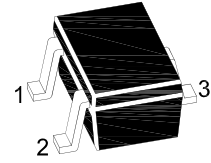


# BC846E...BC850E

## NPN Silicon Epitaxial Transistor

for switching and amplifier applications



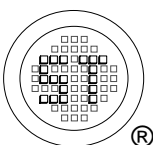
1.Base 2.Emitter 3.Collector  
SOT-523 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	BC846E	80
		BC847E, BC850E	50
		BC848E, BC849E	30
Collector Emitter Voltage	$V_{CEO}$	BC846E	65
		BC847E, BC850E	45
		BC848E, BC849E	30
Emitter Base Voltage	$V_{EBO}$	BC846E, BC847E	6
		BC848E, BC849E, BC850E	5
Collector Current	$I_C$	100	mA
Peak Collector Current	$I_{CM}$	200	mA
Power Dissipation	$P_{tot}$	150	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 Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 0.5\text{ mA}$ at $I_C = 100\text{ mA}$ , $I_B = 5\text{ mA}$	$V_{CE(sat)}$	-	-	250	mV	
	$V_{CE(sat)}$	-	-	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	

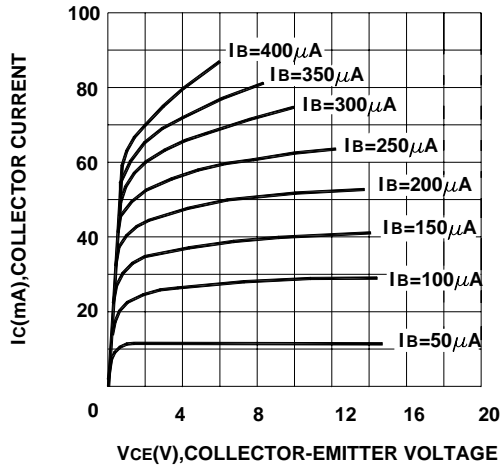


**SEMTECH ELECTRONICS LTD.**  
Subsidiary of Sino-Tech International (BVI) Limited

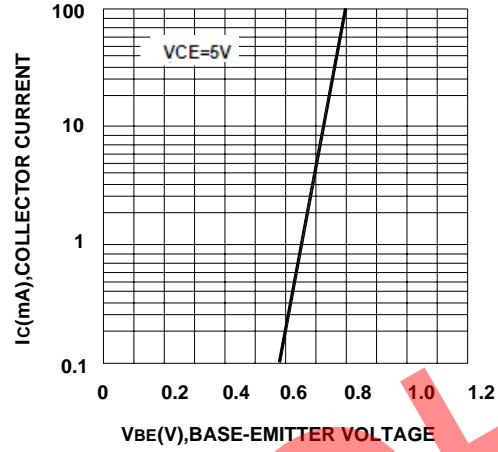


Dated : 01/11/2010 Rev:01

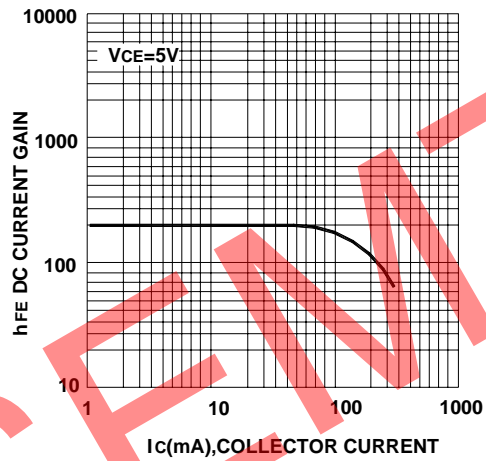
STATIC CHARACTERISTIC



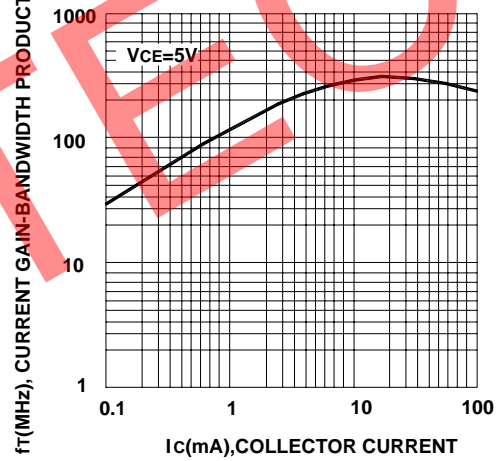
BASE-EMITTER ON VOLTAGE



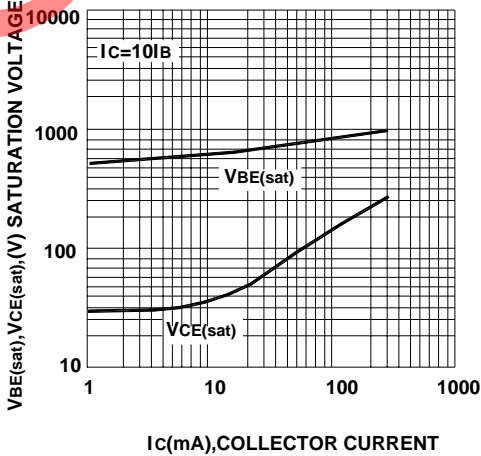
DC CURRENT GAIN



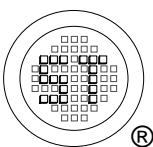
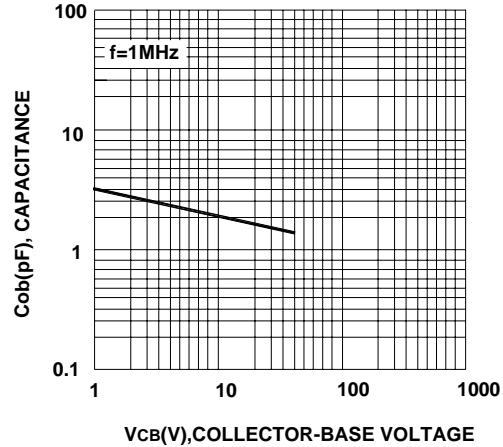
CURRENT GAIN BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



**SEMTECH ELECTRONICS LTD.**  
Subsidiary of Sino-Tech International (BVI) Limited

