

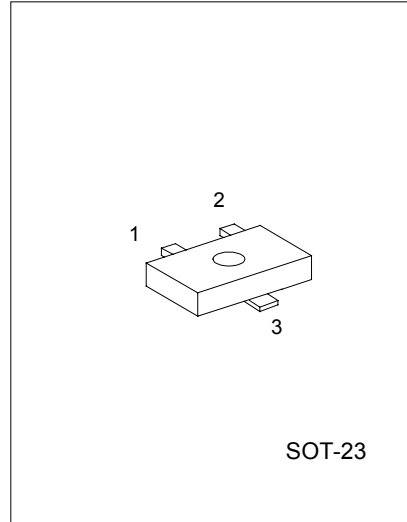
# UTC BC846/BC847/BC848/BC849/BC850

## NPN EPITAXIAL SILICON TRANSISTOR

### SWITCHING AND AMPLIFIER APPLICATION

#### FEATURES

- \*Suitable for automatic insertion in thick and thin-film circuits.
- \*Complement to BC856 ... BC860



SOT-23

1: EMITTER 2: BASE 3: COLLECTOR

#### ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	80	V
BC846			
BC847 / BC850			
BC848 / BC849	50	V	
Collector-Emitter Voltage	V <sub>CEO</sub>	65	V
BC846			
BC847 / BC850			
BC848 / BC849	45	V	
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
BC846 / BC847			
BC848 / BC849 / BC850			
Collector Current (DC)	I <sub>c</sub>	100	mA
Collector Dissipation	P <sub>c</sub>	310	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-65 ~ +150	°C

#### ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Collector Cut-Off Current	I <sub>CBO</sub>	V <sub>CB</sub> =30V, I <sub>E</sub> =0			15	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>c</sub> =2.0mA	110		800	
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> =10mA, I <sub>B</sub> =0.5mA		90	250	mV
		I <sub>c</sub> =100mA, I <sub>B</sub> =5.0mA		200	600	mV
Collector-Base Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> =10mA, I <sub>B</sub> =0.5mA		700		mV
		I <sub>c</sub> =100mA, I <sub>B</sub> =5.0mA		900		mV

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QW-R206-027,A

UTC BC846/BC847/BC848/BC849/BC850  
NPN EPITAXIAL SILICON TRANSISTOR

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Base-Emitter On Voltage	V <sub>BE(on)</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA	580	660	700 720	mV mV
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA f=100MHz		300		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1.0MHz		3.5	6	pF
Input Capacitance	C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz		9		pF
Noise Figure:	NF					
BC846/BC847/BC848		V <sub>CE</sub> =5V, I <sub>C</sub> =200μA, f=1KHz, R <sub>G</sub> =2KΩ		2	10	dB
BC849/BC850				1.2	4	dB
BC849		V <sub>CE</sub> =5V, I <sub>C</sub> =200μA, R <sub>G</sub> =2KΩ, f=30~15000Hz		1.4	4	dB
BC850				1.4	3	dB

Classification of h<sub>FE</sub>

RANK	A	B	C
RANGE	110-220	200-450	420-800

Marking Code

P/N	RANK	MARK	RANK	MARK	RANK	MARK
BC846	A	8AA	B	8AB	C	8AC
BC847	A	8BA	B	8BB	C	8BC
BC848	A	8CA	B	8CB	C	8CC
BC849	A	8DA	B	8DB	C	8DC
BC850	A	8EA	B	8EB	C	8EC

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## NPN EPITAXIAL SILICON TRANSISTOR

### TYPICAL CHARACTERISTICS

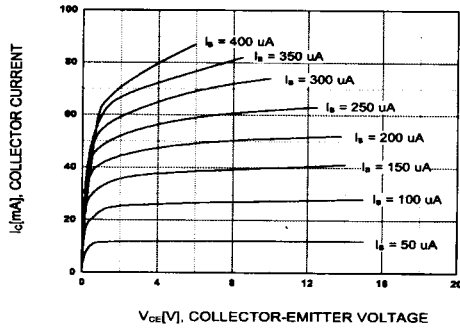


Figure 1. Static Characteristic

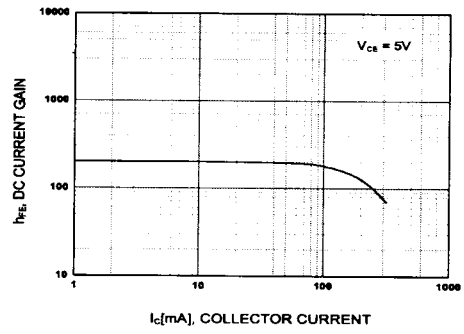


Figure 2. DC current Gain

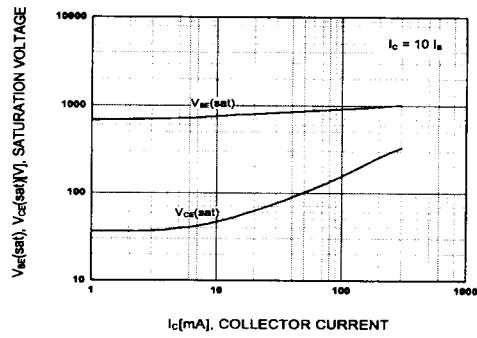


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

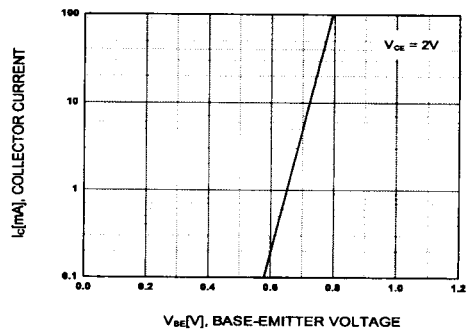


Figure 4. Base-Emitter On Voltage

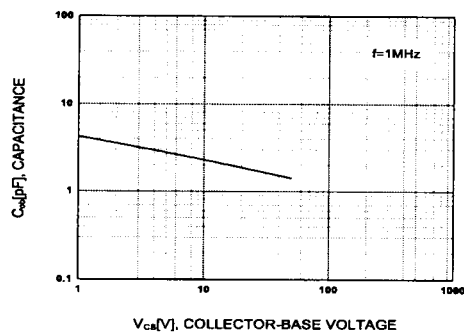


Figure 5. Collector Output Capacitance

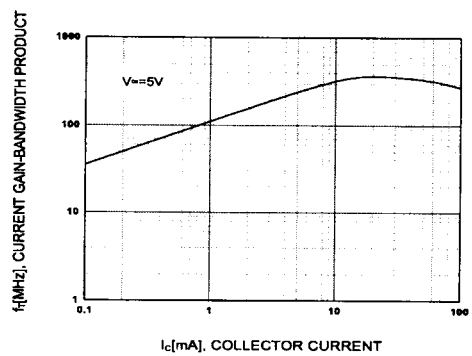


Figure 6. Current Gain Bandwidth Product