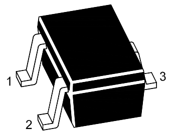
BC846AW THER BC850CW

NPN Silicon Epitaxial Planar Transistor

for general purpose and switching applications



1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

Absolute Maximum Ratings ($T_a = 25$ °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage			
BC846W	V_{CBO}	80	V
BC847W		50	
BC848W		30	
BC849W		30	
BC850W		50	
Collector Emitter Voltage			
BC846W	V_{CEO}	65	V
BC847W		45	
BC848W		30	
BC849W		30	
BC850W		45	
Emitter Base Voltage			
BC846W	V_{EBO}	6	V
BC847W		6	
BC848W		5	
BC849W		5	
BC850W		5	
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Characteristics at $T_a = 25\ ^{o}C$

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 5$ V, $I_C = 2$ mA	BC846AW~BC850AW	h_{FE}	110	220	-
	BC846BW~BC850BW	h_{FE}	200	450	-
	BC846CW~BC850CW	h_{FE}	420	800	-
Collector Base Voltage at $I_C = 10$ µA	BC846W	V_{CBO}	80	-	V
	BC847W		50	-	
	BC848W		30	-	
	BC849W		30	-	
	BC850W		50	-	
Collector Emitter Voltage at $I_C = 10$ mA	BC846W	V_{CEO}	65	-	V
	BC847W		45	-	
	BC848W		30	-	
	BC849W		30	-	
	BC850W		45	-	
Emitter Base Voltage at $I_E = 1$ µA	BC846W	V_{EBO}	6	-	V
	BC847W		6	-	
	BC848W		5	-	
	BC849W		5	-	
	BC850W		5	-	
Collector Base Cutoff Current at $V_{CB} = 30$ V		I_{CBO}	-	15	nA
Emitter Base Cutoff Current at $V_{EB} = 5$ V		I_{EBO}	-	100	nA
Collector Emitter Saturation Voltage at $I_C = 10$ mA, $I_B = 0.5$ mA		$V_{CE(sat)}$	-	0.25	V
$I_C = 100$ mA, $I_B = 5$ mA			-	0.6	
Base Emitter Voltage at $V_{CE} = 5$ V, $I_C = 2$ mA		V_{BE}	0.58	0.7	V
$V_{CE} = 5$ V, $I_C = 10$ mA			-	0.77	
Transition Frequency at $V_{CE} = 5$ V, $I_C = 10$ mA, f = 100 MHz		f_T	100	-	MHz
Collector Output Capacitance at $V_{CB} = 10$ V, $I_E = 0$, f = 1 MHz		C_{ob}	-	4.5	pF

DEVICE MARKING

BC846AW=1A;BC846BW=1B;BC846CW=1C
BC847AW=1E;BC847BW=1F;BC847CW=1G
BC848AW=1J;BC848BW=1K;BC848CW=1L
BC849AW=1E;BC849BW=1F;BC849CW=1G
BC850AW=1E;BC850BW=1F;BC850CW=1G

