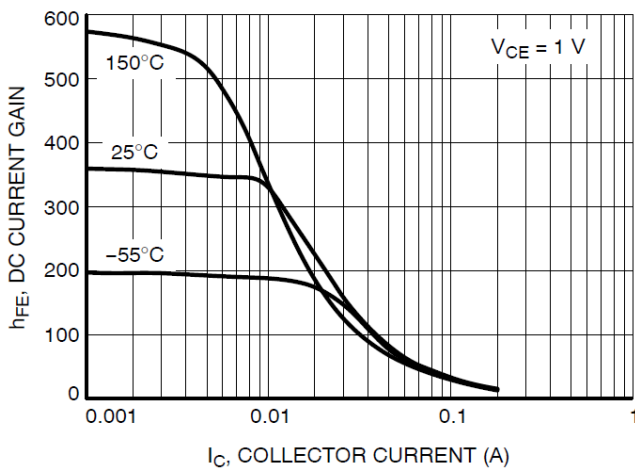


Figure 10. Collector Emitter Saturation Voltage vs. Collector Current

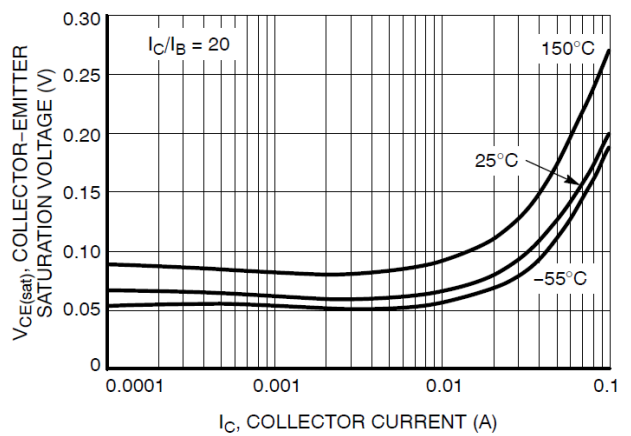


Figure 11. Base Emitter Saturation Voltage vs. Collector Current

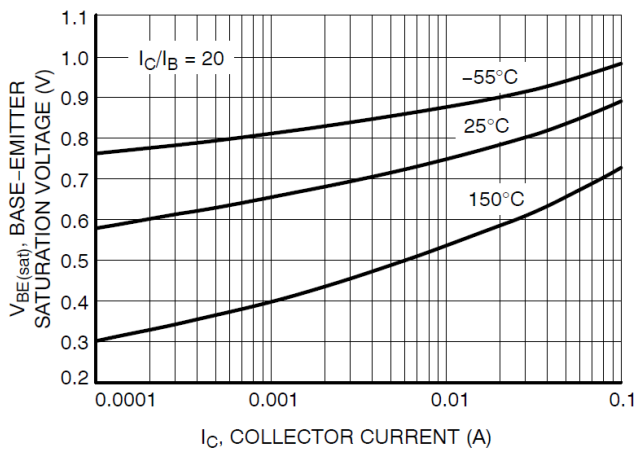


Figure 12. Base Emitter Voltage vs. Collector Current

