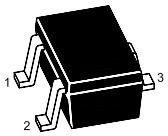
NPN Transistors

RND components

Features

- Silicon epitaxial planar transistors
- For switching and amplifier applications



1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

Absolute Maximum Ratings (T_a = 25°C)

Parameter		Symbol	Value	Unit
Collector Base Voltage	RND BC846 (AW, BW) RND BC847 (AW, BW, CW)	$-V_{CBO}$	80 50	V
Collector Emitter Voltage	RND BC846 (AW, BW) RND BC847 (AW, BW, CW)	$-V_{CEO}$	65 45	V
Emitter Base Voltage		$-V_{EBO}$	6	V
Collector Current		$-I_C$	100	mA
Peak Collector Current		$-I_{CM}$	200	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25°C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 5 V, $-I_C$ = 2 mA	RND BC846AW, RND BC847AW RND BC846BW, RND BC847BW RND BC847CW	h_{FE}	100 200 420	200 450 800	- - -
Collector Base Voltage at I_C = 10 µA	RND BC846 (AW, BW) RND BC847 (AW, BW, CW)	V_{CBO}	80 50	- -	V
Collector Emitter Voltage at I_C = 10 mA	RND BC846 (AW, BW) RND BC847 (AW, BW, CW)	V_{CEO}	65 45	- -	V
Emitter Base Voltage at I_E = 1 µA		V_{EBO}	6	-	V
Collector Base Cutoff Current at $-V_{CB}$ = 30 V		I_{CBO}	-	15	nA
Emitter Base Cutoff Current at V_{EB} = 5 V		I_{EBO}	-	100	nA
Collector Emitter Saturation Voltage at $-I_C$ = 10 mA, $-I_B$ = 0.5 mA at $-I_C$ = 100 mA, $-I_B$ = 5 mA		$V_{CE(sat)}$	-	0.25 0.6	V
Base Emitter On Voltage at V_{CE} = 5 V, I_C = 2 mA at V_{CE} = 5 V, I_C = 10 mA		V_{BE}	0.58 -	0.7 0.77	V
Transition Frequency at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA, f = 100 MHz		f_T	100	-	MHz
Collector Output Capacitance at V_{CB} = 10 V, I_E = 0, f = 1 MHz		C_{ob}	-	4.5	pF

