



TRANSISTOR (NPN)

FEATURES

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

SOT-323



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	BC846W	80	V
		BC847W	50	
		BC848W	30	
V_{CEO}	Collector-Emitter Voltage	BC846W	65	V
		BC847W	45	
		BC848W	30	
V_{EBO}	Emitter-Base Voltage	BC846W	6	V
		BC847W	6	
		BC848W	5	
I_C	Collector Current –Continuous		0.1	A
P_C	Collector Power Dissipation		150	mW
T_J	Junction Temperature		150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature		-55-150	$^{\circ}\text{C}$

DEVICE MARKING

BC846AW=1A; BC846BW=1B;
BC847AW=1E; BC847BW=1F; BC847CW=1G;
BC848AW=1J; BC848BW=1K; BC848CW=1L



BC847AW,BW,CW
BC848AW,BW,CW
BC846AW , BW

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage BC846W BC847W BC848W	V_{CBO}	$I_C = 10\mu A, I_E = 0$	80 50 30			V
Collector-emitter breakdown voltage BC846W BC847W BC848W	V_{CEO}	$I_C = 10mA, I_B = 0$	65 45 30			V
Emitter-base breakdown voltage BC846W BC847W BC848W	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 BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW	h_{FE}	$V_{CE} = 5V, I_C = 10\mu A$ $V_{CE} = 5V, I_C = 2mA$	 110 200 420	90 150 270	220 450 800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.5mA$ $I_C = 100mA, I_B = 5mA$			0.25 0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 0.5mA$ $I_C = 100mA, I_B = 5mA$		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	mV
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 BC846AW,847AW,848AW BC846BW,847BW,848BW BC847CW,BC848CW	NF	$V_{CE} = 5V, I_C = 0.2mA,$ $f = 1KHz, R_S = 2K\Omega$ $BW = 200Hz$			10 4	dB

