

TRANSISTOR (NPN)

FEATURES

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

SOT-23

1. BASE
2. EMITTER
3. COLLECTOR



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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	BC846	80
		BC847	50
		BC848	30
V_{CEO}	Collector-Emitter Voltage	BC846	65
		BC847	45
		BC848	30
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current –Continuous	0.1	A
P_{C^*}	Collector Power Dissipation	200	mW
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65-150	$^{\circ}\text{C}$

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 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}	$I_C = 10mA, I_B = 0$	65 45 30		V
Emitter-base breakdown voltage		V_{EBO}	$I_E = 10\mu A, I_C = 0$	6		V
Collector cut-off current	BC846 BC847 BC848	I_{CBO}	$V_{CB} = 70V, I_E = 0$ $V_{CB} = 50V, I_E = 0$ $V_{CB} = 30V, I_E = 0$		0.1	μA
Collector cut-off current	BC846 BC847 BC848	I_{CEO}	$V_{CE} = 60V, I_B = 0$ $V_{CE} = 45V, I_B = 0$ $V_{CE} = 30V, I_B = 0$		0.1	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 5V, I_C = 0$		0.1	μA
DC current gain	BC846A,847A,848A BC846B,847B,848B BC847C,BC848C	h_{FE}	$V_{CE} = 5V, I_C = 2mA$	110 200 420	220 450 800	
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

