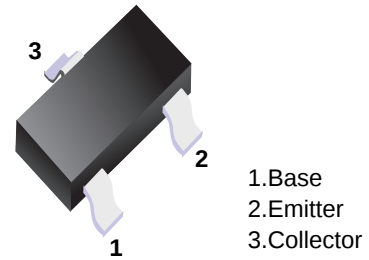


NPN Silicon Epitaxial Planar Transistor

for general purpose and switching applications



■ Simplified outline(SOT-323)

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

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	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	- 55 to + 150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$	BC846AW~BC850AW h_{FE} BC846BW~BC850BW h_{FE} BC846CW~BC850CW h_{FE}	110 200 420	220 450 800	- - -
Collector Base Voltage at $I_C = 10\text{ }\mu\text{A}$	BC846W BC847W BC848W BC849W BC850W V_{CBO}	80 50 30 30 50	- - - - -	V
Collector Emitter Voltage at $I_C = 10\text{ mA}$	BC846W BC847W BC848W BC849W BC850W V_{CEO}	65 45 30 30 45	- - - - -	V
Emitter Base Voltage at $I_E = 1\text{ }\mu\text{A}$	BC846W BC847W BC848W BC849W BC850W V_{EBO}	6 6 5 5 5	- - - - -	V
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 0.6	V
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 0.77	V
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

