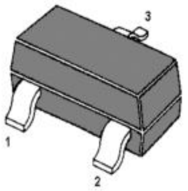
NPN Transistors

Features

- Silicon epitaxial planar transistors
- For switching and amplifier applications



1.BASE 2.EMITTER 3.COLLECTOR
SOT-23 Plastic Package

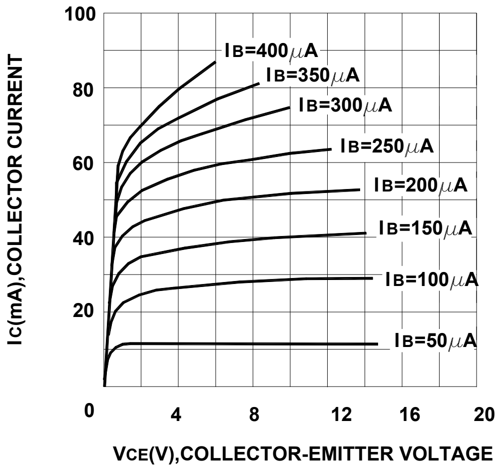
Absolute Maximum Ratings (T_a = 25°C)

Parameter		Symbol	Value	Unit
Collector Base Voltage	RND BC846B RND BC847A, RND BC850 (B,C) RND BC848C	V_{CBO}	80 50 30	V
Collector Emitter Voltage	RND BC846B RND BC847A, RND BC850 (B,C) RND BC848C	V_{CEO}	65 45 30	V
Emitter Base Voltage	RND BC846B, RND BC847A RND BC848C, RND BC850 (B,C)	V_{EBO}	6 5	V
Collector Current (DC)		I_C	100	mA
Peak Collector Current		I_{CM}	200	mA
Total Power Dissipation		P_{tot}	300	mW
Junction Temperature		T_j	150	^{O}C
Storage Temperature Range		T_{stg}	- 65 to + 150	^{O}C

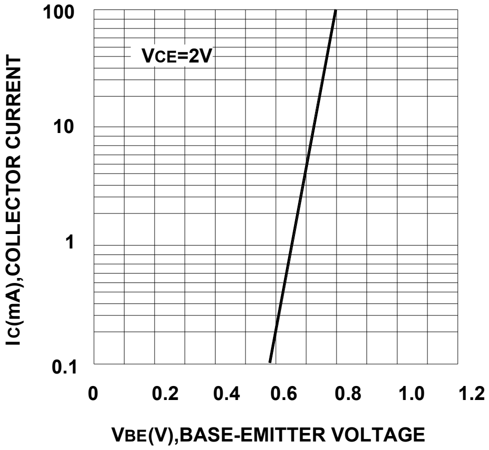
Characteristics at Ta = 25°C

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 5 V, I_C = 2 mA	RND BC847A	h_{FE}	110	-	220	-
	RND BC846B, RND BC850B	h_{FE}	200	-	450	-
	RND BC848C, RND BC850C	h_{FE}	420	-	800	-
Collector Base Cutoff Current at V_{CB} = 30 V		I_{CBO}	-	-	15	nA
Collector Base Breakdown Voltage at I_C = 100 µA	RND BC846B	$V_{(BR)CBO}$	80	-	-	V
	RND BC847A, RND BC850 (B,C)	$V_{(BR)CBO}$	50	-	-	V
	RND BC848C	$V_{(BR)CBO}$	30	-	-	V
Collector Emitter Breakdown Voltage at I_C = 2 mA	RND BC846B	$V_{(BR)CEO}$	65	-	-	V
	RND BC847A, RND BC850 (B,C)	$V_{(BR)CEO}$	45	-	-	V
	RND BC848C	$V_{(BR)CEO}$	30	-	-	V
Collector Emitter Breakdown Voltage at I_C = 100 µA	RND BC846B, RND BC847A	$V_{(BR)EBO}$	6	-	-	V
	RND BC848C, RND BC850 (B,C)	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at I_C = 10 mA, I_B = 0.5 mA		V_{CEsat}	-	-	250	mV
at I_C = 100 mA, I_B = 5 mA		V_{CEsat}	-	-	600	mV
Base Emitter On Voltage at V_{CE} = 5 V, I_C = 2 mA		$V_{BE(on)}$	580	-	700	mV
at V_{CE} = 5 V, I_C = 10 mA		$V_{BE(on)}$	-	-	720	mV
Transition Frequency at V_{CE} = 5 V, I_C = 10 mA, f = 100 MHz		f_T	-	300	-	MHz
Output Capacitance at V_{CB} = 10 V, f = 1 MHz		C_{ob}	-	-	6	pF
Input Capacitance at V_{EB} = 0.5 V, f = 1 MHz		C_{ib}	-	9	-	pF

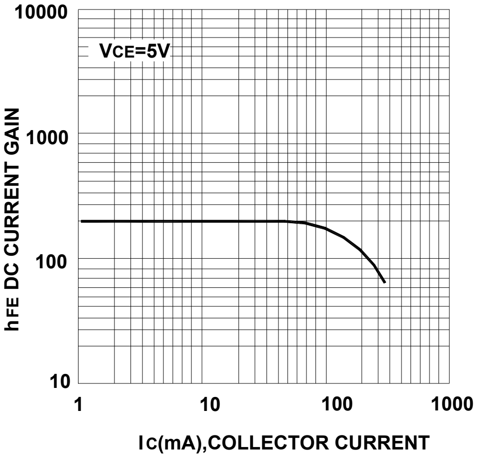
STATIC CHARACTERISTIC



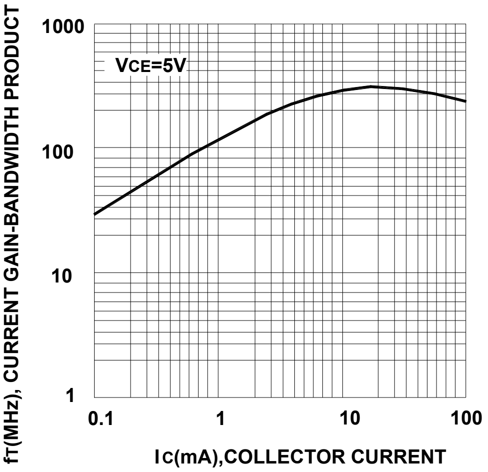
BASE-EMITTER ON VOLTAGE



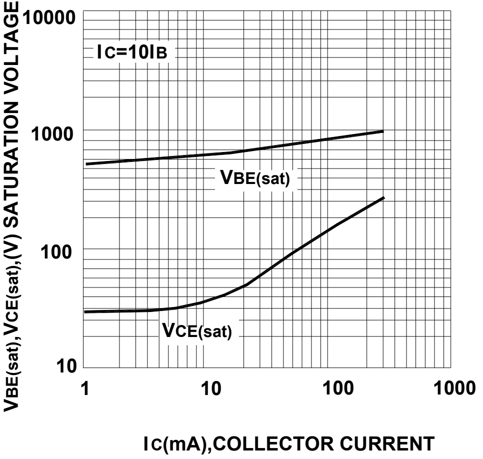
DC CURRENT GAIN



CURRENT GAIN BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE