

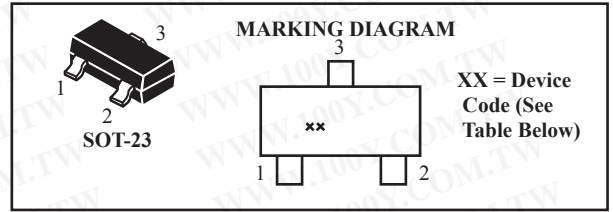
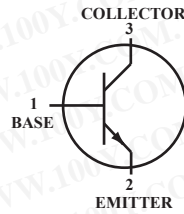
勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-54151736  
 勝特力电子(深圳) 86-755-83298787  
 Http://www.100y.com.tw

BC846A/B-BC847A/B/C  
 BC848A/B/C-BC849B/C  
 BC850B/C

## General Purpose Transistor NPN Silicon

\*Moisture Sensitivity Level: 1

\*ESD Rating - Human Body Model:>4000V  
 -Machine Model:>400V



### Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Rating   | Symbol    | Value             | Unit |
|--|-----------|-------------------|------|
| Collector-Emitter Voltage<br>BC846<br>BC847, BC850<br>BC848, BC849 | $V_{CEO}$ | 65<br>45<br>30    | Vdc  |
| Collector-Base Voltage<br>BC846<br>BC847, BC850<br>BC848, BC849    | $V_{CBO}$ | 80<br>50<br>30    | Vdc  |
| Emitter-Base Voltage<br>BC846<br>BC847, BC850<br>BC848, BC849      | $V_{EBO}$ | 6.0<br>6.0<br>5.0 | Vdc  |
| Collector Current-Continuous                                       | $I_C$     | 100               | mAdc |

### Thermal Characteristics

| Characteristics  | Symbol          | Max         | Unit                         |
|--|-----------------|-------------|------------------------------|
| Total Device Dissipation FR-5 Board<br>(Note 1.) $T_A=25^{\circ}\text{C}$<br>Derate above $25^{\circ}\text{C}$         | $P_D$           | 225<br>1.8  | mW<br>mW/ $^{\circ}\text{C}$ |
| Thermal Resistance, Junction to Ambient (Note 1.)  | $R_{\theta JA}$ | 556         | $^{\circ}\text{C}/\text{W}$  |
| Total Device Dissipation Alumina<br>Substrate, (Note 2.) $T_A=25^{\circ}\text{C}$<br>Derate above $25^{\circ}\text{C}$ | $P_D$           | 300<br>2.4  | mW<br>mW/ $^{\circ}\text{C}$ |
| Thermal Resistance, Junction to Ambient (Note 2.)  | $R_{\theta JA}$ | 417         | $^{\circ}\text{C}/\text{W}$  |
| Junction and Storage, Temperature Range  | $T_J, T_{stg}$  | -55 to +150 | $^{\circ}\text{C}$           |

### Device Marking

BC846A=1A; BC846B=1B; BC847A=1E; BC847B=1F; BC847C=1G; BC848A=1J;  
 BC848B=1K; BC848C=1L; BC849B=2B; BC849C=2C; BC850B=2F; BC850C=2G

1.FR-5=1.0 x 0.75 x 0.062 in.

2.Alumina=0.4 x 0.3 x 0.024 in. 99.5% alumina

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## Electrical Characteristics (TA=25°C Unless Otherwise noted)

| Characteristics | Symbol | Min | Typ | Max | Unit |
|-----------------|--------|-----|-----|-----|------|
|-----------------|--------|-----|-----|-----|------|

