



**SOT-23 Plastic-Encapsulate Transistors**

**BC846A,B** TRANSISTOR (NPN)  
**BC847A, B, C**  
**BC848A, B, C**

**SOT-23**



- 1. BASE
- 2. EMITTER
- 3. COLLECTOR

**FEATURES**

- Ideally suited for automatic insertion
- For Switching and AF Amplifier Applications

**MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage		V
	BC846	80	
	BC847	50	
V <sub>CEO</sub>	Collector-Emitter Voltage		V
	BC846	65	
	BC847	45	
	BC848	30	
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>c</sub>	Collector Current –Continuous	0.1	A
P <sub>C*</sub>	Collector Power Dissipation	200	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-65-150	°C

**DEVICE MARKING**

BC846A=1A; BC846B=1B;  
 BC847A=1E; BC847B=1F; BC847C=1G;  
 BC848A=1J; BC848B=1K; BC848C=1L

**ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT		
Collector-base breakdown voltage	BC846	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	80			V	
	BC847			50				
	BC848			30				
Collector-emitter breakdown voltage	BC846	$V_{CEO}$	$I_C = 10mA, I_B = 0$	65			V	
	BC847			45				
	BC848			30				
Emitter-base breakdown voltage		$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	6			V	
Collector cut-off current	BC846	$I_{CBO}$	$V_{CB} = 70V, I_E = 0$				$\mu A$	
	BC847			$V_{CB} = 50V, I_E = 0$		0.1		
	BC848			$V_{CB} = 30V, I_E = 0$				
Collector cut-off current	BC846	$I_{CEO}$	$V_{CE} = 60V, I_B = 0$				$\mu A$	
	BC847			$V_{CE} = 45V, I_B = 0$		0.1		
	BC848			$V_{CE} = 30V, I_B = 0$				
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 5V, I_C = 0$			0.1	$\mu A$	
DC current gain	BC846A,847A,848A	$h_{FE}$	$V_{CE} = 5V, I_C = 2mA$	110		220		
	BC846B,847B,848B			200		450		
	BC847C,BC848C			420		800		
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 100mA, I_B = 5mA$			0.5	V	
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 100mA, I_B = 5mA$			1.1	V	
Transition frequency		$f_T$	$V_{CE} = 5V, I_C = 10mA$ $f = 100MHz$	100			MHz	
Collector output capacitance		$C_{ob}$	$V_{CB} = 10V, f = 1MHz$			4.5	pF	