Typical Characteristics

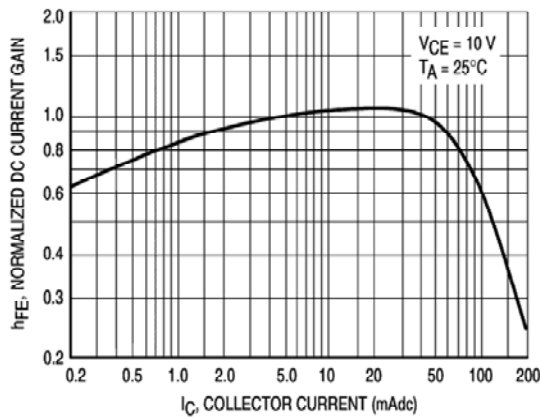


Figure 1. Normalized DC Current Gain

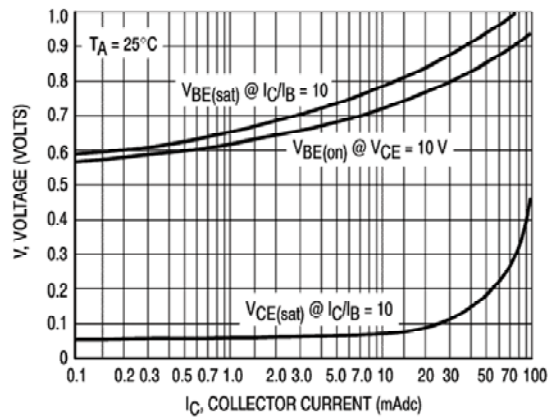


Figure 2. "Saturation" and "On" Voltages

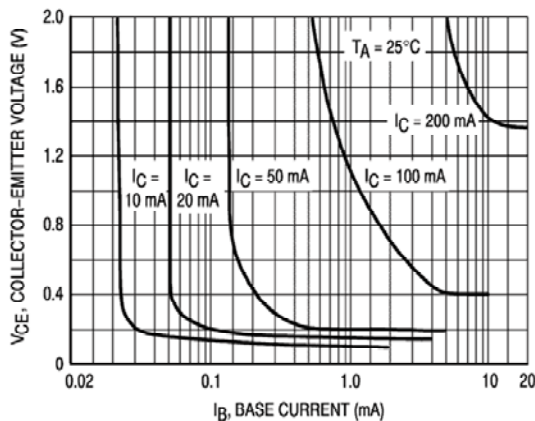


Figure 3. Collector Saturation Region

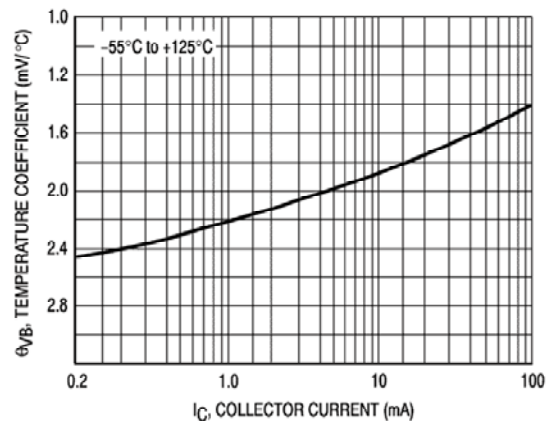


Figure 4. Base-Emitter Temperature Coefficient

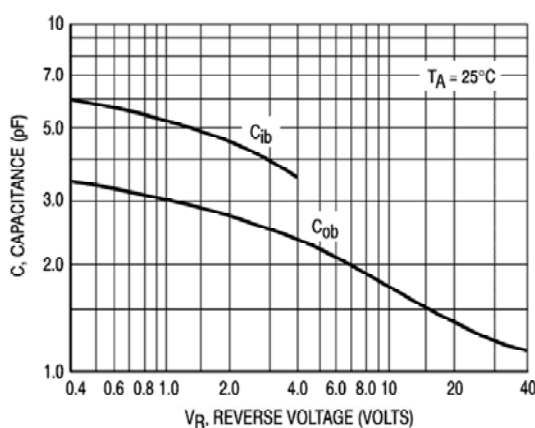


Figure 5. Capacitances

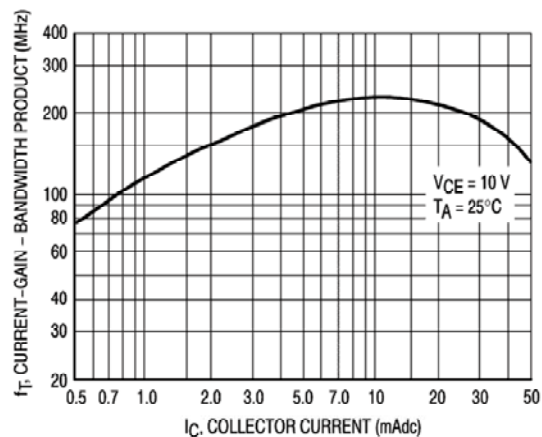


Figure 6. Current-Gain - Bandwidth Product