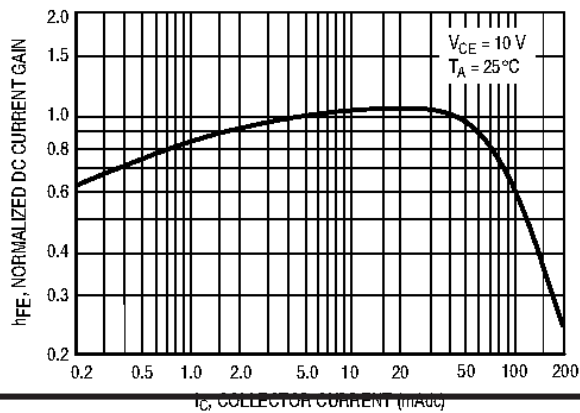


Figure 1. Normalized DC Current Gain 1

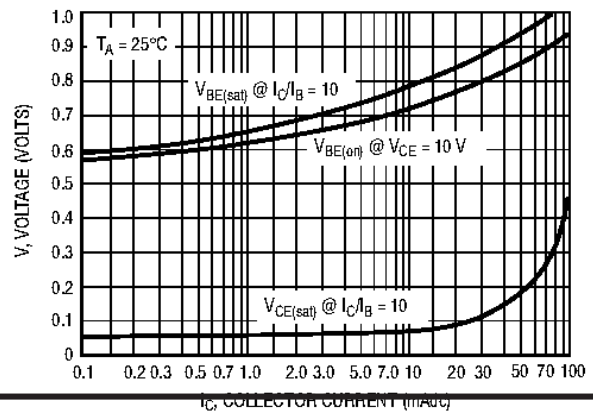


Figure 2. "Saturation" and "On" Voltages

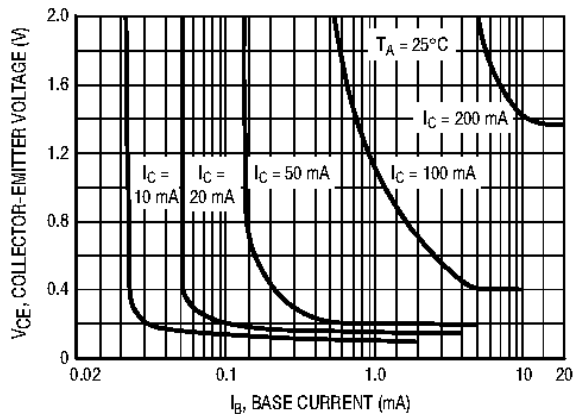


Figure 3. Collector Saturation Region

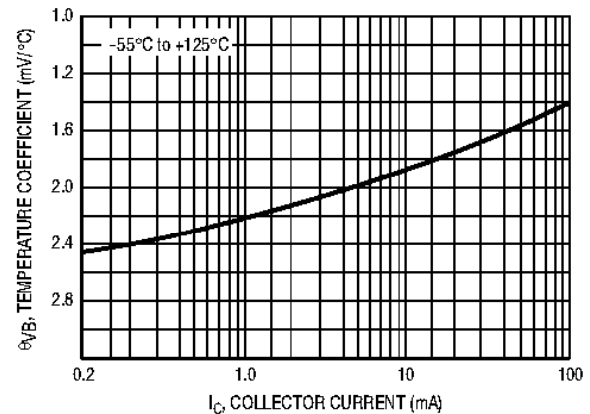


Figure 4. Base-Emitter Temperature Coefficient

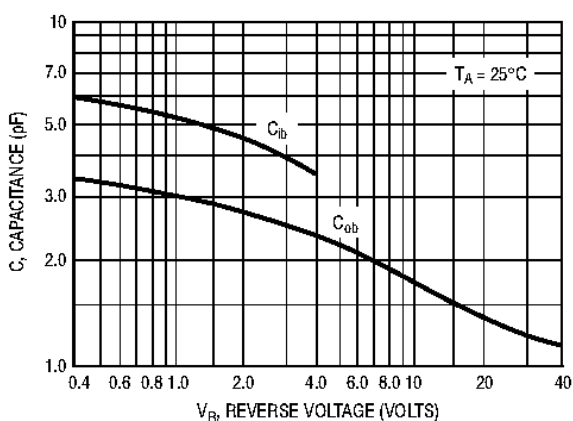


Figure 5. Capacitances

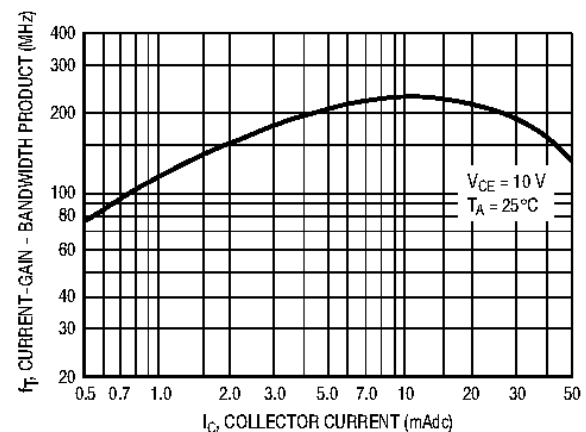


Figure 6. Current-Gain - Bandwidth Product

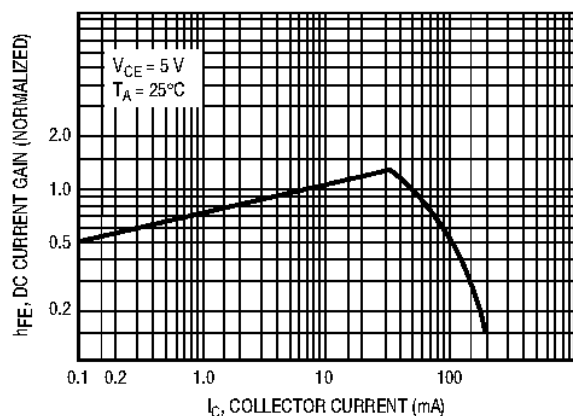


