

DESCRIPTION

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

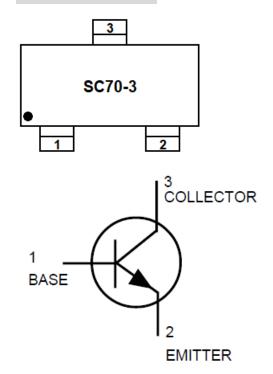
FEATURES

• 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



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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	Ic		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	ReJA	833	°C / W
Junction and Storage Temperature	TJ, TSTG	-55 to +150	°C

NOTE1: FR-5 = $1.0 \times 0.75 \times 0.062$ in

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ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Cor	nditions	Min.	Тур.	Max.	Unit
OFF CHARACTERISTICS						•	
Outlier to Fig. 70 - Parel Line			BC846 series	65	-	-	
Collector–Emitter Breakdown	V _{(BR)CEO}	I _C = 10mA	BC847 series	45	-	_	V
Voltage	,		BC848 series	30	-	_	
0.11		$I_{\rm C} = 10 \mu {\rm A},$	BC846 series	80	-	-	V
Collector–Emitter Breakdown	V _{(BR)CES}		BC847 series	50	-	-	
Voltage		V _{EB} = 0V	BC848 series	30	-	-	
O Hardan Barra Barral da			BC846 series	80	-	-	V
Collector–Base Breakdown	V _{(BR)CBO}	$I_C = 10\mu A$	BC847 series	50	-	-	
Voltage			BC848 series	30	-	-	
Facittae Bass Bassladaum			BC846 series	6.0	-	-	V
Emitter–Base Breakdown	V _{(BR)EBO}	I _E = 1.0μA	BC847 series	6.0	-	-	
Voltage			BC848 series	5.0	-	-	
Callantan Cutaff Cumant		V _{CB} = 30V		-	-	15	nA
Collector Cutoff Current	Ісво	V _{CB} = 30V, T	_A = 150°C	-	_	5.0	μΑ
ON CHARACTERISTICS							
			BC846A	440	400	220	
			BC847A	110	180	220	-
	h _{FE}	I _C = 2.0mA, V _{CE} = 5.0V	BC846B				
DC Current Gain			BC847B	200	290	290 450	-
			BC848B				-
			BC847C	420	20 520	800	
			BC848C	420	320	800	
Collector–Emitter Saturation	V _{CE(sat)}	I_C = 10mA, I_E	$I_C = 10 \text{mA}, I_B = 0.5 \text{mA}$		-	0.25	V
Voltage	V CE(sat)	$I_{C} = 100 \text{mA},$	I _C = 100mA, I _B = 5.0mA		-	0.6	V
Base-Emitter Saturation	Var.	$I_C = 10mA$, I_B	$I_C = 10mA$, $I_B = 0.5mA$		0.7	-	V
Voltage	V _{BE(sat)}	$I_{C} = 100 \text{mA},$	I _B = 5.0mA	-	0.9	-	V
Base–Emitter Voltage	V	$I_C = 2.0 \text{mA}, V_{CE} = 5.0 \text{V}$		580	660	700	mV
base-Emilier voltage	V _{BE(on)}	I _C = 10mA, V _{CE} = 5.0V		-	-	770	IIIV
SMALL-SIGNAL CHARACTER	ISTICS						
Current–Gain–Bandwidth	f⊤	I _C = 10mA, V	_{CE} = 5.0Vdc,	100	_	_	MHz
Product	11	f = 100MHz		100	_	-	IVII IZ
Output Capacitance	C_{obo}	V _{CB} = 10 V, f = 1.0 MHz		-	-	4.5	pF
	NF		BC846A				
		$I_{C} = 0.2 \text{mA},$	BC847A			10	
		$V_{CE} = 5.0 Vdc$		-	-		dB
Noise Figure		$R_S = 2.0k\Omega$,	BC847B				
		f = 1.0kHz, BW = 200Hz	BC848B				
				_	_	4.0	
			BC848C			4.0	

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TYPICAL PERFORMANCE CHARACTERISTICS

BC846A, BC847A

Figure 1. DC Current Gain vs. Collector Current

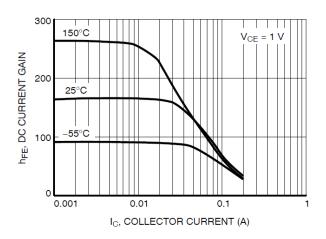


Figure 3. Base Emitter Saturation Voltage vs.

