

## TRANSISTOR (NPN)

### FEATURES

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

### SOT-23

1. BASE
2. EMITTER
3. COLLECTOR



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

Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	BC846	80
		BC847	50
		BC848	30
V <sub>CEO</sub>	Collector-Emitter Voltage	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



# BC846A,B /BC847A, B, C /BC848A, B, C

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT	
Collector-base breakdown voltage	BC846	$I_C = 10\mu A, I_E = 0$	80			V	
	BC847		50				
	BC848		30				
Collector-emitter breakdown voltage	BC846	$I_C = 10mA, I_B = 0$	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	$I_{CBO}$	$V_{CB} = 70V, I_E = 0$		0.1	$\mu A$	
	BC847		$V_{CB} = 50V, I_E = 0$				
	BC848		$V_{CB} = 30V, I_E = 0$				
Collector cut-off current	BC846	$I_{CEO}$	$V_{CE} = 60V, I_B = 0$		0.1	$\mu A$	
	BC847		$V_{CE} = 45V, I_B = 0$				
	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

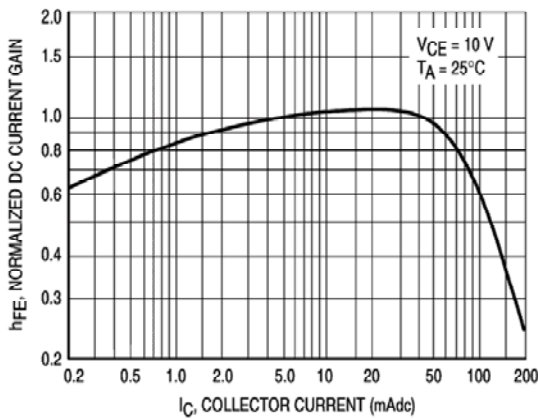


Figure 1. Normalized DC Current Gain

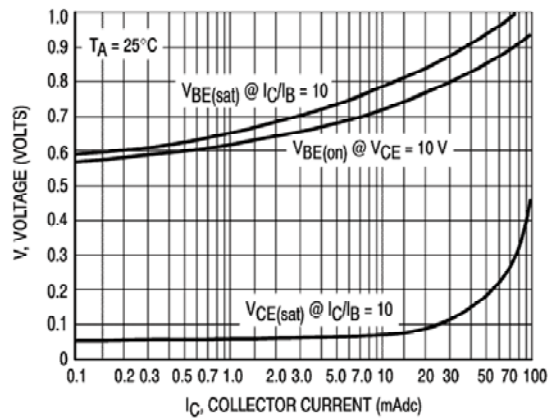


Figure 2. "Saturation" and "On" Voltages

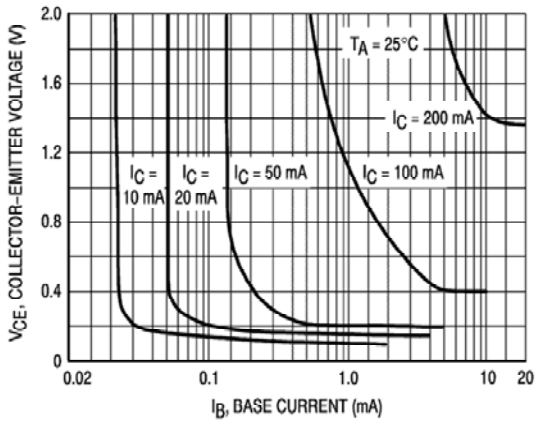


Figure 3. Collector Saturation Region

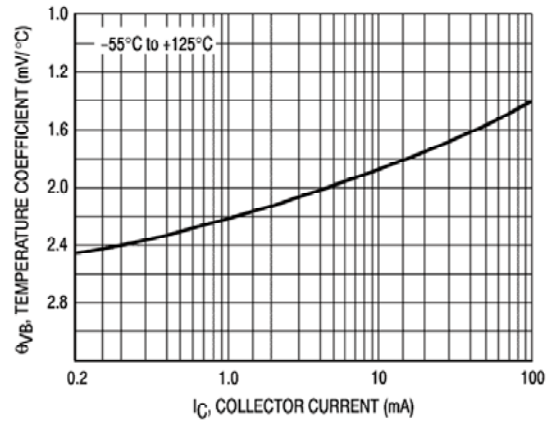


Figure 4. Base-Emitter Temperature Coefficient

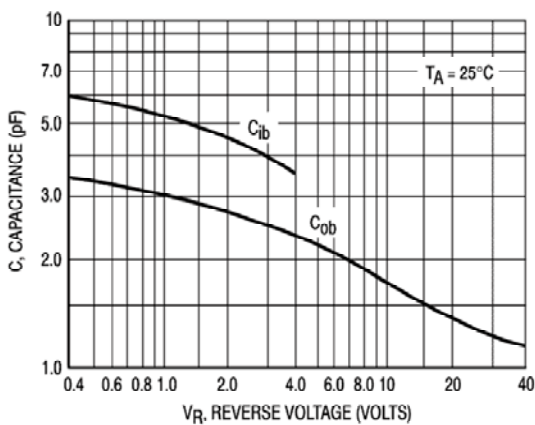


Figure 5. Capacitances

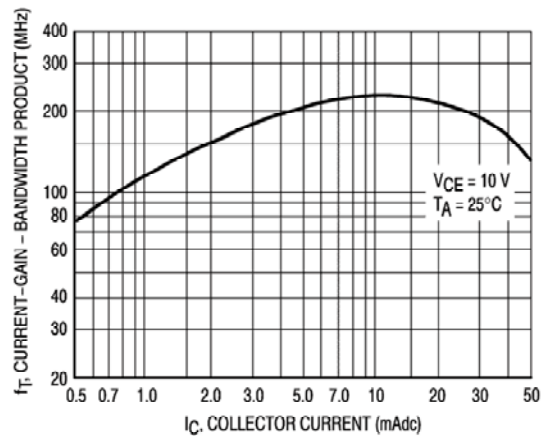


Figure 6. Current-Gain - Bandwidth Product

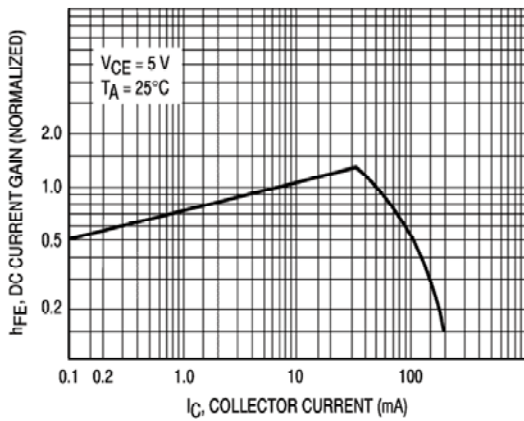


Figure 7. DC Current Gain

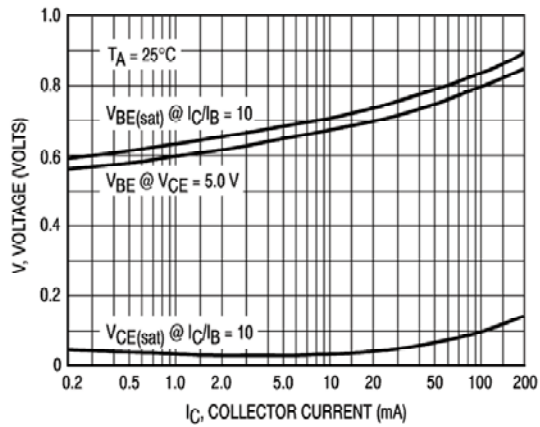


Figure 8. "On" Voltage

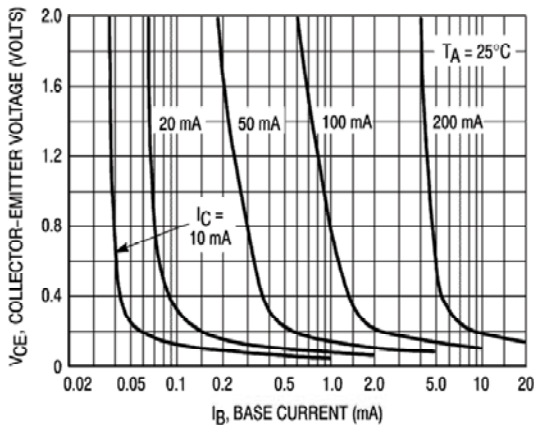


Figure 9. Collector Saturation Region

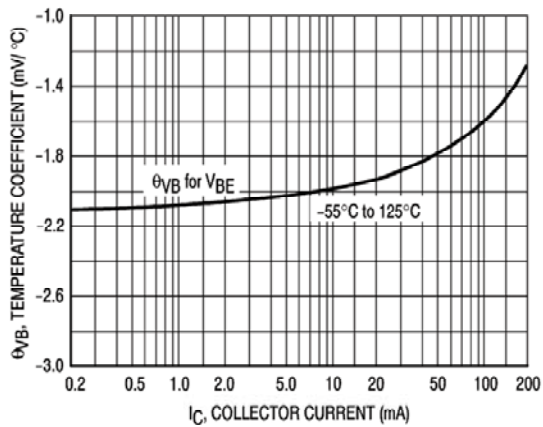


Figure 10. Base-Emitter Temperature Coefficient

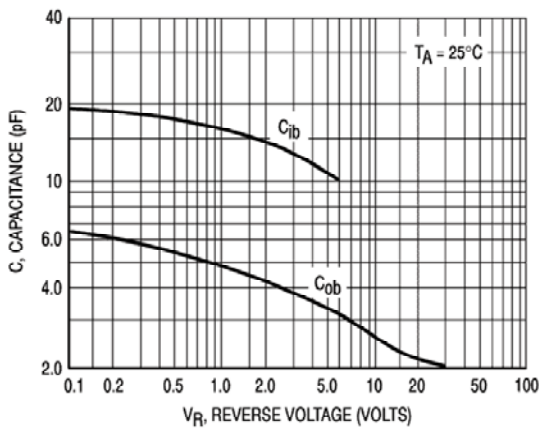


Figure 11. Capacitance

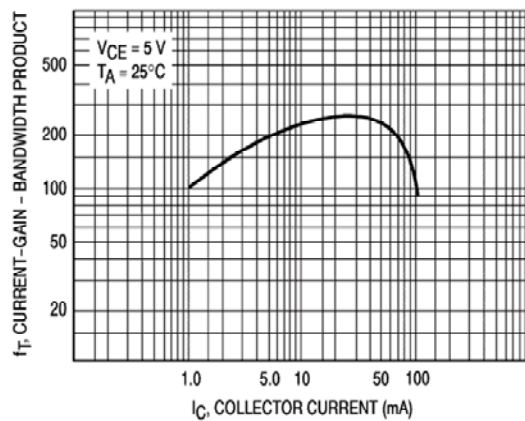


Figure 12. Current-Gain - Bandwidth Product