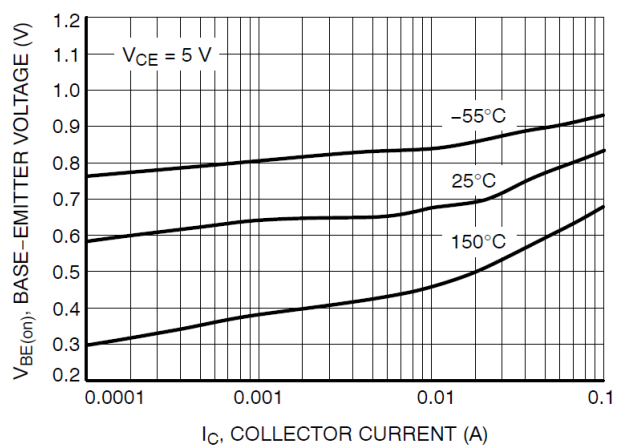




Figure 13. Collector Saturation Region

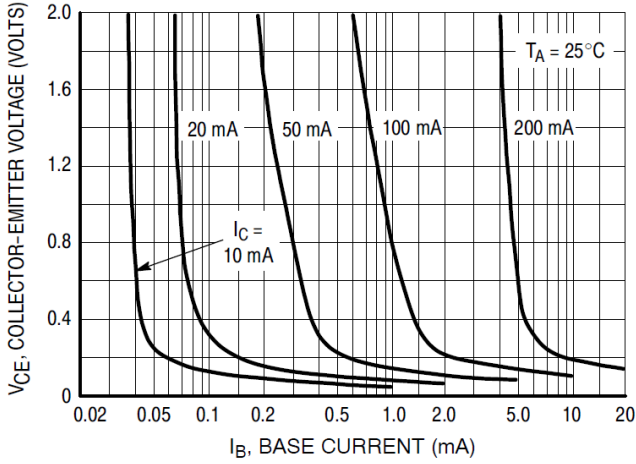


Figure 14. Base-Emitter Temperature Coefficient

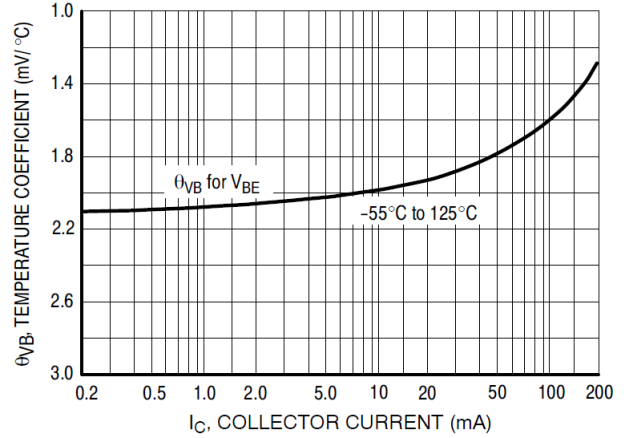


Figure 15. Capacitance

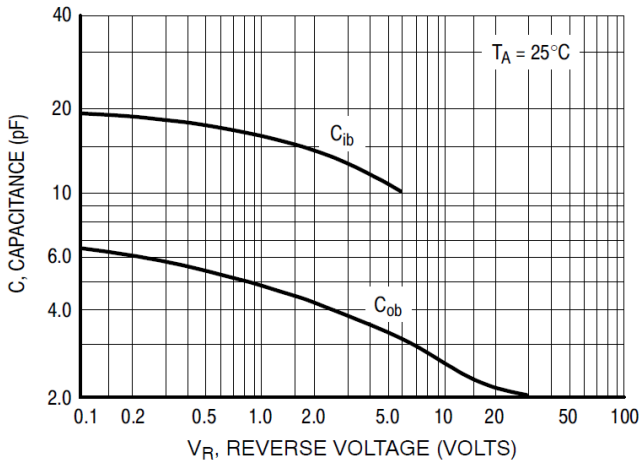
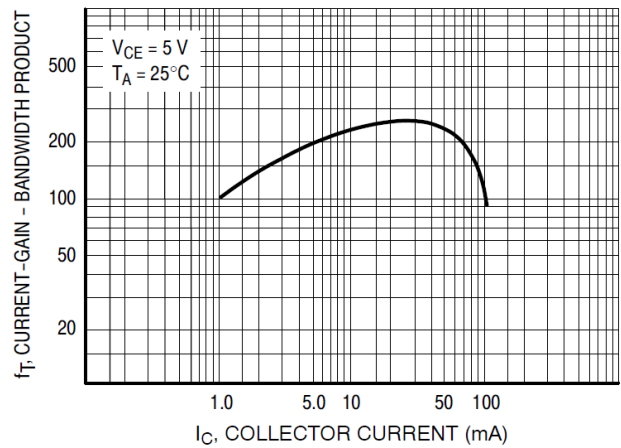