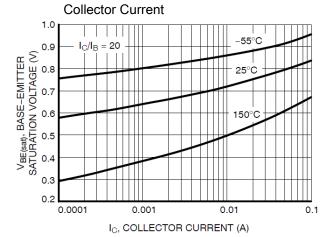


Figure 5. Collector Saturation Region

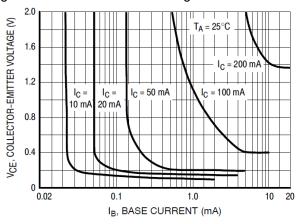


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

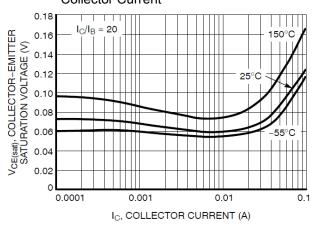


Figure 4. Base Emitter Voltage vs. Collector Current

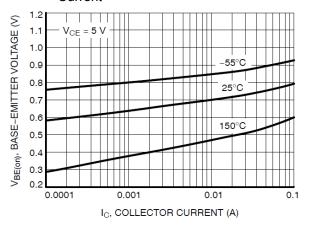
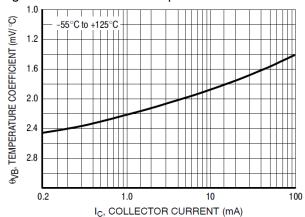


Figure 6. Base-Emitter Temperature Coefficient



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Figure 7. Capacitances

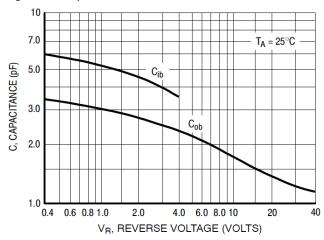
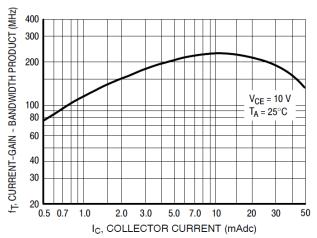


Figure 8. Current-Gain - Bandwidth Product



BC846B

Figure 9. DC Current Gain vs. Collector Current

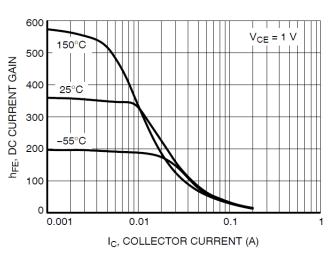


Figure 10. Collector Emitter Saturation Voltage vs. Collector Current

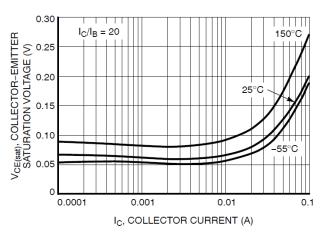


Figure 11. Base Emitter Saturation Voltage vs.
Collector Current

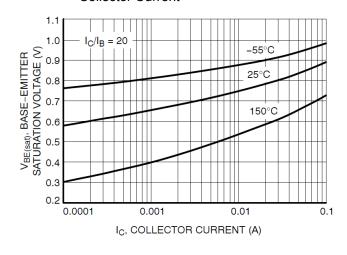
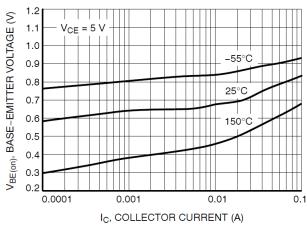


Figure 12. Base Emitter Voltage vs. Collector Current



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Figure 13. Collector Saturation Region

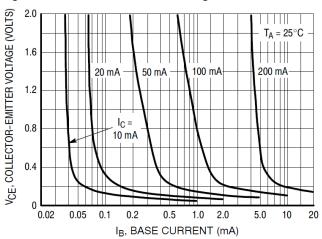
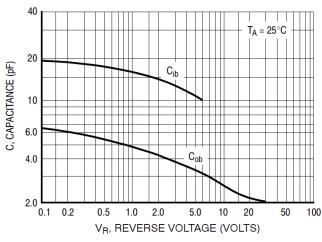


