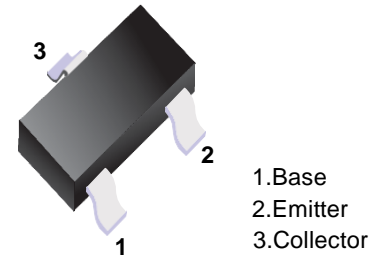


- **NPN Silicon Epitaxial Planar Transistor**  
for general purpose and switching applications



■ **Simplified outline(SOT-323)**

■ **Absolute Maximum Ratings (T<sub>a</sub> = 25°C)**

Parameter		Symbol	Value	Unit
Collector Base Voltage	BC846W	V <sub>CBO</sub>	80	V
	BC847W		50	
	BC848W		30	
	BC849W		30	
	BC850W		50	
Collector Emitter Voltage	BC846W	V <sub>CEO</sub>	65	V
	BC847W		45	
	BC848W		30	
	BC849W		30	
	BC850W		45	
Emitter Base Voltage	BC846W	V <sub>EBO</sub>	6	V
	BC847W		6	
	BC848W		5	
	BC849W		5	
	BC850W		5	
Collector Current		I <sub>C</sub>	100	mA
Peak Collector Current		I <sub>CM</sub>	200	mA
Total Power Dissipation		P <sub>tot</sub>	200	mW
Junction Temperature		T <sub>j</sub>	150	°C
Storage Temperature Range		T <sub>stg</sub>	- 55 to + 150	°C



■ Characteristics at T<sub>a</sub> = 25°C

Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA	BC846AW~BC850AW	h <sub>FE</sub>	110	220	-
	BC846BW~BC850BW	h <sub>FE</sub>	200	450	-
	BC846CW~BC850CW	h <sub>FE</sub>	420	800	-
Collector Base Voltage at I <sub>C</sub> = 10 μA	BC846W	V <sub>CBO</sub>	80	-	V
	BC847W	V <sub>CBO</sub>	50	-	
	BC848W	V <sub>CBO</sub>	30	-	
	BC849W	V <sub>CBO</sub>	30	-	
	BC850W	V <sub>CBO</sub>	50	-	
Collector Emitter Voltage at I <sub>C</sub> = 10 mA	BC846W	V <sub>CEO</sub>	65	-	V
	BC847W	V <sub>CEO</sub>	45	-	
	BC848W	V <sub>CEO</sub>	30	-	
	BC849W	V <sub>CEO</sub>	30	-	
	BC850W	V <sub>CEO</sub>	45	-	
Emitter Base Voltage at I <sub>E</sub> = 1 μA	BC846W	V <sub>EBO</sub>	6	-	V
	BC847W	V <sub>EBO</sub>	6	-	
	BC848W	V <sub>EBO</sub>	5	-	
	BC849W	V <sub>EBO</sub>	5	-	
	BC850W	V <sub>EBO</sub>	5	-	
Collector Base Cutoff Current at V <sub>CB</sub> = 30 V	I <sub>CBO</sub>	-	15	nA	
Emitter Base Cutoff Current at V <sub>EB</sub> = 5 V	I <sub>EBO</sub>	-	100	nA	
Collector Emitter Saturation Voltage at I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA	V <sub>CE(sat)</sub>	-	0.25	V	
		-	0.6		
Base Emitter Voltage at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA	V <sub>BE</sub>	0.58	0.7	V	
		-	0.77		
Transition Frequency at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA, f = 100 MHz	f <sub>T</sub>	100	-	MHz	
Collector Output Capacitance at V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz	C <sub>ob</sub>	-	4.5	pF	