Figure 16. Current-Gain - Bandwidth Product



BC847B, BC848B

Figure 17. DC Current Gain vs. Collector Current

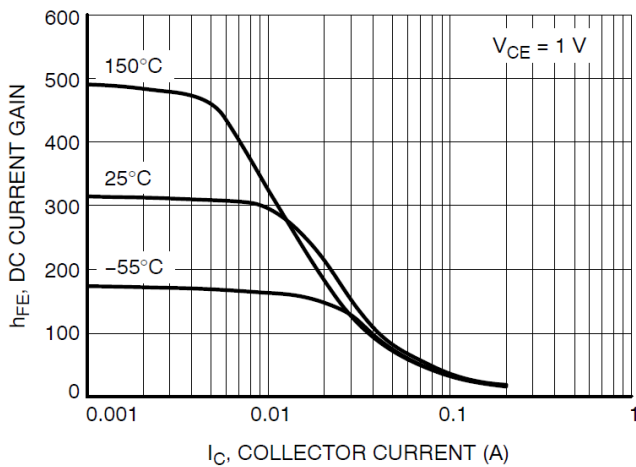


Figure 18. Collector Emitter Saturation Voltage vs. Collector Current

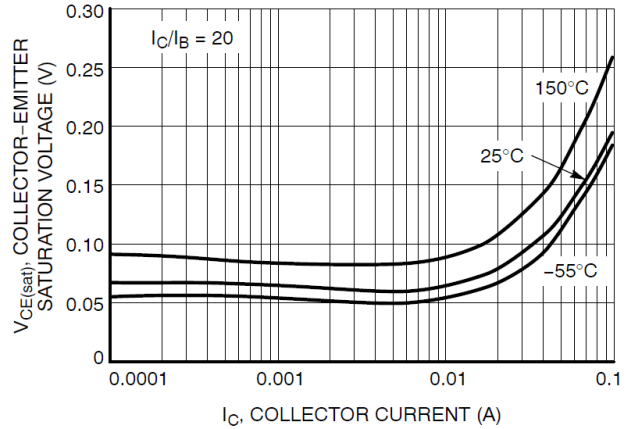




Figure 19. Base Emitter Saturation Voltage vs. Collector Current

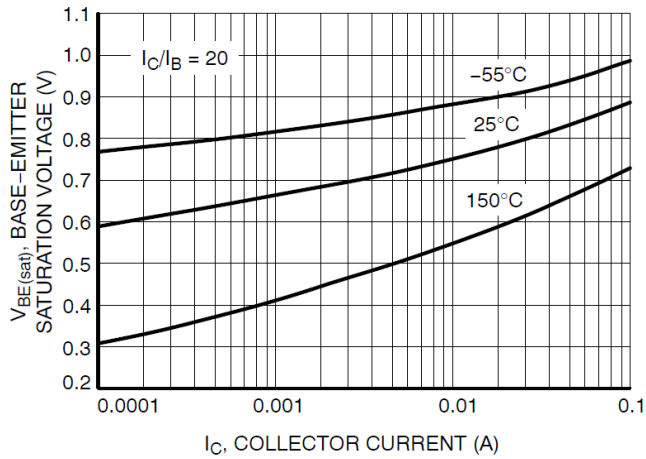