Typical Characteristics

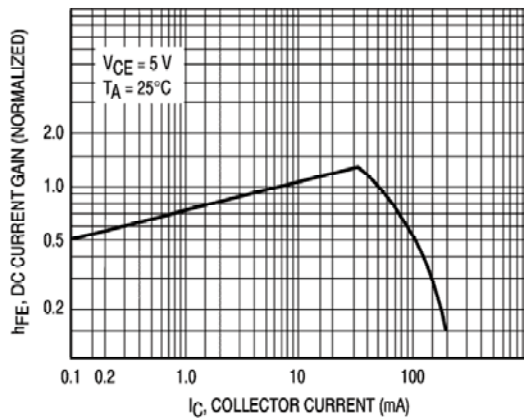


Figure 7. DC Current Gain

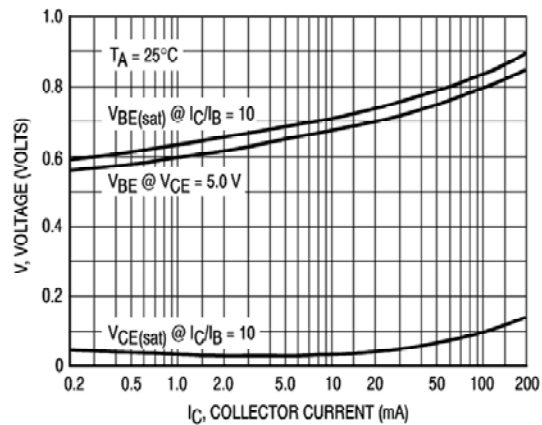


Figure 8. "On" Voltage

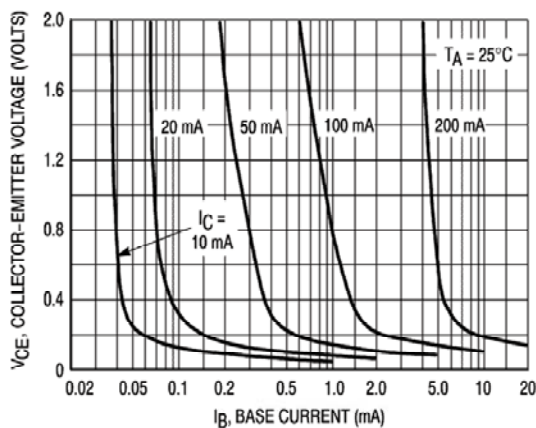


Figure 9. Collector Saturation Region

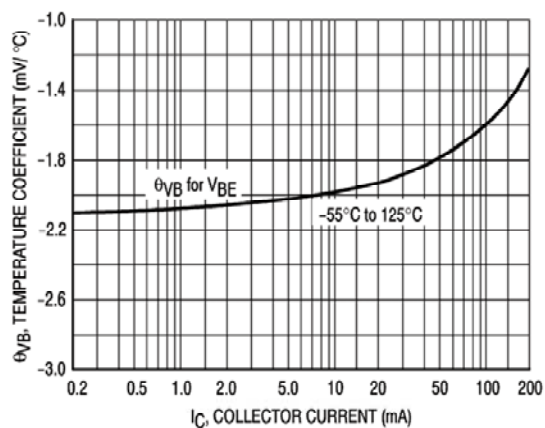


Figure 10. Base-Emitter Temperature Coefficient

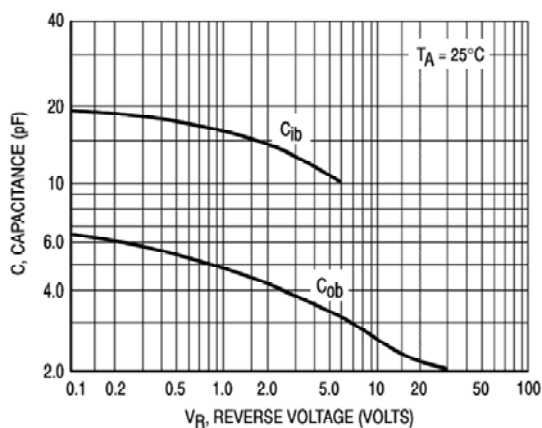


Figure 11. Capacitance

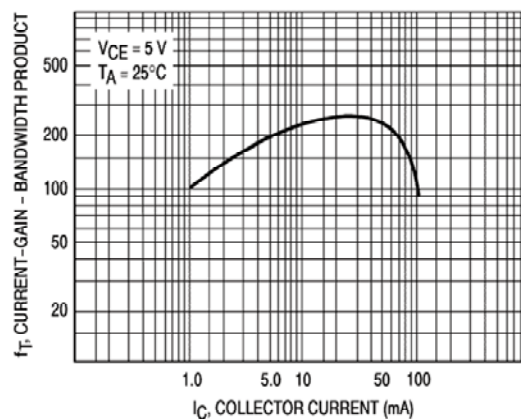


Figure 12. Current-Gain - Bandwidth Product