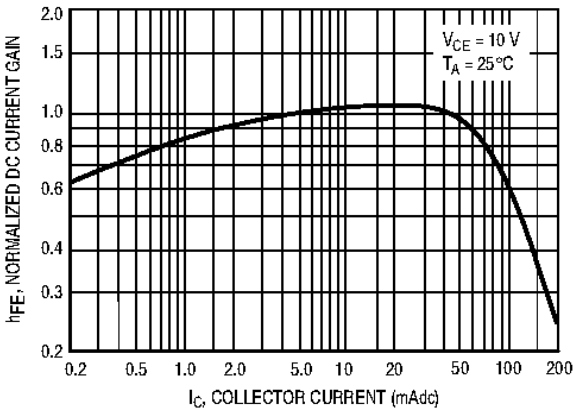


Figure 1. Normalized DC Current Gain

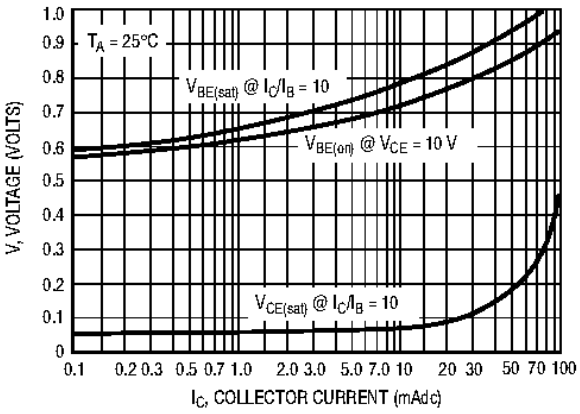


Figure 2. "Saturation" and "On" Voltages

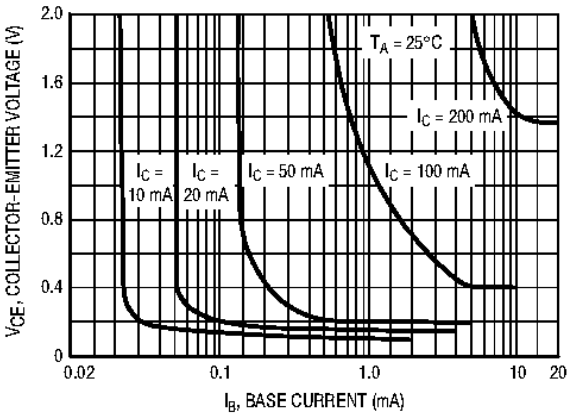


Figure 3. Collector Saturation Region

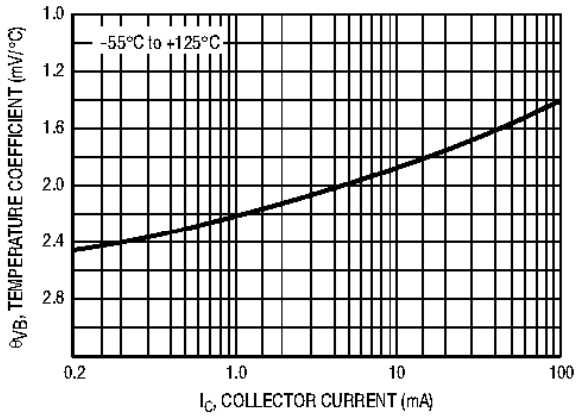


Figure 4. Base−Emitter Temperature Coefficient

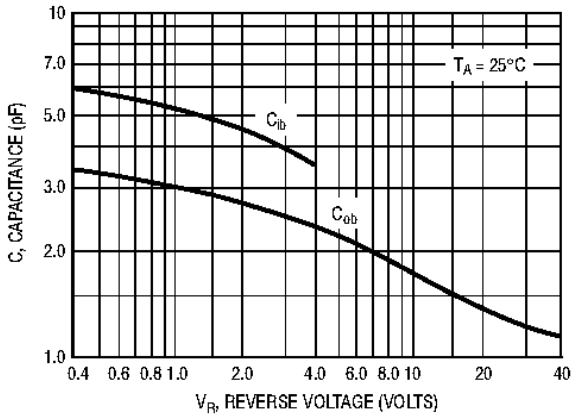


Figure 5. Capacitances

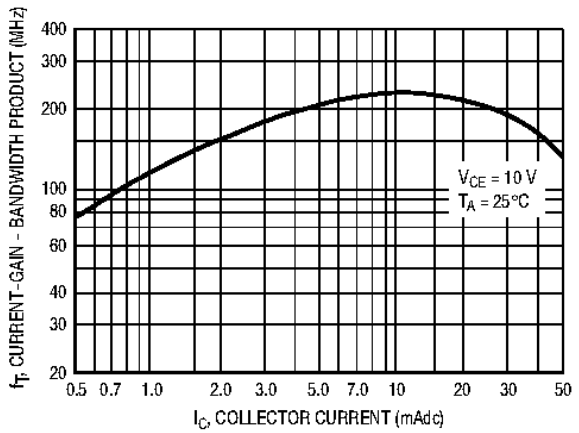


Figure 6. Current−Gain − Bandwidth Product