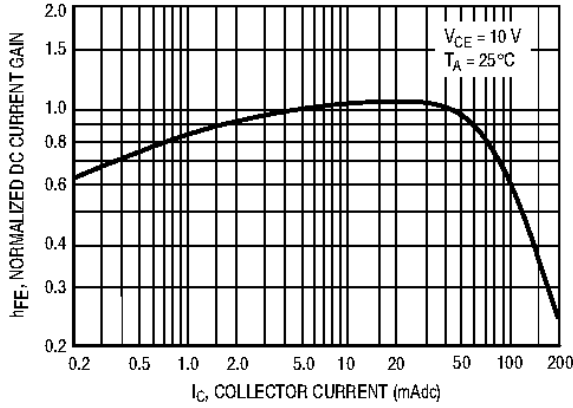


Figure 1. Normalized DC Current Gain

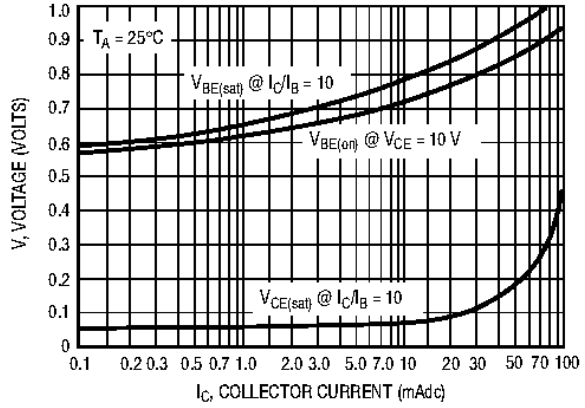


Figure 2. "Saturation" and "On" Voltages

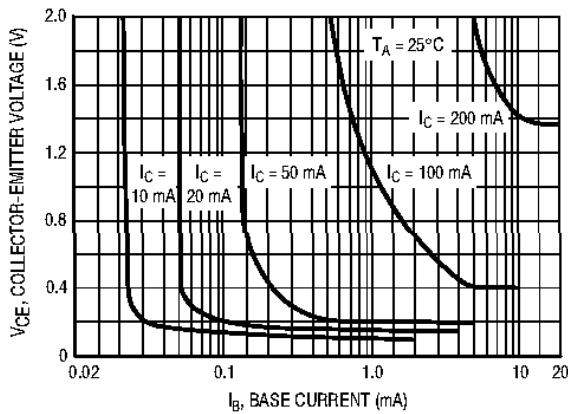


Figure 3. Collector Saturation Region

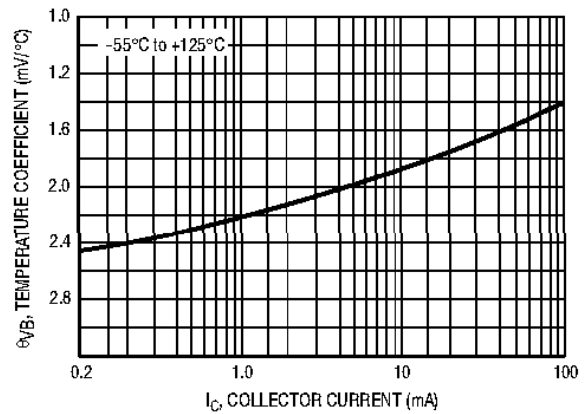


Figure 4. Base-Emitter Temperature Coefficient

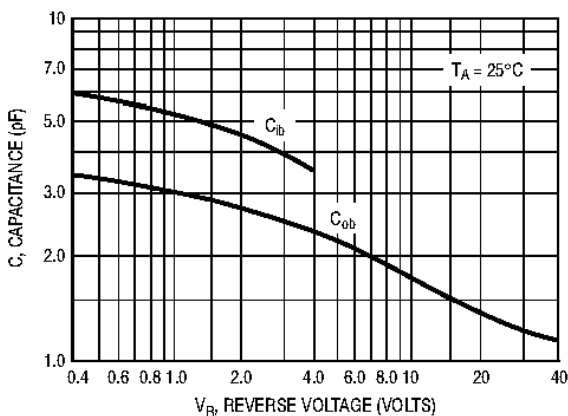