Figure 20. Base Emitter Voltage vs. Collector Current

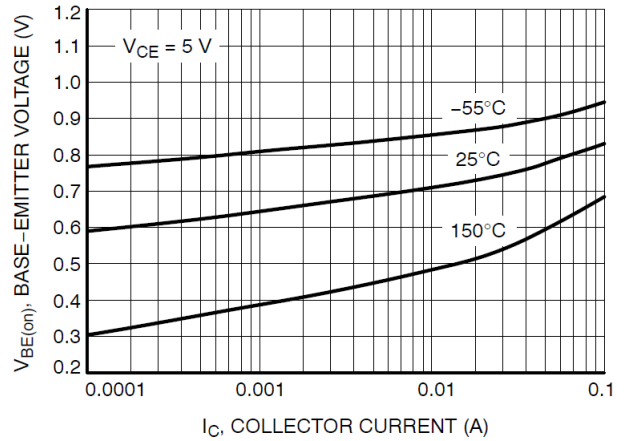


Figure 21. Collector Saturation Region

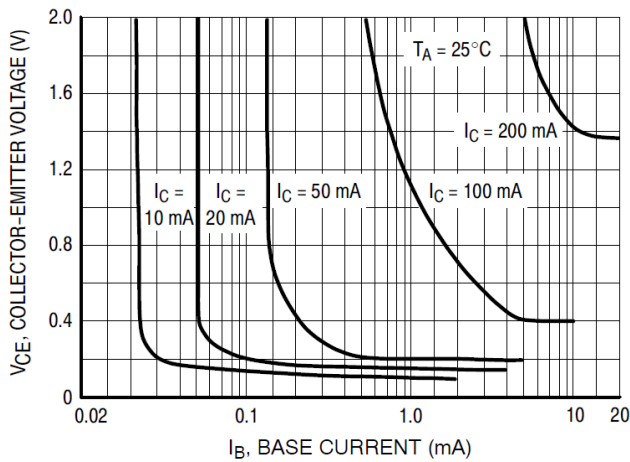


Figure 22. Base-Emitter Temperature Coefficient

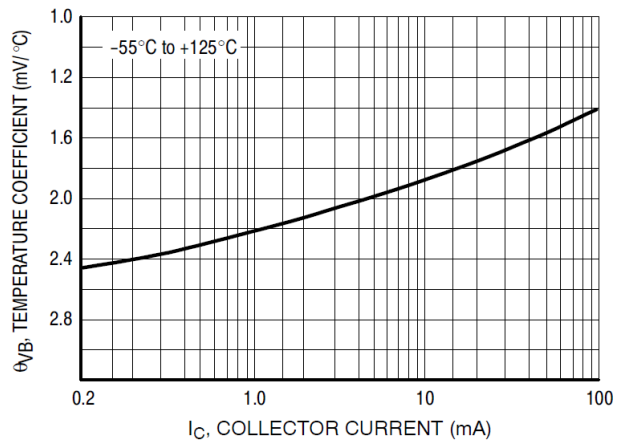


Figure 23. Capacitances

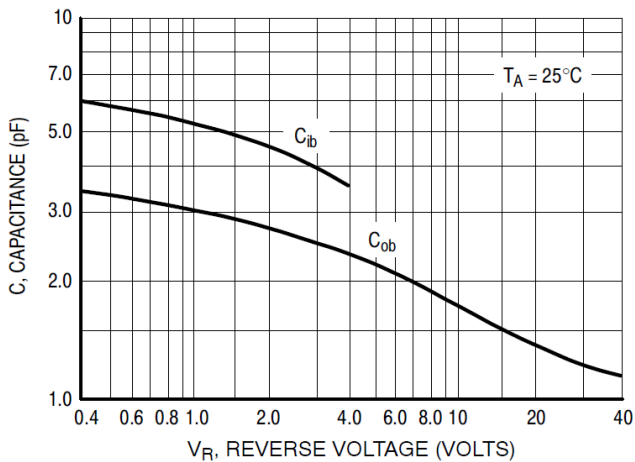
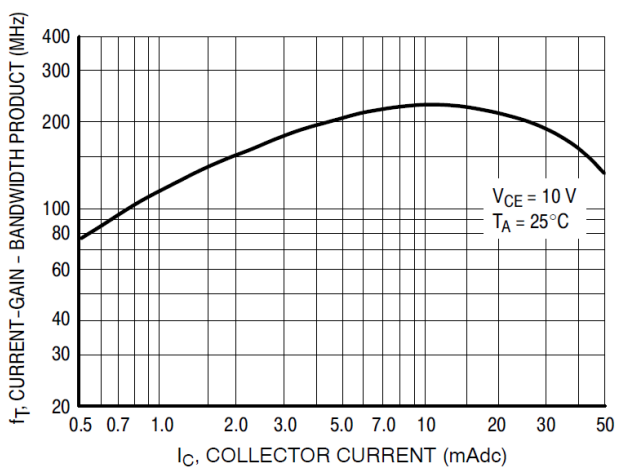


