

SOT-23 Plastic-Encapsulate Transistors

BC846A,B

TRANSISTOR (NPN)

BC847A, B, C

BC848A, B, C

FEATURES

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

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

MAXIMUM RATINGS* $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		V
		BC846	
		BC847	
		BC848	
V_{CEO}	Collector-Emitter Voltage		V
		BC846	
		BC847	
		BC848	
V_{EBO}	Emitter-Base Voltage		V
		BC846	
		BC847	
		BC848	
I_C	Collector Current –Continuous	0.1	A
P_C^*	Collector Dissipation	200	mW
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65-150	$^{\circ}\text{C}$

*Package mounted on FR4 printed circuit board.

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 BC847 BC848	V_{CBO}	$I_C = 10\mu A, I_E = 0$	80 50 30		V
Collector-emitter breakdown voltage	BC846 BC847 BC848	V_{CEO}	$I_C = 10\text{ mA}, I_B = 0$	65 45 30		V
Emitter-base breakdown voltage	BC846 BC847 BC848	V_{EBO}	$I_E = 1\mu A, I_C = 0$	6 6 5		V
Collector Cutoff Current		I_{CBO}	$V_{CB} = 30V$		15	nA
DC current gain	BC846A,847A,848A BC846B,847B,848B BC847C,BC848C BC846A,847A848A BC846B847B,848B BC847C,BC848C	h_{FE}	$V_{CE} = 5V, I_C = 10\mu A$ $V_{CE} = 5V, I_C = 2mA$	90 150 270 110 200 420	220 450 800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.5\text{ mA}$ $I_C = 100mA, I_B = 5\text{ mA}$		0.25 0.6	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 10mA, I_B = 0.5\text{ mA}$ $I_C = 100mA, I_B = 5\text{ mA}$	0.7 0.9		V
Base-emitter voltage		$V_{BE(on)}$	$V_{CE} = 5V, I_C = 2mA$ $V_{CE} = 5V, I_C = 10mA$	580 660	700 770	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
Noise figure	BC846A,847A,848A BC846B,847B,848B BC847C,BC848C	NF	$V_{CE} = 5V, I_C = 0.2mA,$ $f = 1KHz, R_S = 2K\Omega$ BLT1=200HZ		10 4	dB