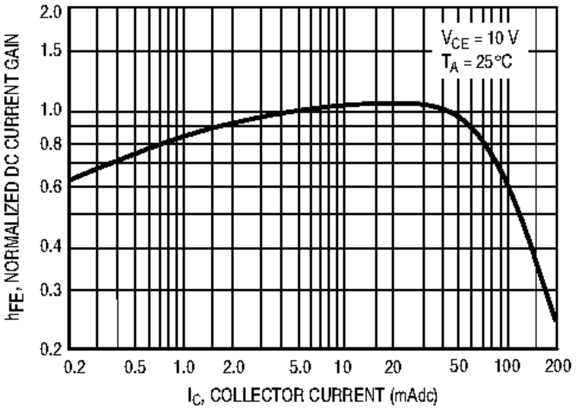


Figure 1. Normalized DC Current Gain

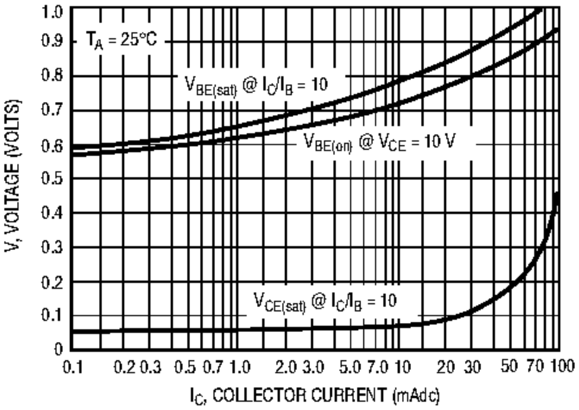


Figure 2. “Saturation” and “On” Voltages

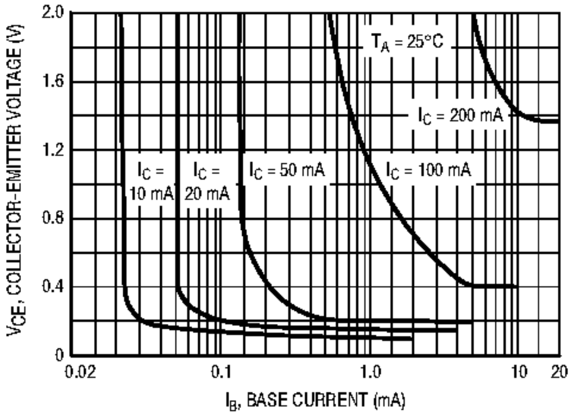


Figure 3. Collector Saturation Region

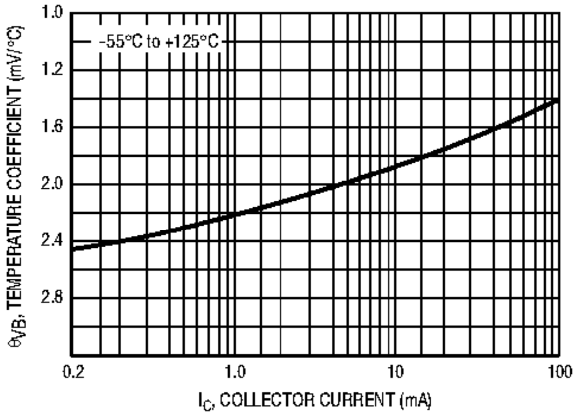


Figure 4. Base−Emitter Temperature Coefficient

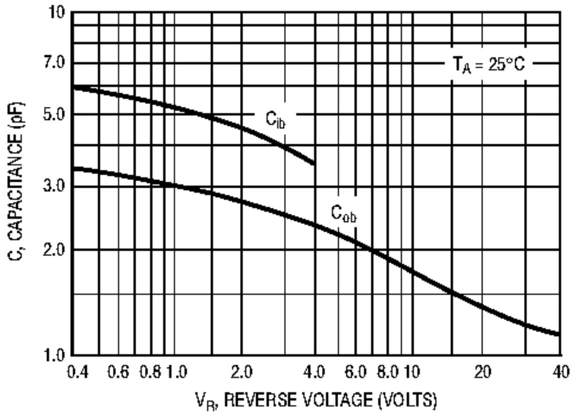


Figure 5. Capacitances

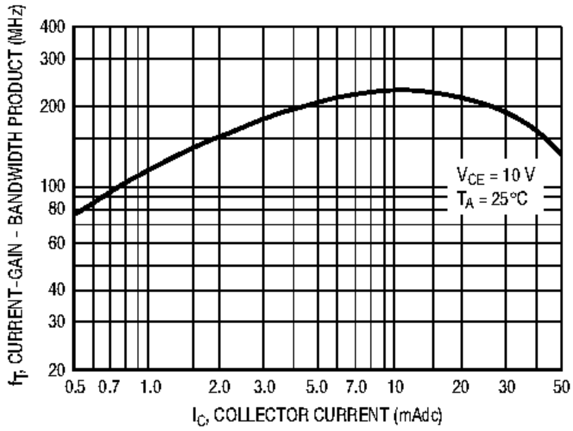


Figure 6. Current−Gain − Bandwidth Product

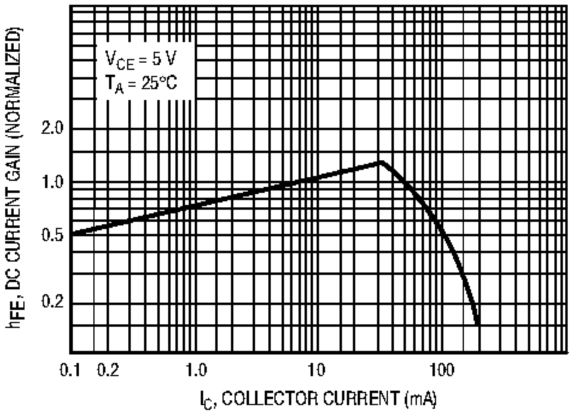


Figure 7. DC Current Gain

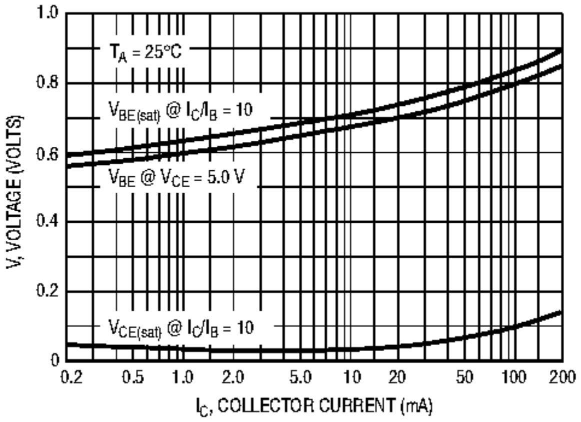