Figure 24. Current-Gain - Bandwidth Product





BC847C, BC848C

Figure 25. DC Current Gain vs. Collector Current

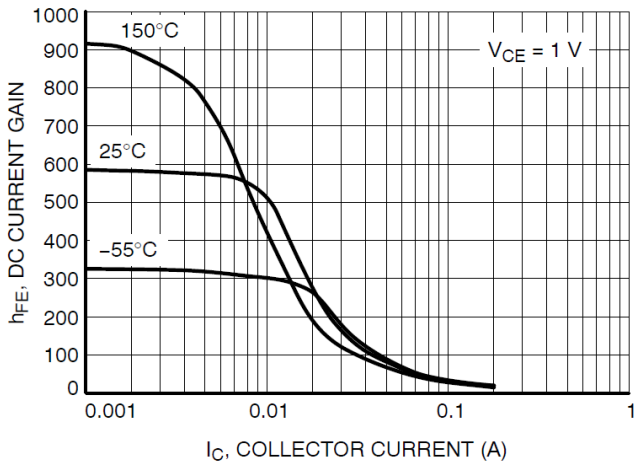


Figure 27. Base Emitter Saturation Voltage vs. Collector Current

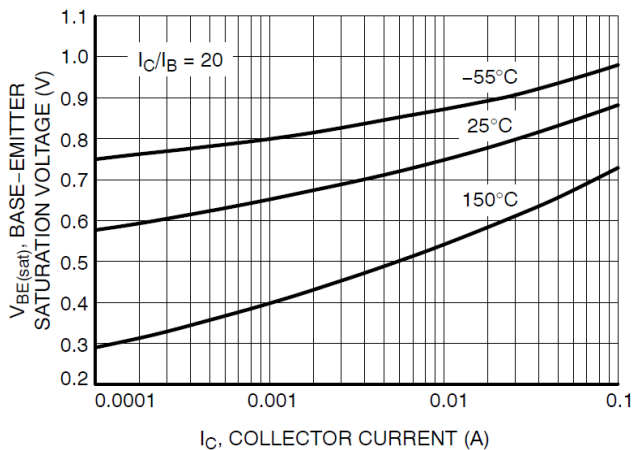


Figure 29. Collector Saturation Region

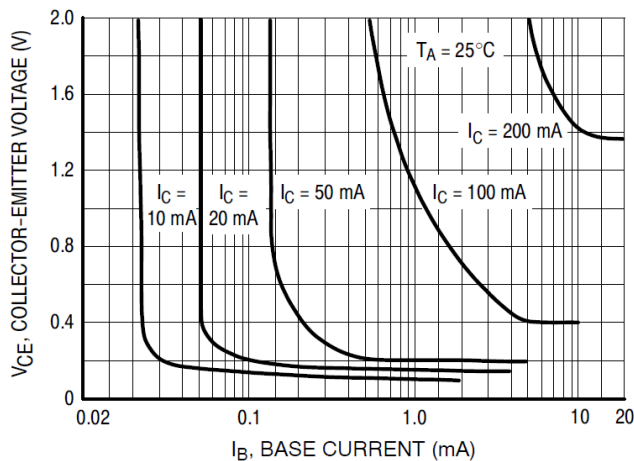


Figure 26. Collector Emitter Saturation Voltage vs. Collector Current

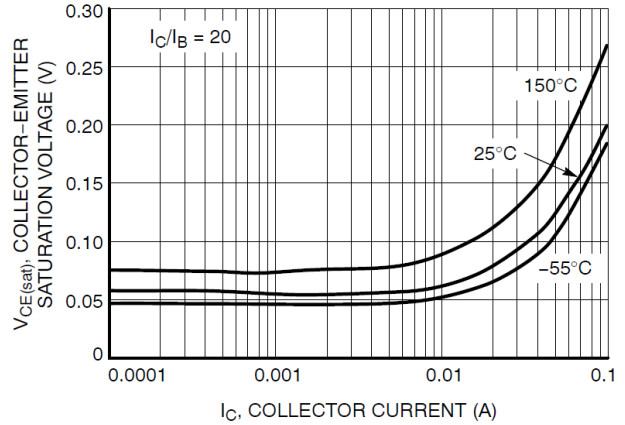


Figure 28. Base Emitter Voltage vs. Collector Current