### Off Characteristics

|   |  |          |                   |             |             |          |
|---|--|----------|-------------------|-------------|-------------|----------|
| Collector-Emitter Breakdown Voltage<br>(IC= 10mA)         | BC846A,B<br>BC847A,B,C BC850B,C<br>BC848A,B,C BC849B,C | V(BR)CEO | 65<br>45<br>30    | -<br>-<br>- | -<br>-<br>- | V        |
| Collector-Emitter Breakdown Voltage<br>(IC=10 μA, VEB=0)  | BC846A,B<br>BC847A,B,C BC850B,C<br>BC848A,B,C BC849B,C | V(BR)CES | 80<br>50<br>30    | -<br>-<br>- | -<br>-<br>- | V        |
| Collector-Base Breakdown Voltage<br>(IC=10 μA)            | BC846A,B<br>BC847A,B,C BC850B,C<br>BC848A,B,C BC849B,C | V(BR)CBO | 80<br>50<br>30    | -<br>-<br>- | -<br>-<br>- | V        |
| Emitter-Base Breakdown Voltage<br>(IE=1.0 μA)             | BC846A,B<br>BC847A,B,C BC850B,C<br>BC848A,B,C BC849B,C | V(BR)EBO | 6.0<br>6.0<br>5.0 | -<br>-<br>- | -<br>-<br>- | V        |
| Collector Cutoff Current (VCB=30V)<br>(VCB=30V, TA=150°C) |  | ICBO     | -<br>-            | -<br>-      | 15<br>5.0   | nA<br>mA |

### On Characteristics

|   |   |          |                   |                   |                   |   |
|---|---|----------|-------------------|-------------------|-------------------|---|
| DC Current Gain<br>(IC= 10μA, VCE=5.0V)   | BC846A, BC847A, BC848A<br>BC846B, BC847B, BC848B<br>BC847C, BC848C                                    | hFE      | -<br>-<br>-       | 90<br>150<br>270  | -<br>-<br>-       | - |
| (IC= 2.0mA, VCE=5.0V)   | BC846A, BC847A, BC848A<br>BC846B, BC847B, BC848B<br>BC849B, BC850B,<br>BC847C, BC848C, BC849C, BC850C |          | 110<br>200<br>420 | 180<br>290<br>520 | 220<br>450<br>800 |   |
| Collector-Emitter Saturation Voltage<br>(IC= 10mA, IB=0.5mA)<br>(IC= 100mA, IB=5.0mA) |   | VCE(sat) | -<br>-            | -<br>-            | 0.25<br>0.6       | V |
| Base-Emitter Saturation Voltage<br>(IC= 10mA, IB=0.5mA)<br>(IC= 100mA, IB=5.0mA)      |   | VBE(sat) | -<br>-            | -0.7<br>-0.9      | -<br>-            | V |
| Base-Emitter On Voltage<br>(IC= 2.0mA, VCE=5.0V)<br>(IC= 10mA, VCE=5.0V)              |   | VBE(on)  | 580<br>-          | 660<br>-          | 700<br>770        | V |

### Small-signal Characteristics

|  |   |      |        |        |           |     |
|--|---|------|--------|--------|-----------|-----|
| Current-Gain-Bandwidth Product<br>(IC= 10mA, VCE= 5.0Vdc, f=100MHz)            |   | fT   | 100    | -      | -         | MHz |
| Output Capacitance<br>(VCB= 10V, f=1.0MHz)                                     |   | Cobo | -      | -      | 4.5       | pF  |
| Noise Figure<br>(IC= 0.2mA, VCE= 5.0Vdc,<br>Rs=2.0 kw,<br>f=1.0 kHz, BW=200Hz) | BC846A,B, BC847A,B,C, BC848A,B,C,<br>BC849B,C, BC850B,C | NF   | -<br>- | -<br>- | 10<br>4.0 | dB  |

