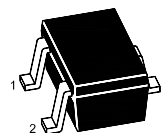


NPN Silicon Epitaxial Planar Transistor

for general purpose and switching applications



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

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

Parameter	Symbol	Value	Unit			
Collector Base Voltage	V_{CBO}	BC846W BC847W BC848W BC849W BC850W	80 50 30 30 50	V		
Collector Emitter Voltage		V_{CEO}	BC846W BC847W BC848W BC849W BC850W	65 45 30 30 45	V	
Emitter Base Voltage			V_{EBO}	BC846W BC847W BC848W BC849W BC850W	6 6 5 5 5	V
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		$^\circ\text{C}$		
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$			

MARKING CODE

TYPE	846AW	846BW	846CW	847AW	847BW	847CW	848AW	848BW	848CW
MARKING	1A	1B	1C	1E	1F	1G	1J	1K	1L
TYPE	849AW	849BW	849CW	850AW	850BW	850CW			
MARKING	2A	2B	2C	2E	2F	2G			

Characteristics at $T_a = 25\text{ }^\circ\text{C}$

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

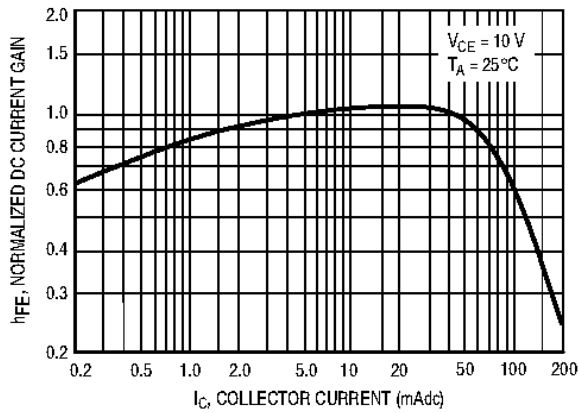


Figure 1. Normalized DC Current Gain

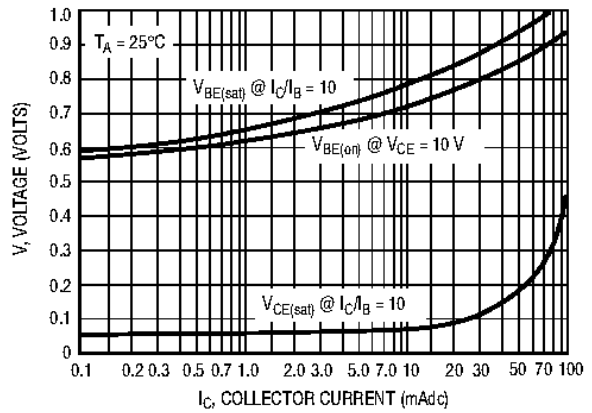


Figure 2. "Saturation" and "On" Voltages

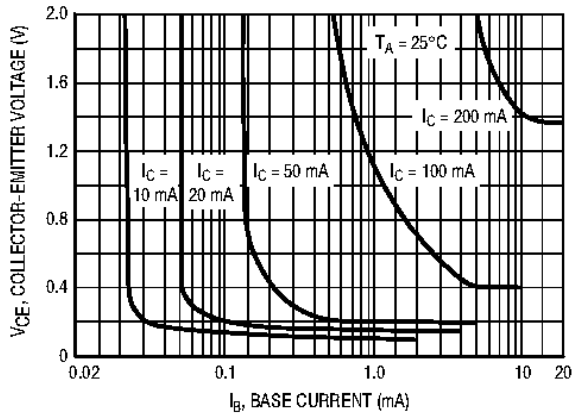


Figure 3. Collector Saturation Region

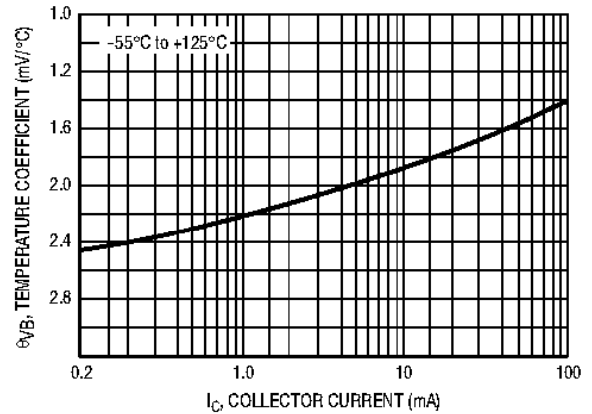


Figure 4. Base-Emitter Temperature Coefficient

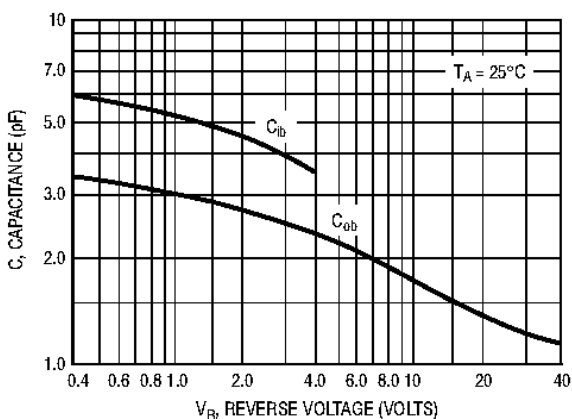


Figure 5. Capacitances

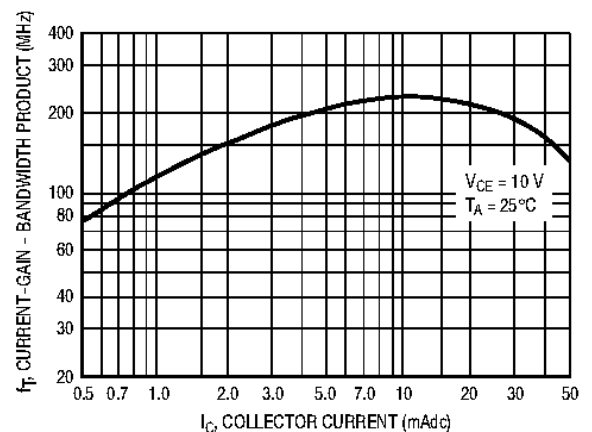


Figure 6. Current-Gain - Bandwidth Product