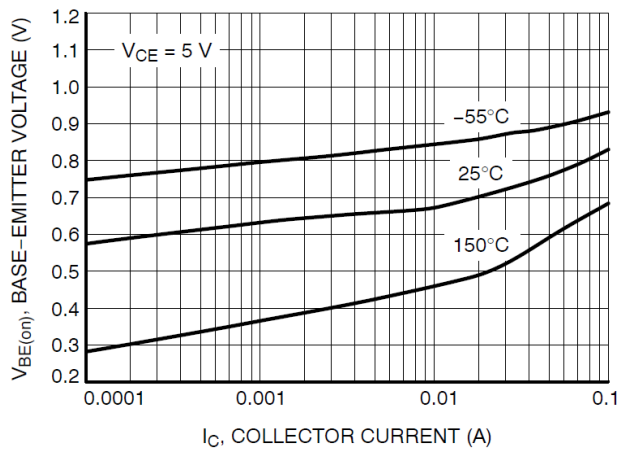


Figure 30. Base-Emitter Temperature Coefficient

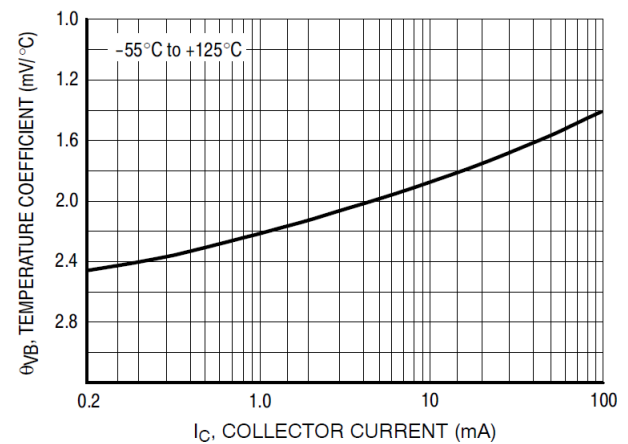




Figure 31. Capacitances

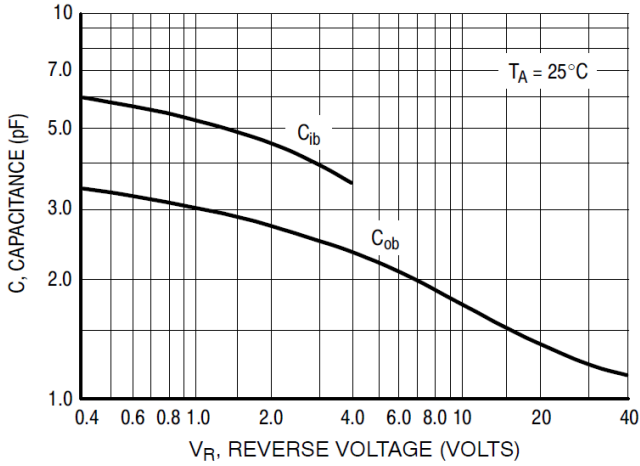


Figure 32. Current-Gain - Bandwidth Product

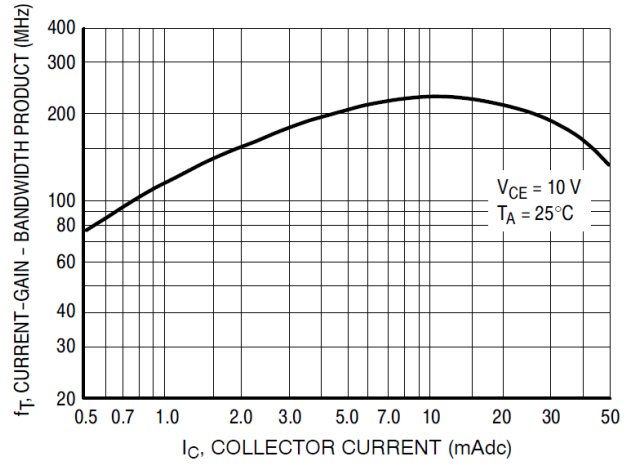


Figure 33. Safe Operating Area for BC846A, BC846B

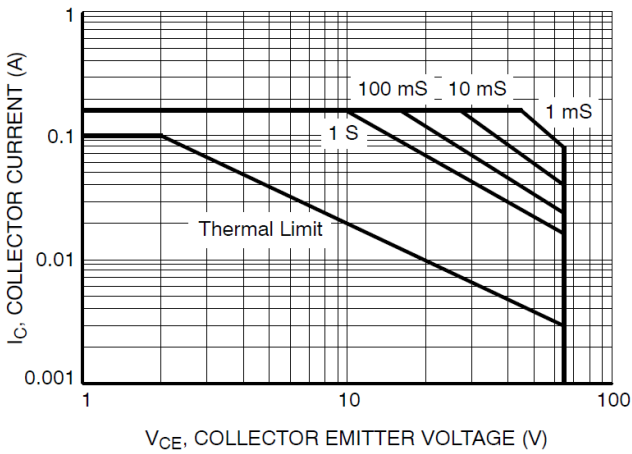


Figure 34. Safe Operating Area for BC847A, BC847B, BC847C

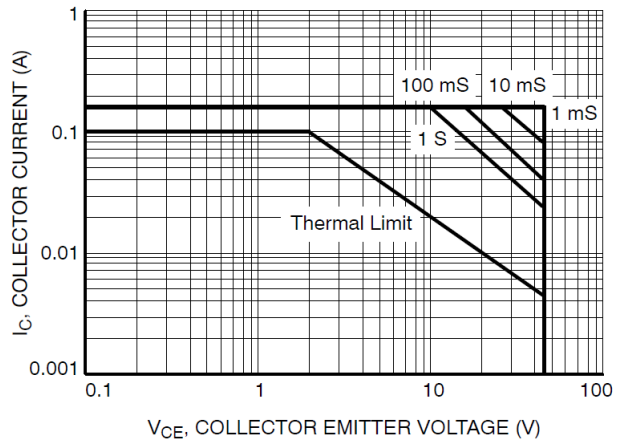
