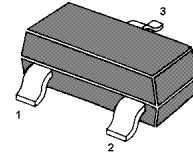


## NPN Silicon Epitaxial Transistor

for switching and amplifier applications



1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

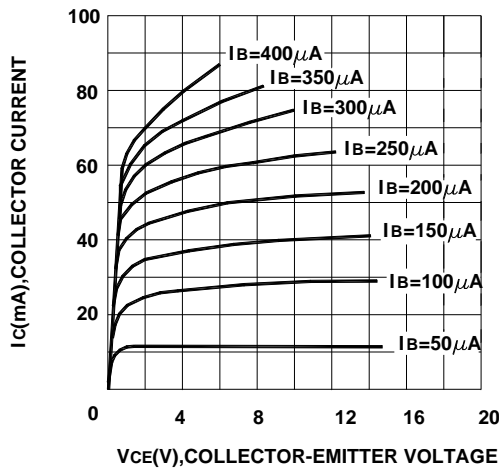
### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit	
Collector Base Voltage	BC846	$V_{CBO}$	80	V
	BC847, BC850	$V_{CBO}$	50	V
	BC848, BC849	$V_{CBO}$	30	V
Collector Emitter Voltage	BC846	$V_{CEO}$	65	V
	BC847, BC850	$V_{CEO}$	45	V
	BC848, BC849	$V_{CEO}$	30	V
Emitter Base Voltage	BC846, BC847	$V_{EBO}$	6	V
	BC848, BC849, BC850	$V_{EBO}$	5	V
Collector Current	$I_C$	100	mA	
Peak Collector Current	$I_{CM}$	200	mA	
Power Dissipation	$P_{tot}$	300	mW	
Junction Temperature	$T_j$	150	$^\circ\text{C}$	
Storage Temperature Range	$T_{stg}$	- 65 to + 150	$^\circ\text{C}$	

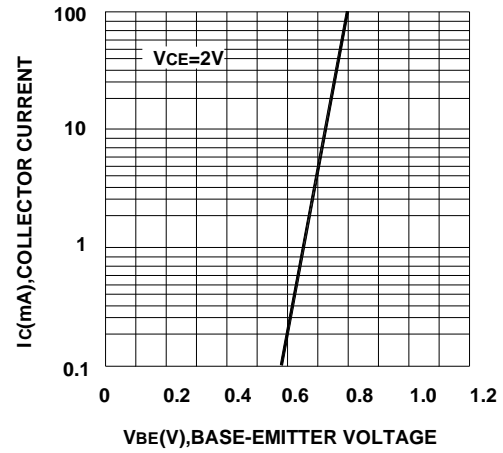
### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 2\text{ mA}$  Current Gain Group A B C	$h_{FE}$	110	-	220	-
	$h_{FE}$	200	-	450	-
	$h_{FE}$	420	-	800	-
Collector Base Cutoff Current at $V_{CB} = 30\text{ V}$	$I_{CBO}$	-	-	15	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$  BC846 BC847, BC850 BC848, BC849	$V_{(BR)CBO}$	80	-	-	V
	$V_{(BR)CBO}$	50	-	-	V
	$V_{(BR)CBO}$	30	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 2\text{ mA}$  BC846 BC847, BC850 BC848, BC849	$V_{(BR)CEO}$	65	-	-	V
	$V_{(BR)CEO}$	45	-	-	V
	$V_{(BR)CEO}$	30	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$  BC846, BC847 BC848, BC849, BC850	$V_{(BR)EBO}$	6	-	-	V
	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 0.5\text{ mA}$ at $I_C = 100\text{ mA}$ , $I_B = 5\text{ mA}$	$V_{CEsat}$	-	-	250	mV
	$V_{CEsat}$	-	-	600	mV
Base Emitter On Voltage at $V_{CE} = 5\text{ V}$ , $I_C = 2\text{ mA}$ at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$	$V_{BE(on)}$	580	-	700	mV
	$V_{BE(on)}$	-	-	720	mV
Transition Frequency at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	300	-	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	-	6	pF
Input Capacitance at $V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$	$C_{ib}$	-	9	-	pF