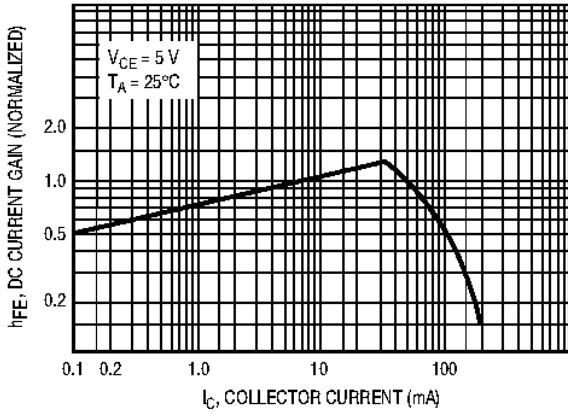


Figure 7. DC Current Gain

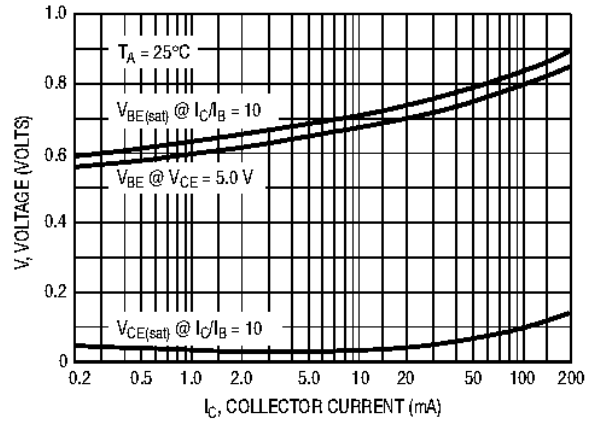


Figure 8. "On" Voltage

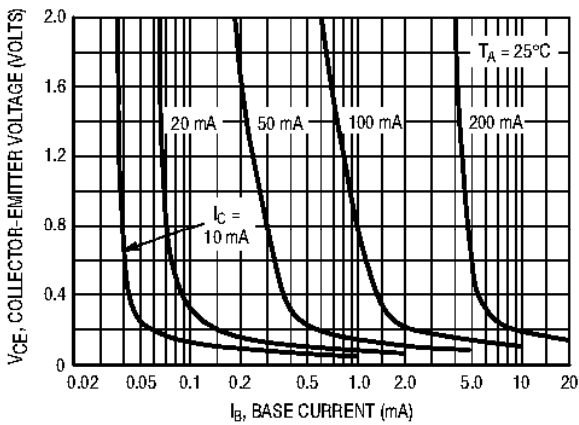


Figure 9. Collector Saturation Region

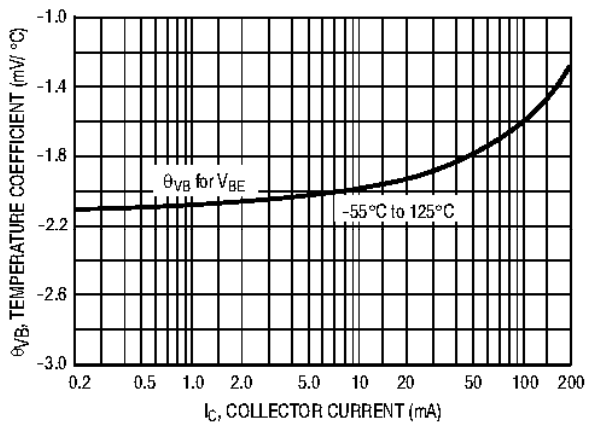


Figure 10. Base-Emitter Temperature Coefficient

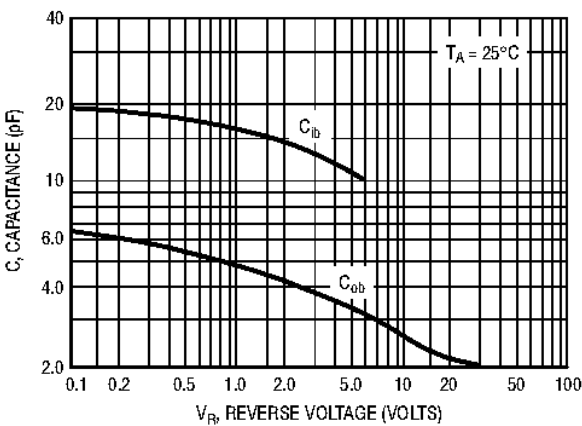


Figure 11. Capacitance

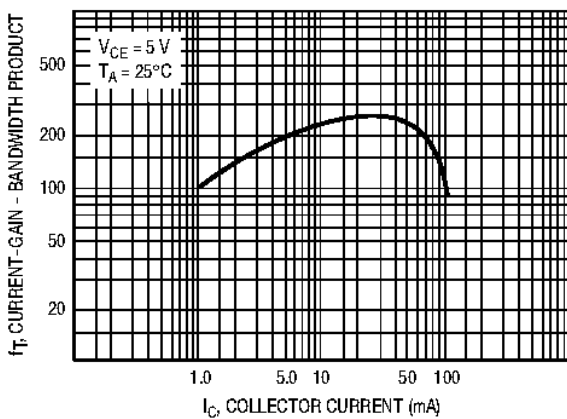
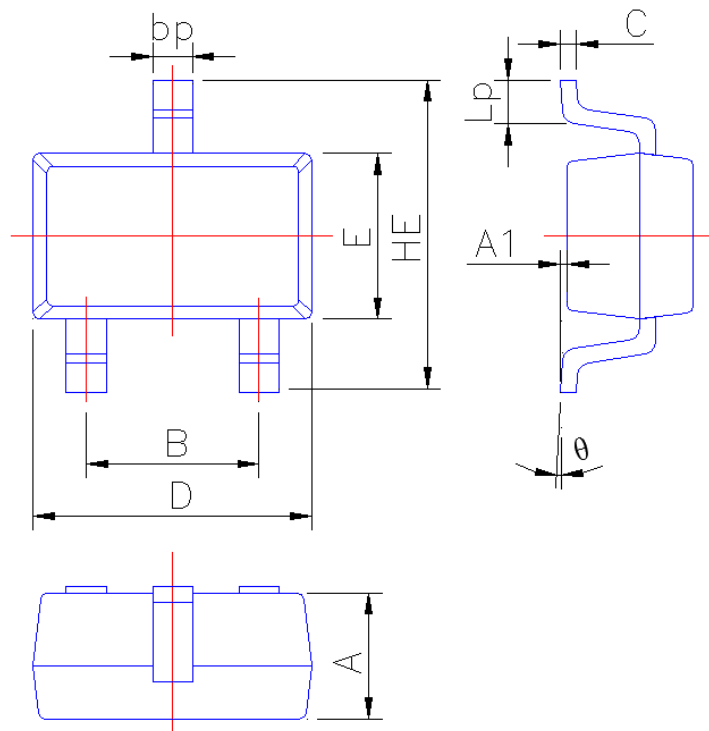


Figure 12. Current-Gain - Bandwidth Product

SOT-323 PACKAGE OUTLINE DIMENSIONS


Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.00
A1	0.010	0.100
B	1.20	1.40
bp	0.25	0.45
C	0.09	0.15
D	2.00	2.20
E	1.15	1.35
HE	2.15	2.55
Lp	0.25	0.46
θ	0°	6°