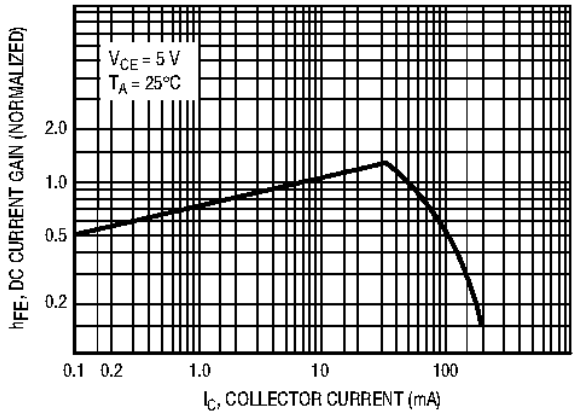


Figure 7. DC Current Gain

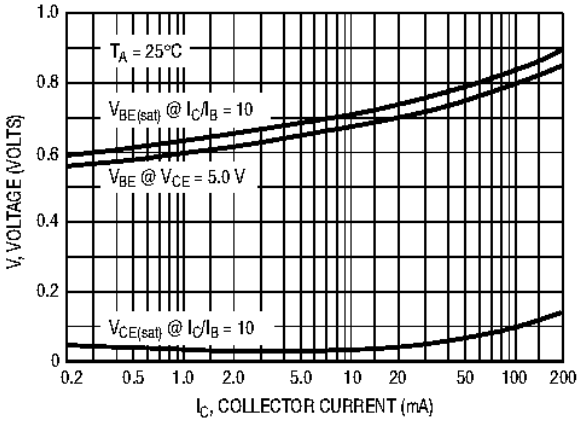


Figure 8. "On" Voltage

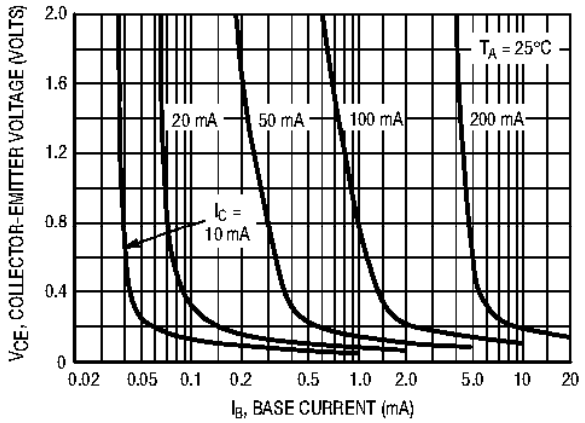


Figure 9. Collector Saturation Region

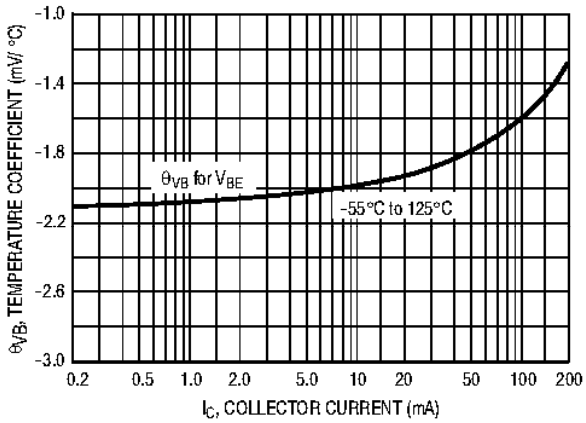


Figure 10. Base–Emitter Temperature Coefficient

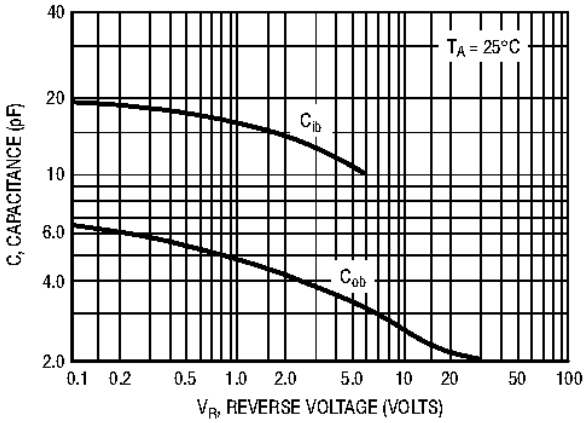


Figure 11. Capacitance

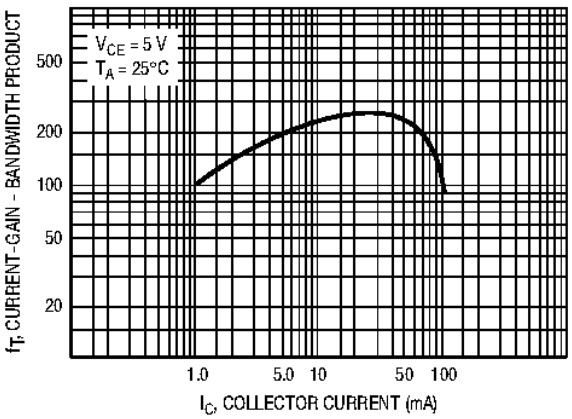


Figure 12. Current–Gain – Bandwidth Product