Figure 5. Capacitances

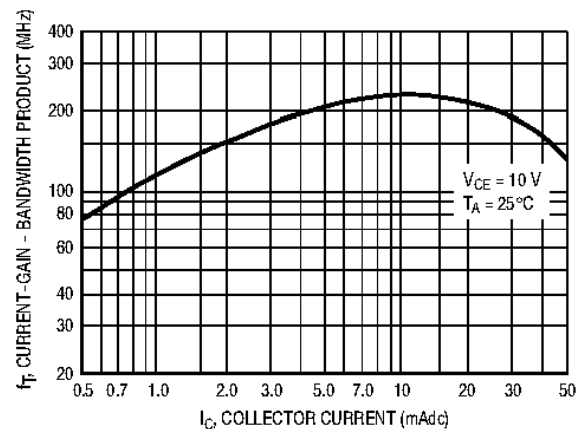


Figure 6. Current-Gain - Bandwidth Product



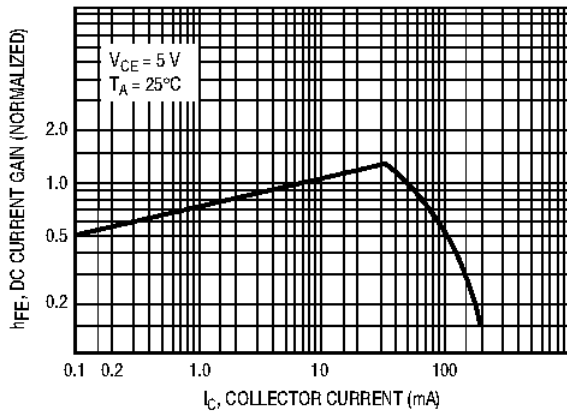


Figure 7. DC Current Gain

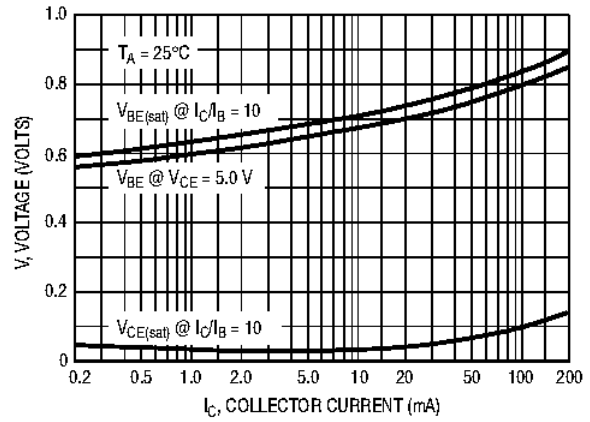


Figure 8. "On" Voltage

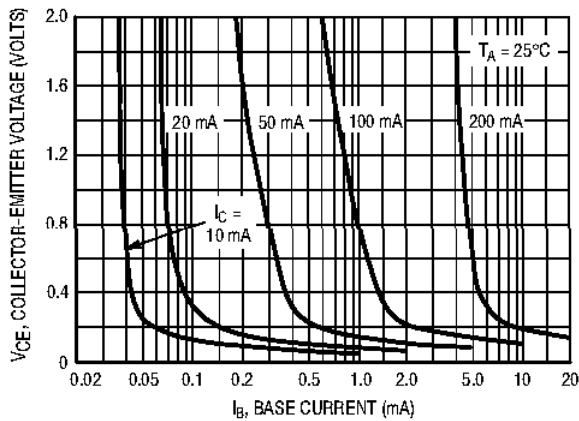


Figure 9. Collector Saturation Region

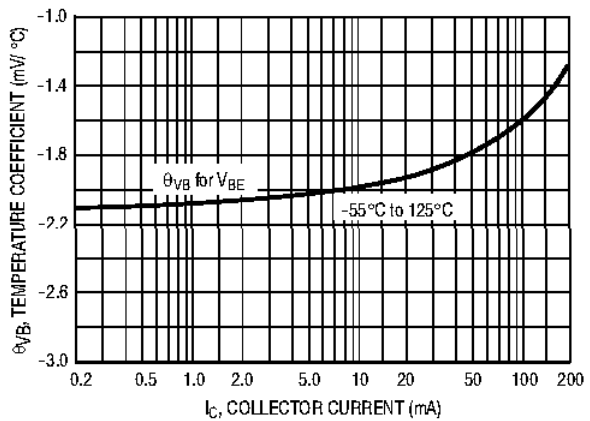