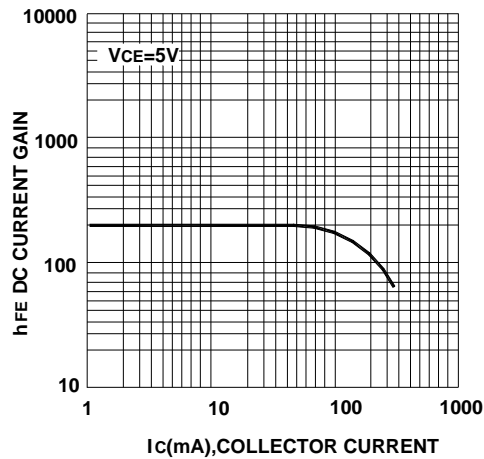
STATIC CHARACTERISTIC



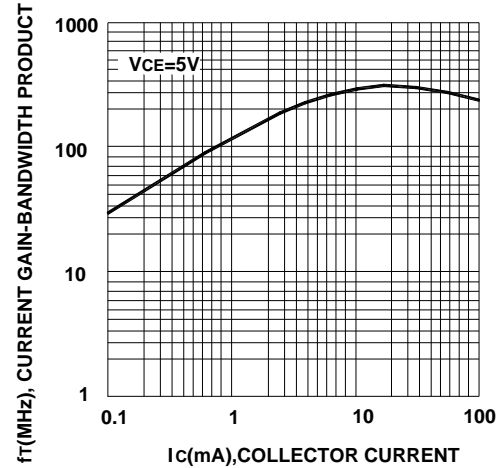
BASE-EMITTER ON VOLTAGE



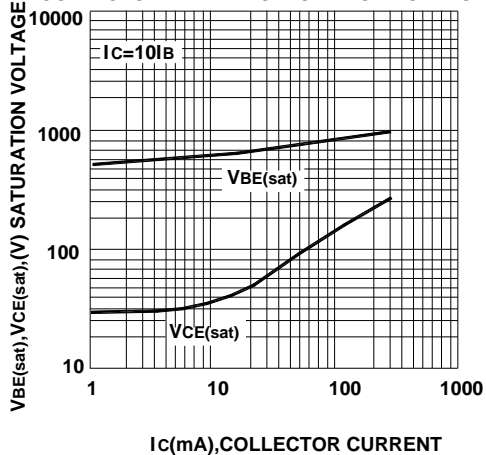
DC CURRENT GAIN



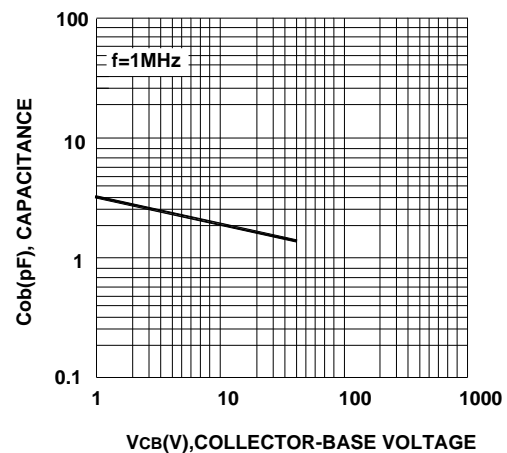
CURRENT GAIN BANDWIDTH PRODUCT



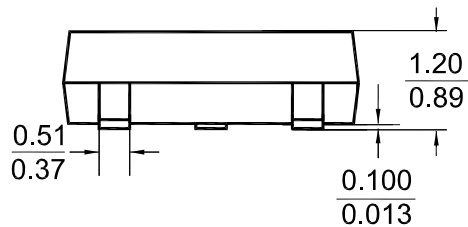
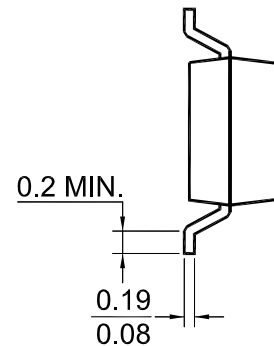
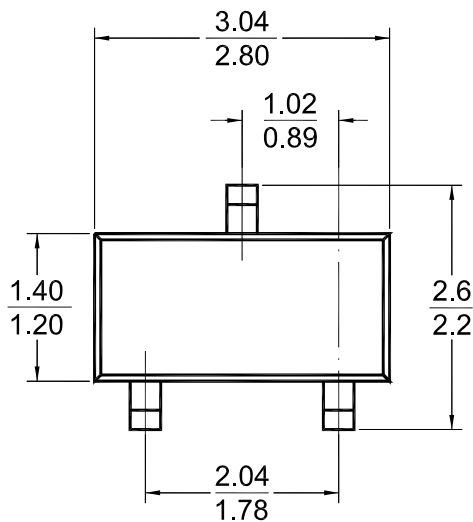
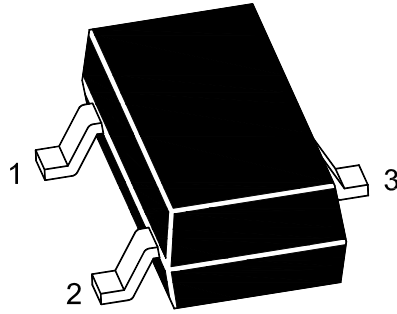
BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



## Package Outline Dimensions (Units: mm)



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