# Typical Characteristics BC846A,B;BC847A, B, C;BC848A, B, C

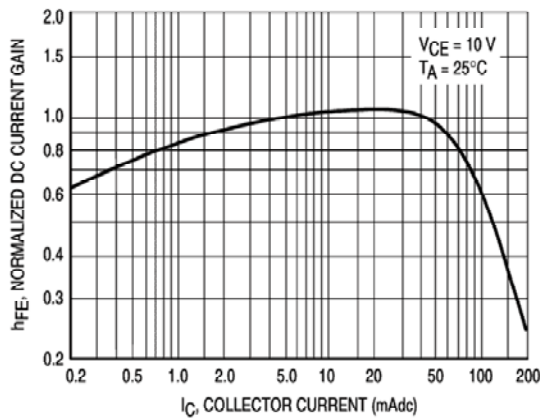


Figure 1. Normalized DC Current Gain

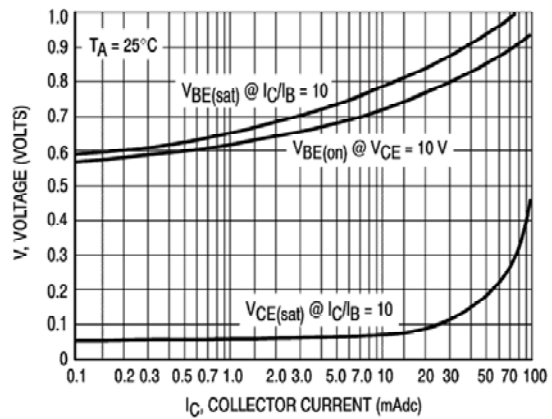


Figure 2. "Saturation" and "On" Voltages

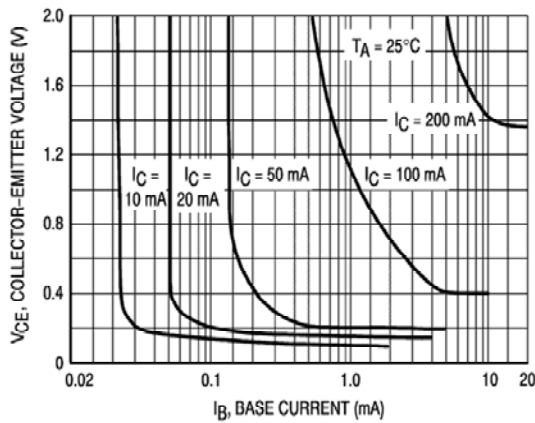


Figure 3. Collector Saturation Region

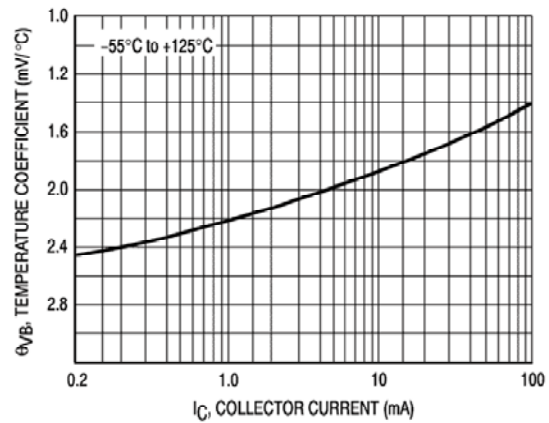


Figure 4. Base-Emitter Temperature Coefficient

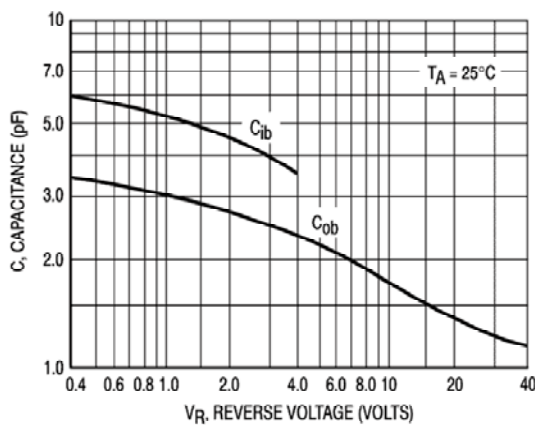


Figure 5. Capacitances

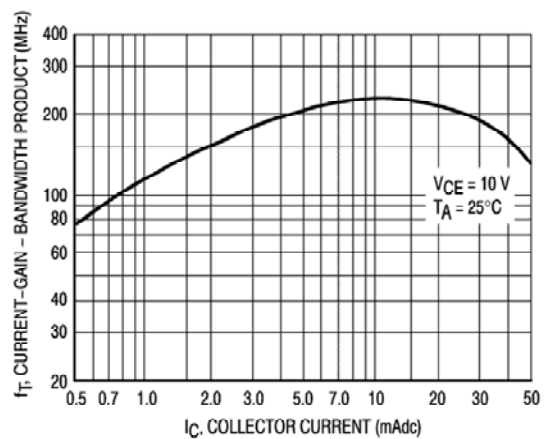