Typical Characteristics

846A.B:BC847A. B. C:BC848A. B. C

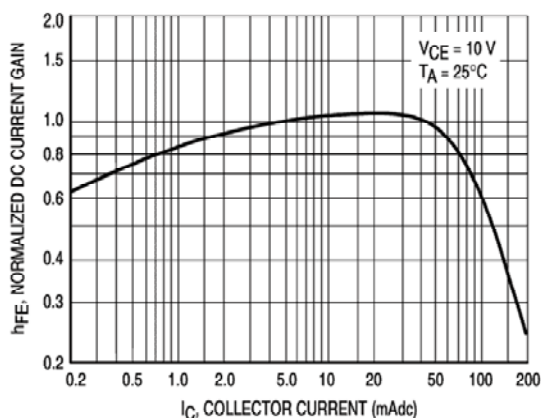


Figure 1. Normalized DC Current Gain

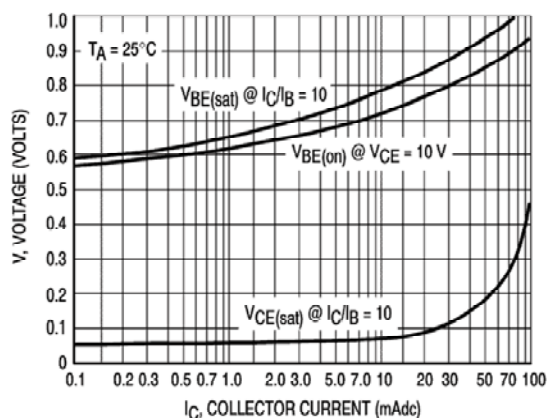


Figure 2. "Saturation" and "On" Voltages

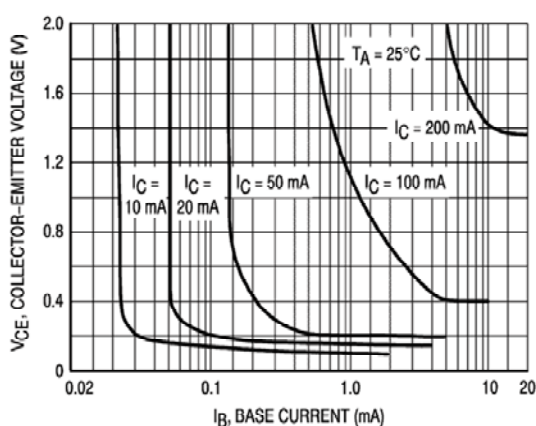


Figure 3. Collector Saturation Region

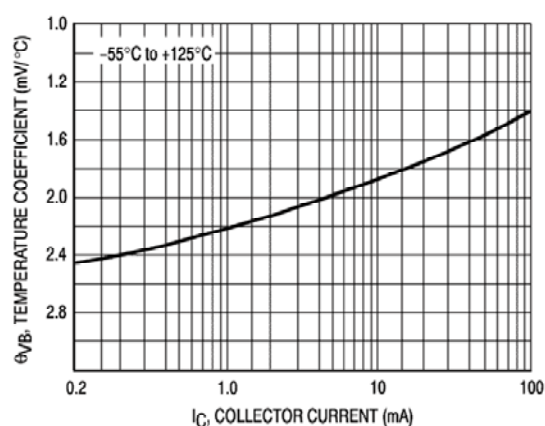


Figure 4. Base-Emitter Temperature Coefficient

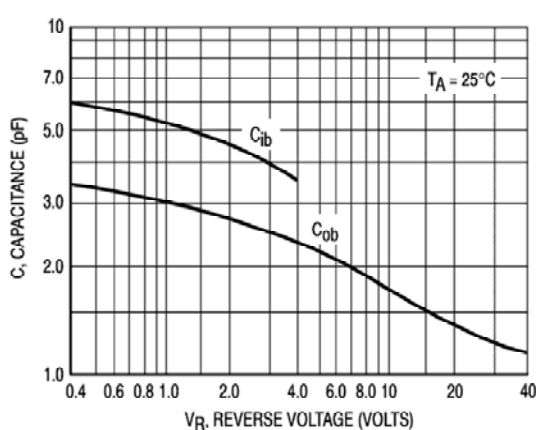


Figure 5. Capacitances

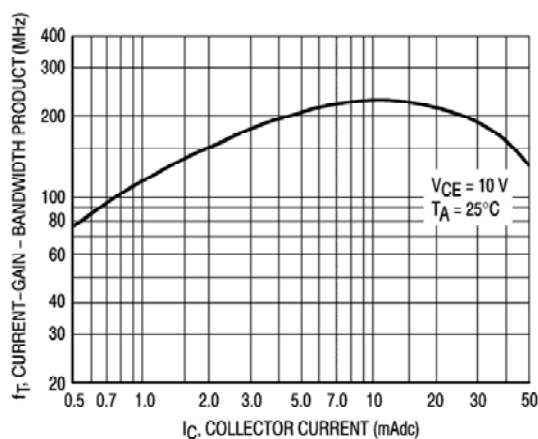


Figure 6. Current-Gain - Bandwidth Product