Figure 15. Capacitance



BC847B, BC848B

Figure 17. DC Current Gain vs. Collector

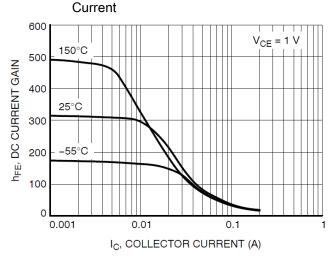


Figure 14. Base-Emitter Temperature Coefficient

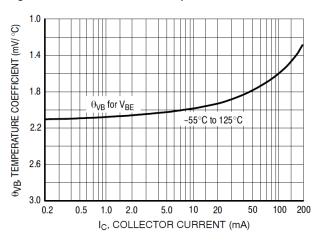


Figure 16. Current-Gain - Bandwidth Product

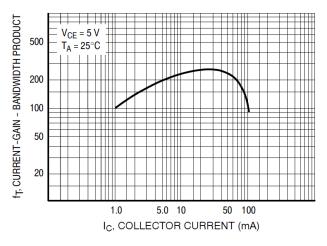
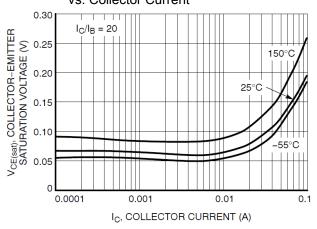


Figure 18. Collector Emitter Saturation Voltage vs. Collector Current



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Figure 19. Base Emitter Saturation Voltage vs.
Collector Current

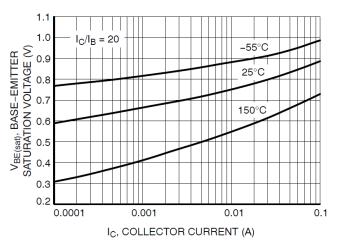


Figure 21. Collector Saturation Region

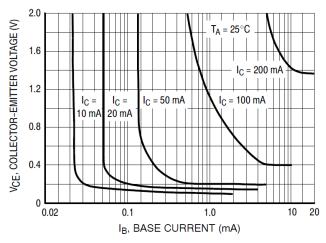


Figure 23. Capacitances

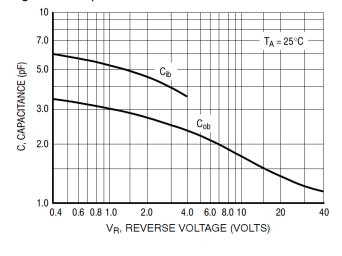


Figure 20. Base Emitter Voltage vs. Collector Current

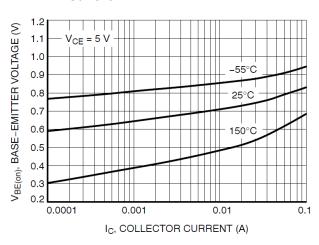


Figure 22. Base-Emitter Temperature Coefficient

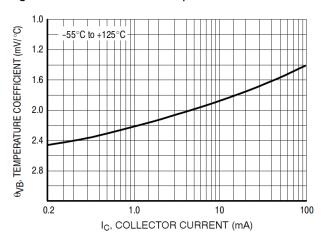
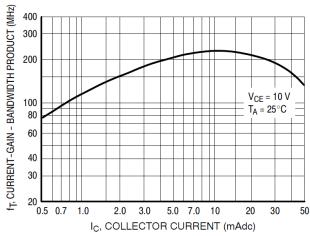