Figure 6. Current-Gain - Bandwidth Product

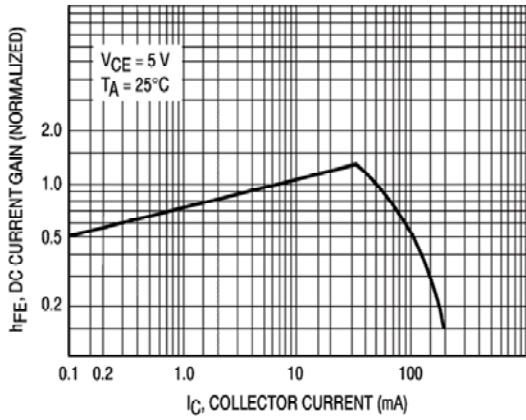


Figure 7. DC Current Gain

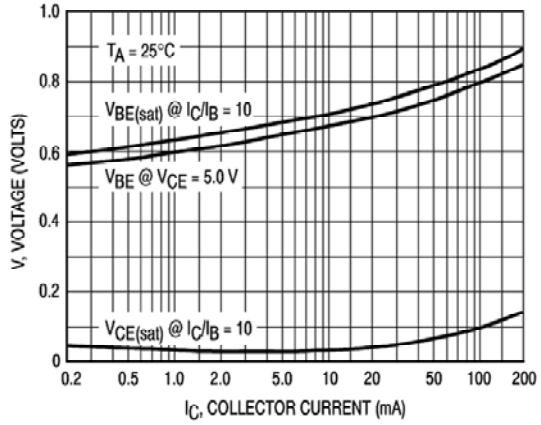


Figure 8. "On" Voltage

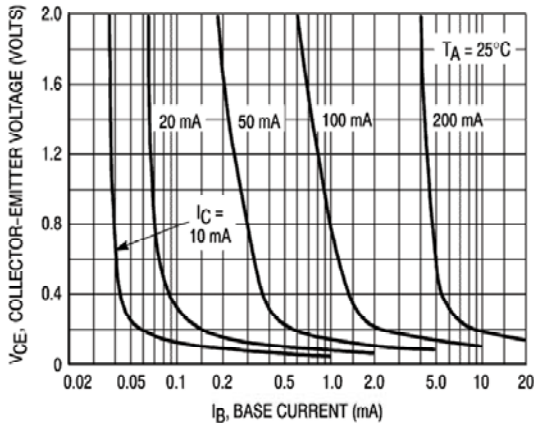


Figure 9. Collector Saturation Region

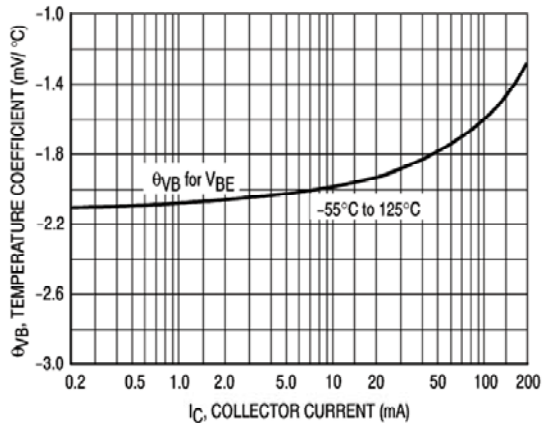


Figure 10. Base-Emitter Temperature Coefficient

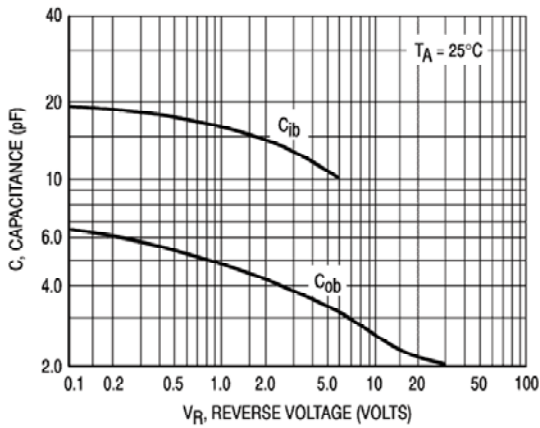


Figure 11. Capacitance

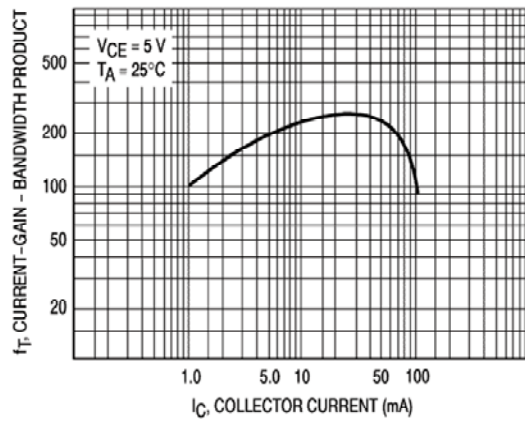


Figure 12. Current-Gain - Bandwidth Product