Figure 8. "On" Voltage

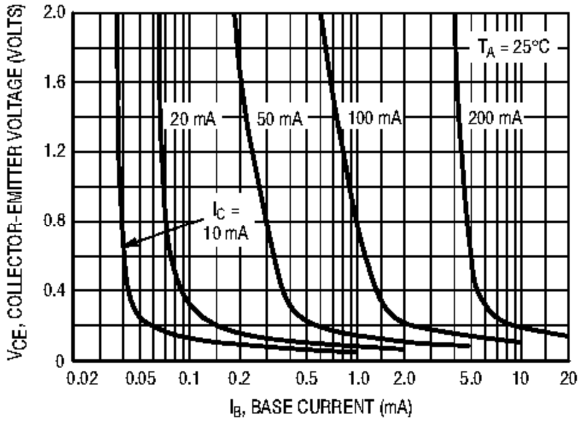


Figure 9. Collector Saturation Region

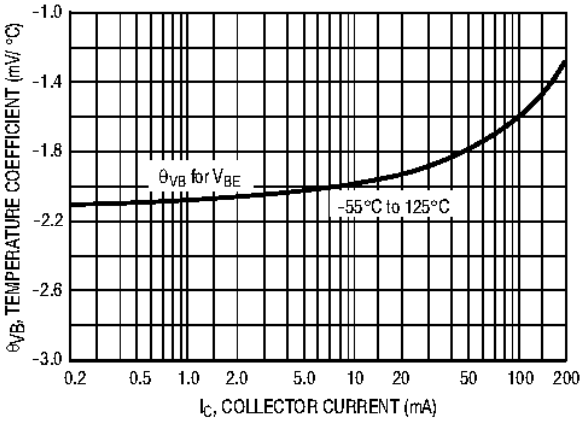


Figure 10. Base−Emitter Temperature Coefficient

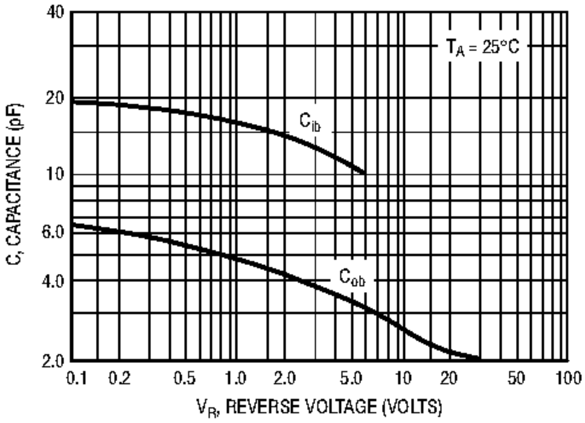


Figure 11. Capacitance

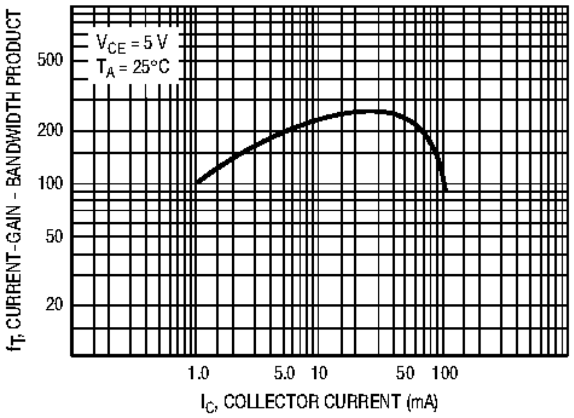
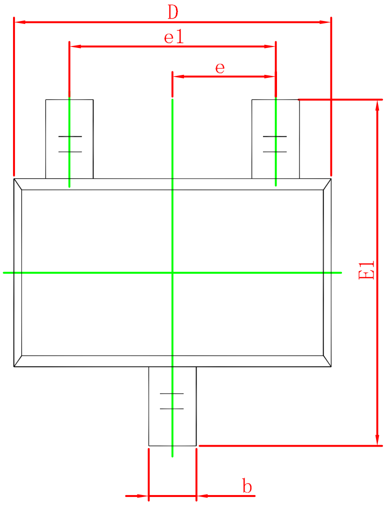
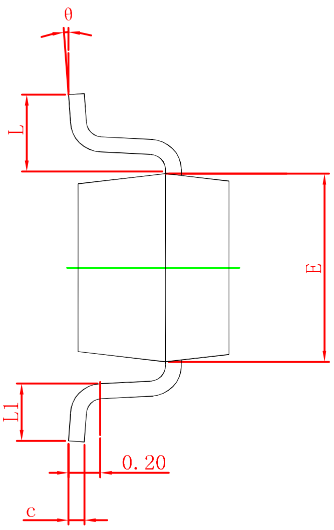
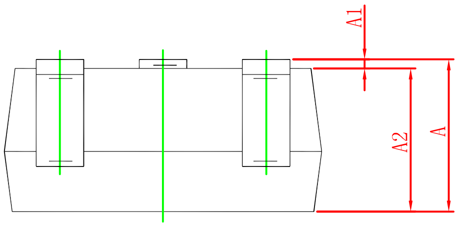


Figure 12. Current−Gain − Bandwidth Product

SOT-323 Package Outline Dimensions







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°