Figure 24. Current-Gain - Bandwidth Product



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NPN SILICON

BC847C, BC848C

Figure 25. DC Current Gain vs. Collector Current

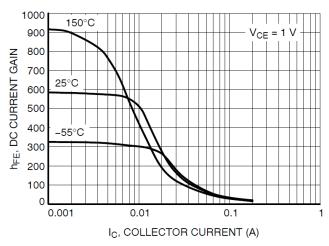


Figure 27. Base Emitter Saturation Voltage vs. Collector Current

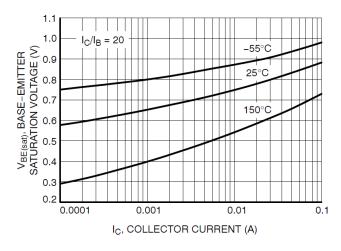


Figure 29. Collector Saturation Region

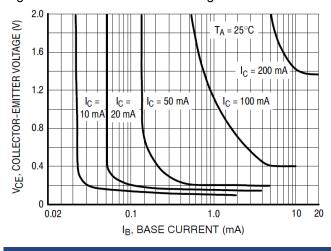


Figure 26. Collector Emitter Saturation Voltage vs. Collector Current

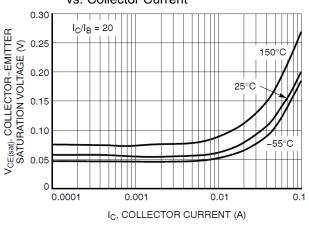


Figure 28. Base Emitter Voltage vs. Collector Current

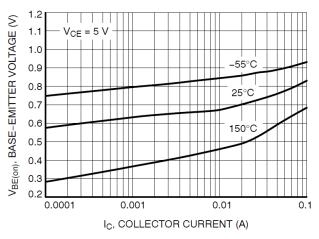
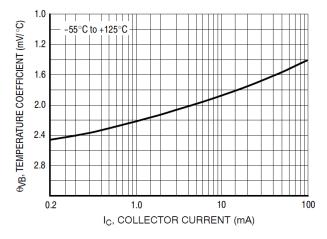


Figure 30. Base-Emitter Temperature Coefficient



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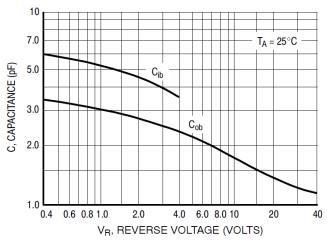


Figure 33. Safe Operating Area for BC846A, BC846B

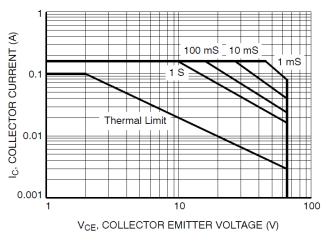


Figure 35. Safe Operating Area for BC848B, BC848C

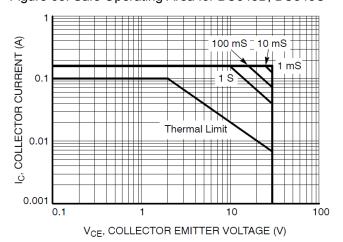


Figure 32. Current-Gain - Bandwidth Product

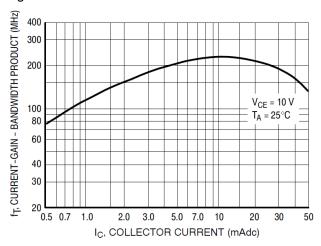
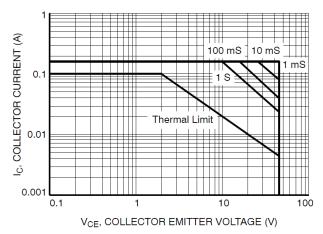


Figure 34. Safe Operating Area for BC847A, BC847B, BC847C

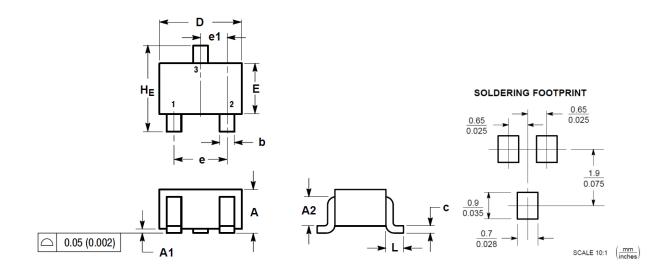


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PACKAGE INFORMATION

Dimension in SC-70 Package (Unit: mm)



DIM	MILLIMETERS		INCHES		
	MIN	MAX	MIN	MAX	
Α	0.80	1.00	0.032	0.040	
A1	0.00	0.10	0.000	0.004	
A2	0.7	REF	0.028REF		
b	0.30	0.40	0.012	0.016	
С	0.10	0.25	0.004	0.010	
D	1.80	2.20	0.071	0.087	
Е	1.15	1.35	0.045	0.053	
е	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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BC846AW~BC848CW

GENERAL PURPOSE TRANSISTOR

NPN SILICON

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