Figure 10. Base-Emitter Temperature Coefficient

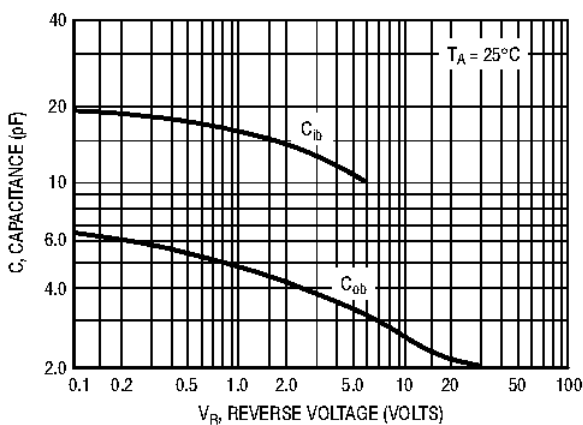


Figure 11. Capacitance

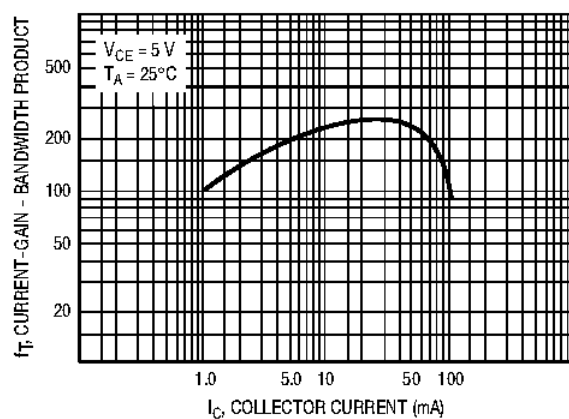
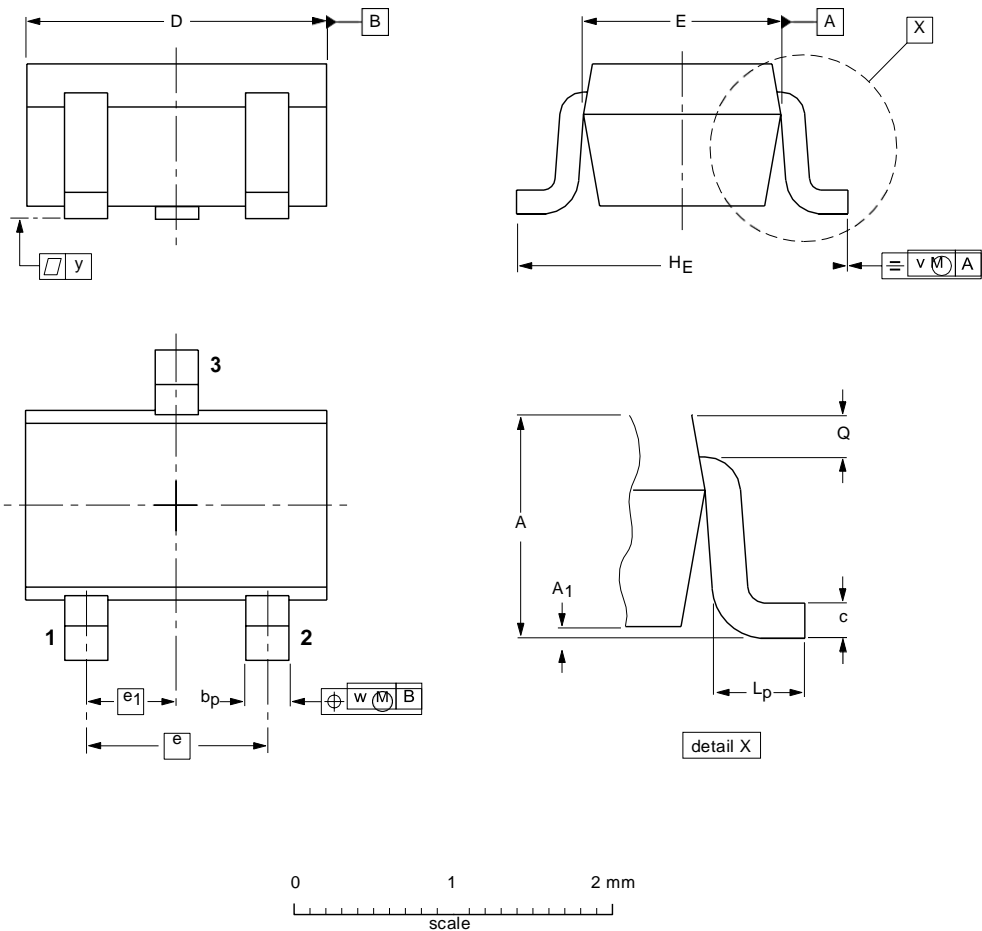


Figure 12. Current-Gain - Bandwidth Product



■ SOT-323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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