Figure 7. DC Current Gain

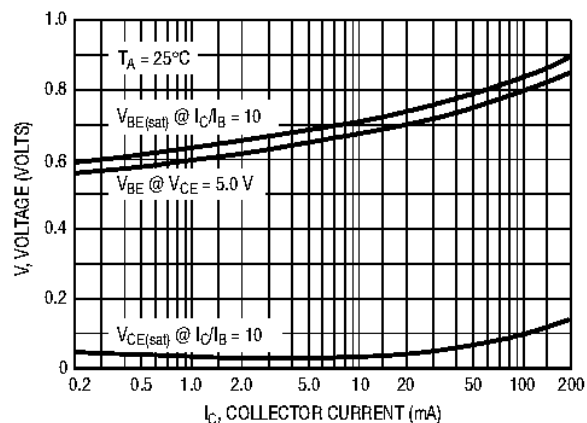


Figure 8. "On" Voltage

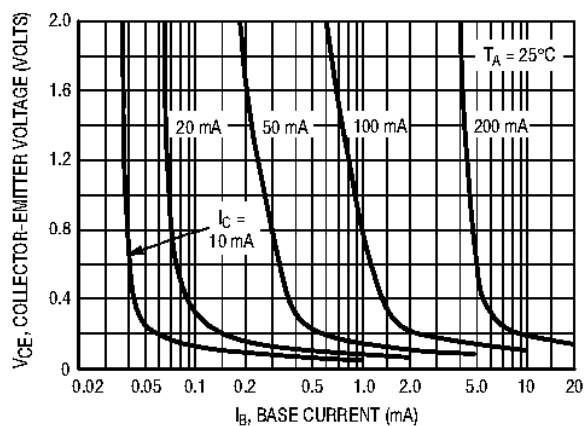


Figure 9. Collector Saturation Region

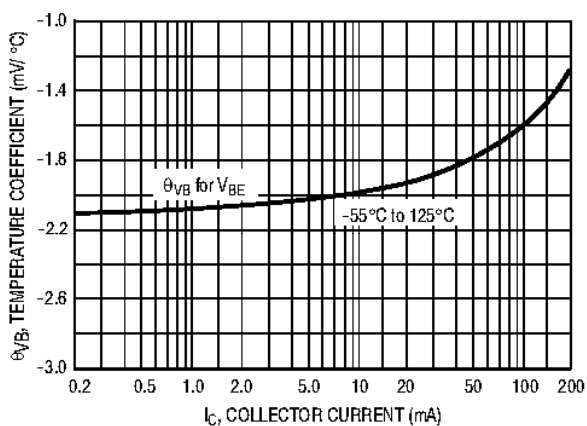


Figure 10. Base-Emitter Temperature Coefficient

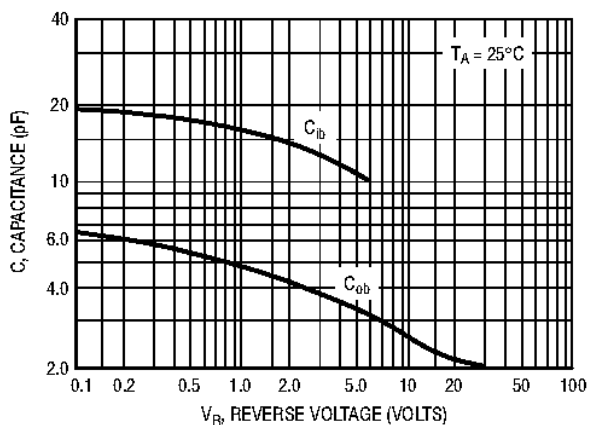


Figure 11. Capacitance

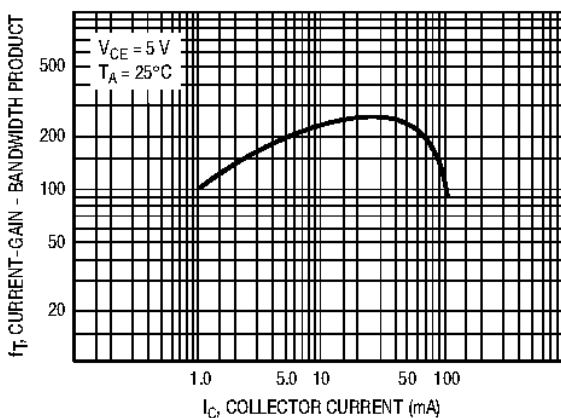
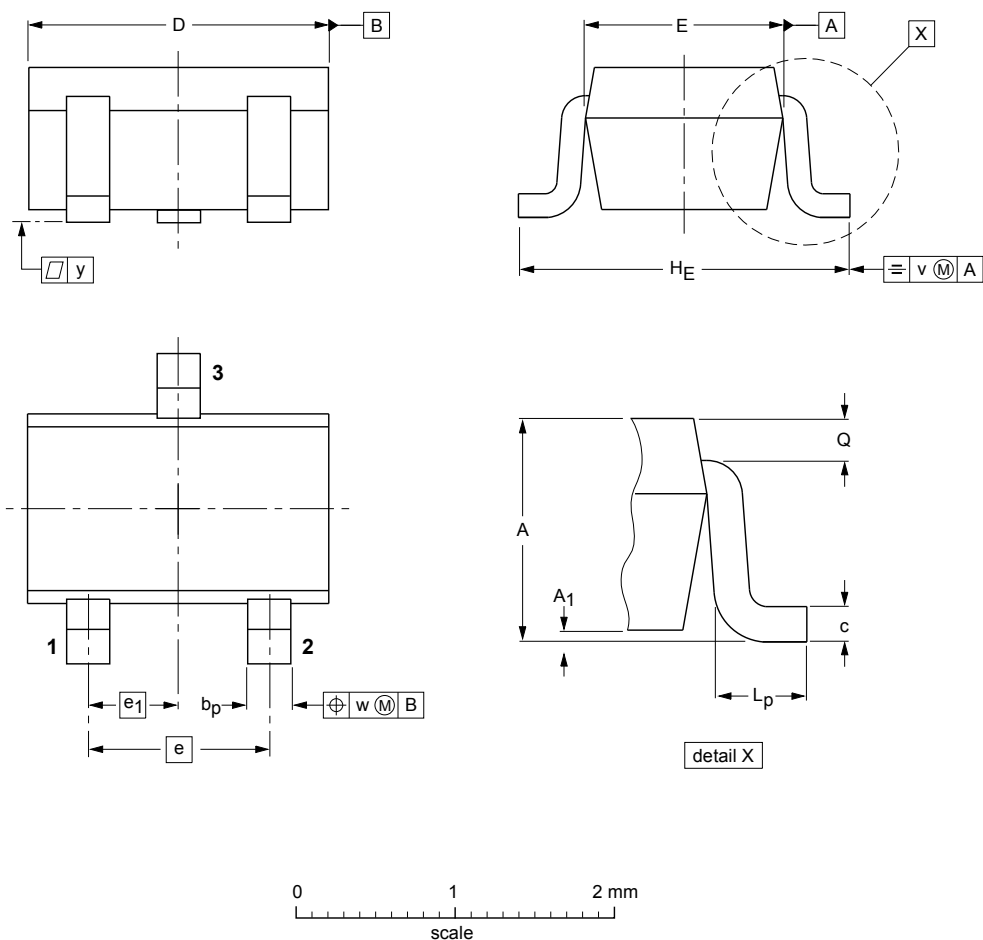


Figure 12. Current-Gain - Bandwidth Product

■ SOT-323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2