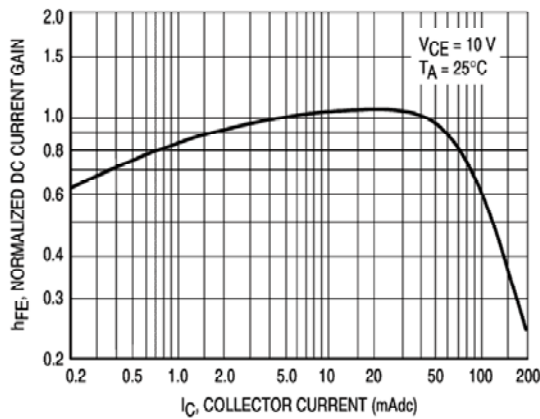


Figure 1. Normalized DC Current Gain

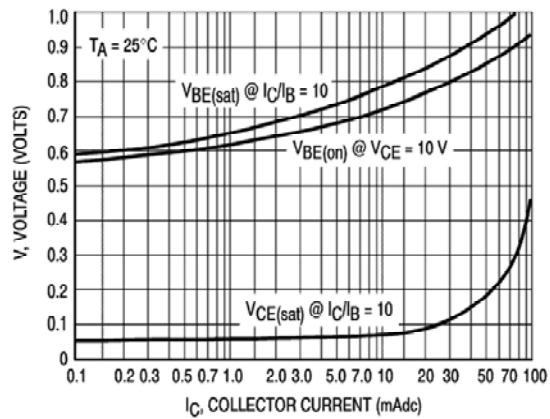


Figure 2. "Saturation" and "On" Voltages

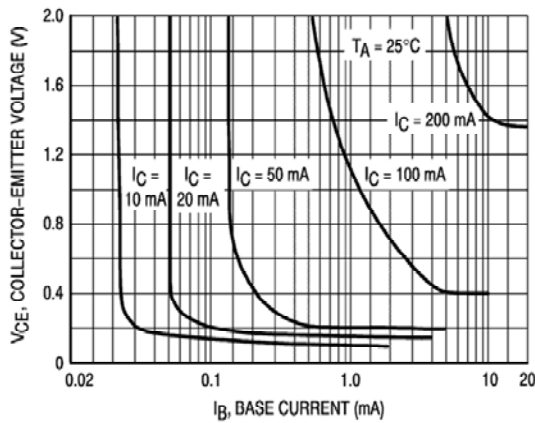


Figure 3. Collector Saturation Region

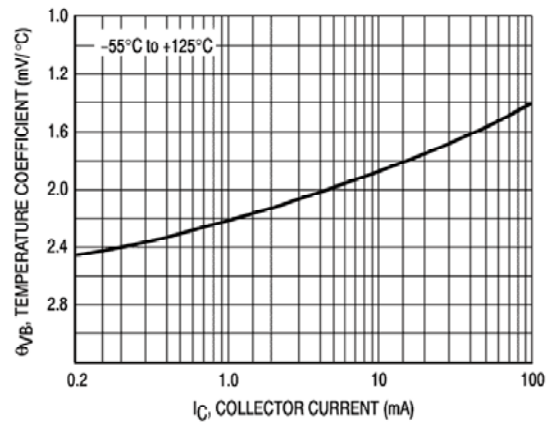


Figure 4. Base-Emitter Temperature Coefficient

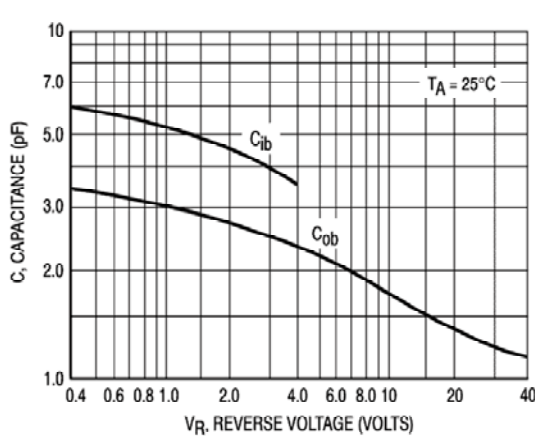


Figure 5. Capacitances

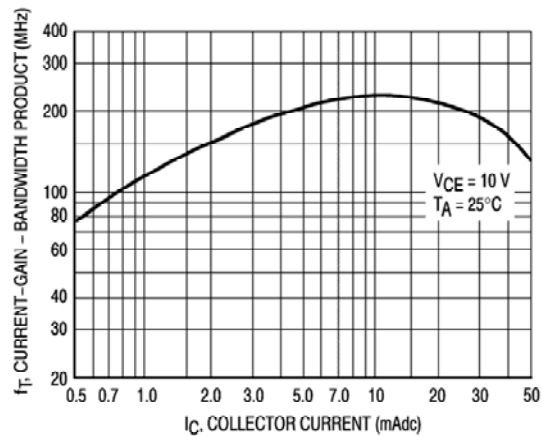


Figure 6. Current-Gain - Bandwidth Product

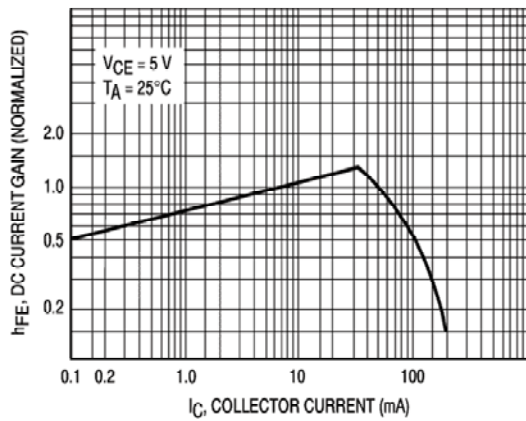


Figure 7. DC Current Gain

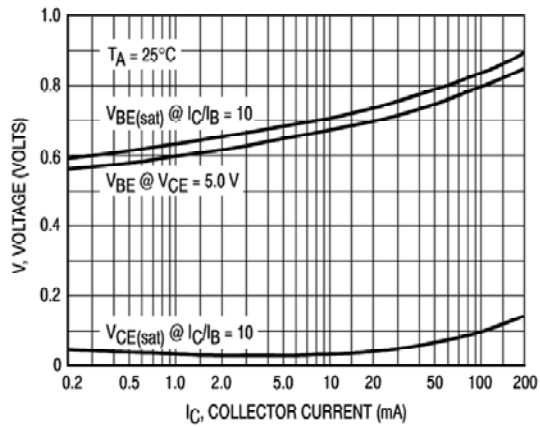


Figure 8. "On" Voltage

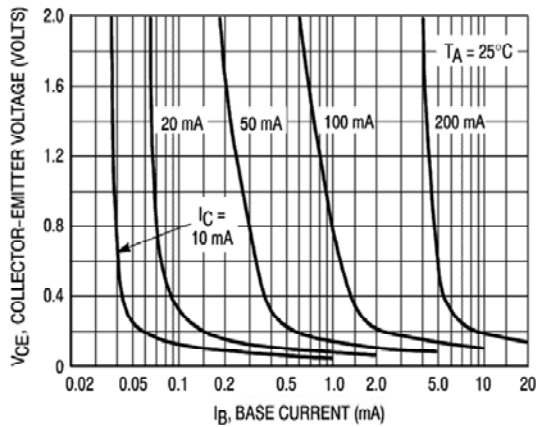


Figure 9. Collector Saturation Region

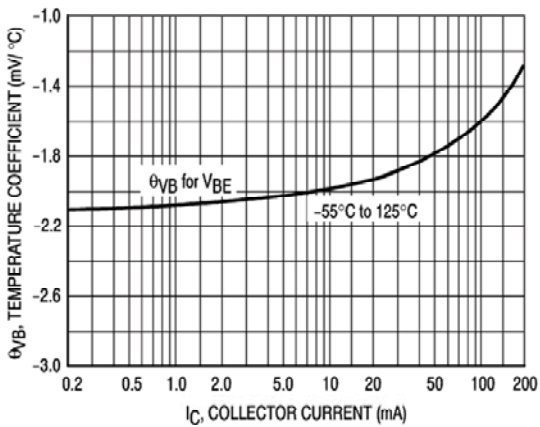


Figure 10. Base-Emitter Temperature Coefficient

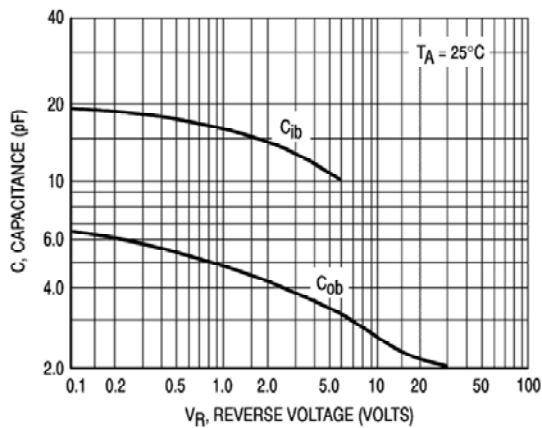


Figure 11. Capacitance

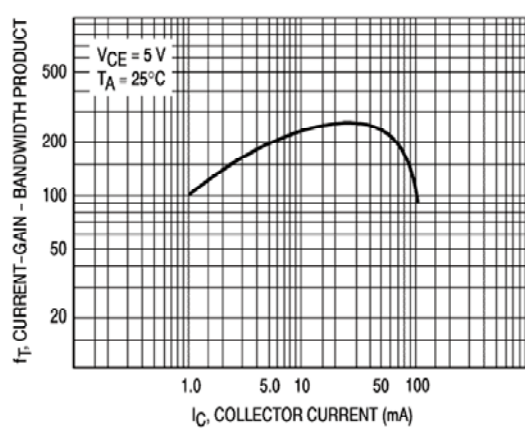


Figure 12. Current-Gain - Bandwidth Product