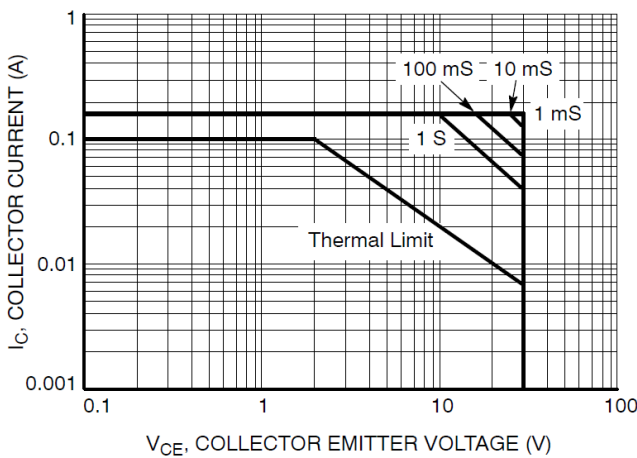


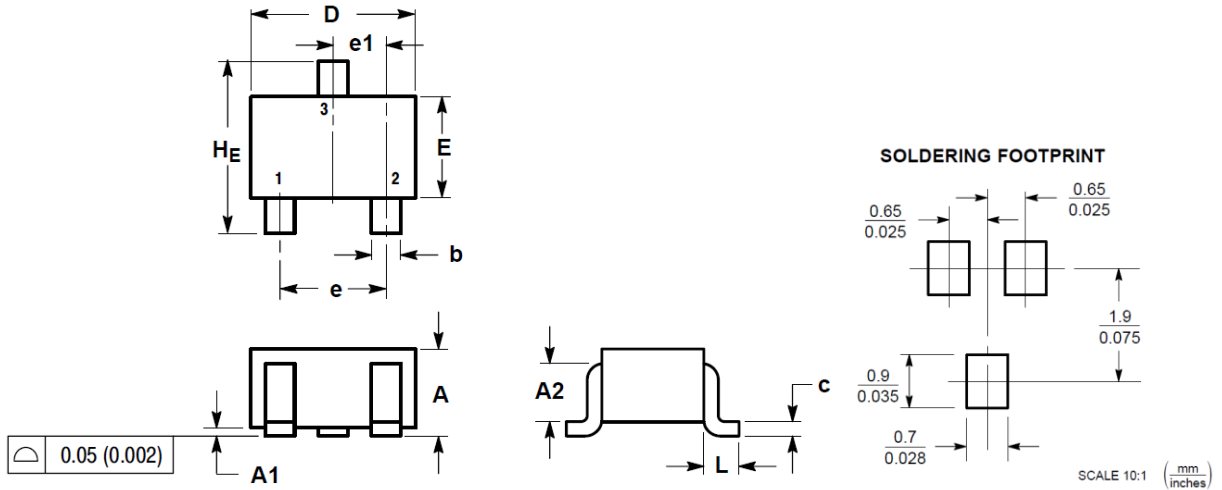
Figure 35. Safe Operating Area for BC848B, BC848C





PACKAGE INFORMATION

Dimension in SC-70 Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.032	0.040
A1	0.00	0.10	0.000	0.004
A2	0.7REF		0.028REF	
b	0.30	0.40	0.012	0.016
c	0.10	0.25	0.004	0.010
D	1.80	2.20	0.071	0.087
E	1.15	1.35	0.045	0.053
e	1.20	1.40	0.047	0.055
e1	0.65BSC		0.026BSC	
L	0.425REF		0.017REF	
HE	2.00	2.40	0.079	0.095



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