Typical Characteristics

846A,B;BC847A, B, C;BC848A, B, C

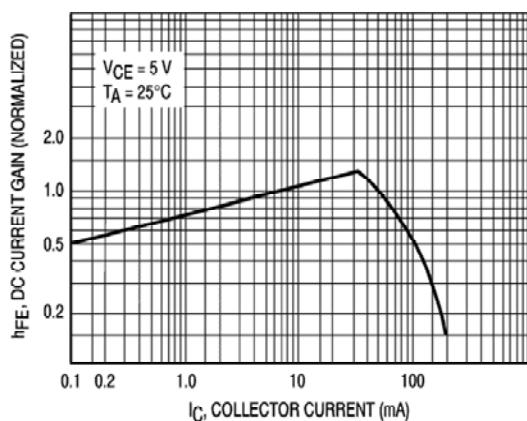


Figure 7. DC Current Gain

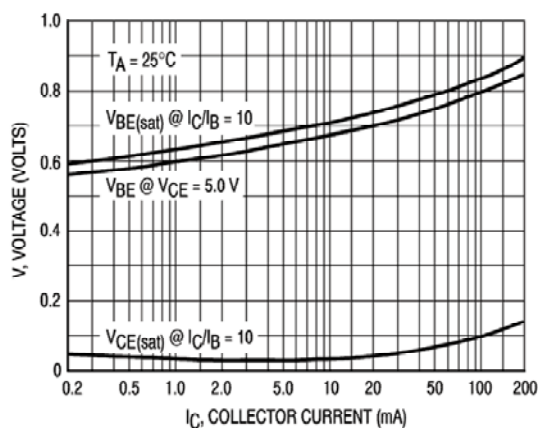


Figure 8. "On" Voltage

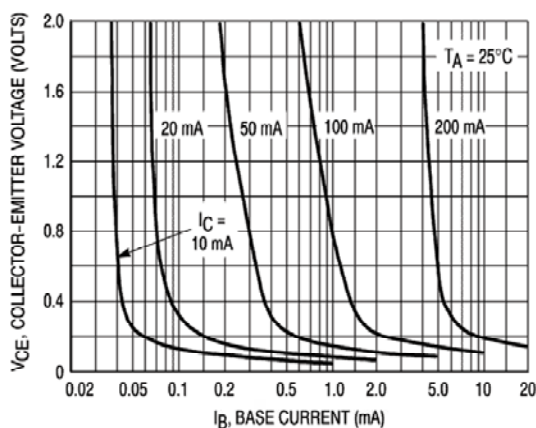


Figure 9. Collector Saturation Region

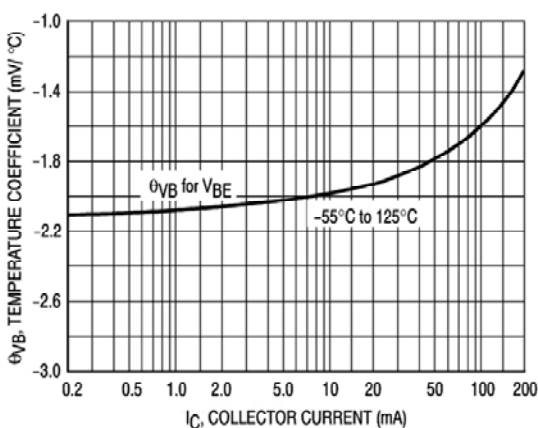


Figure 10. Base-Emitter Temperature Coefficient

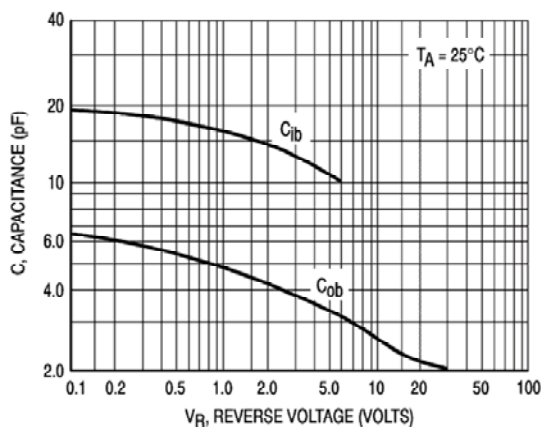


Figure 11. Capacitance

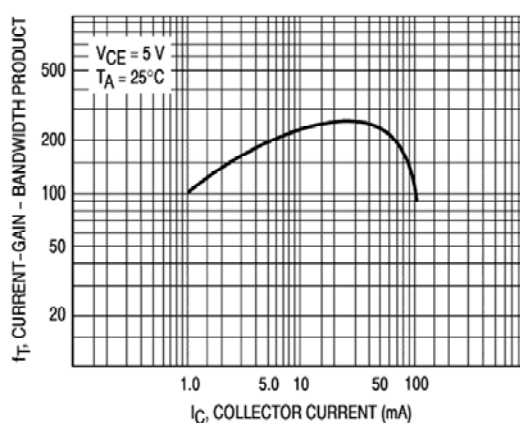


Figure 12. Current-Gain - Bandwidth Product