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**BC850B/C**

### BC847/BC848/BC849/BC850 Series

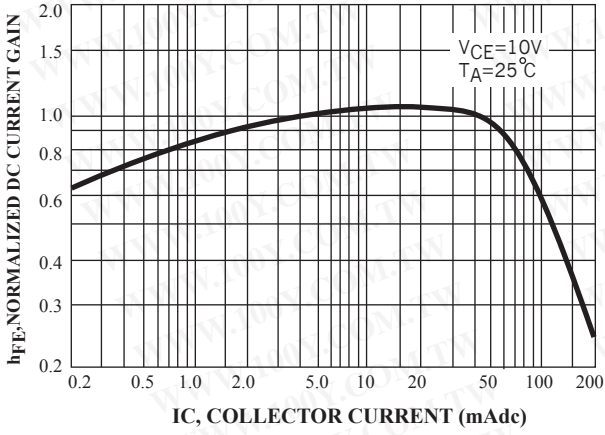


Figure 1. Normalized DC Current Gain

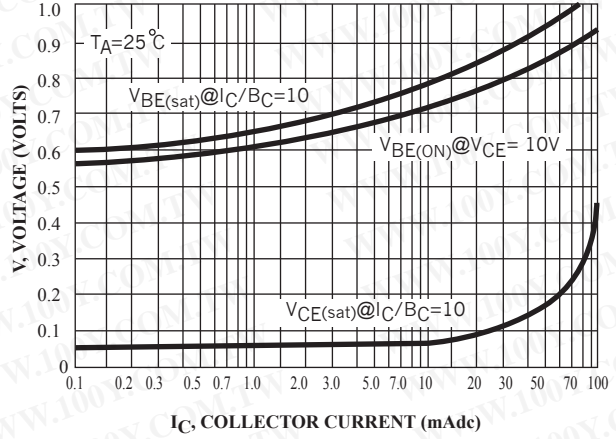


Figure 2. "Saturation" And "On" Voltage

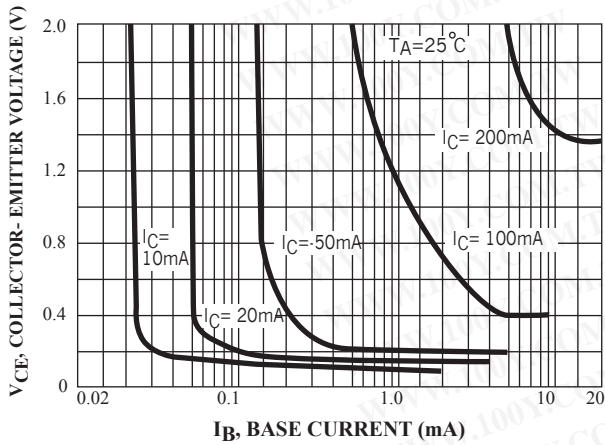


Figure 3. Collector Saturation Region

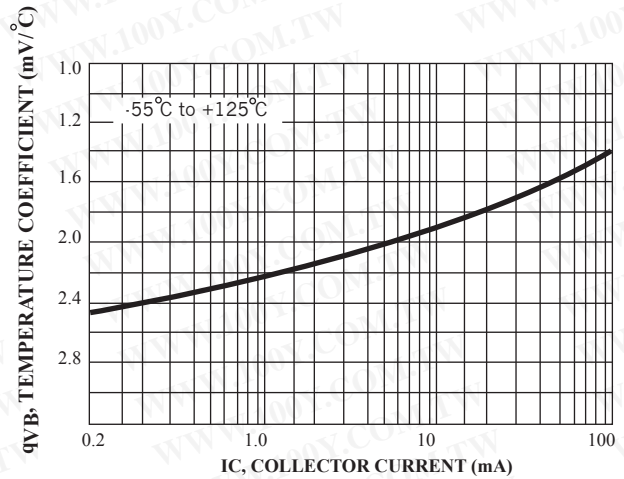


Figure 4. Base-Emitter Temperature Coefficient

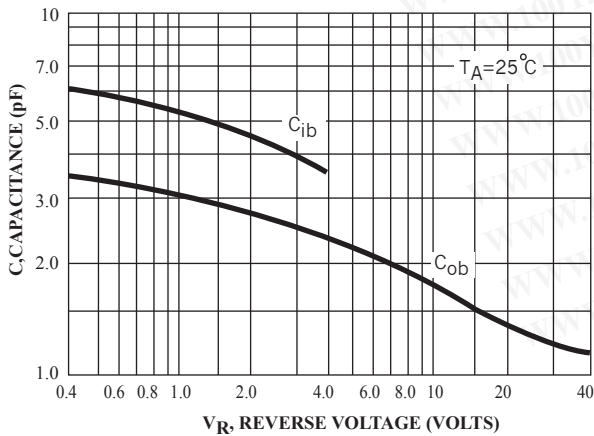


Figure 5. Capacitances

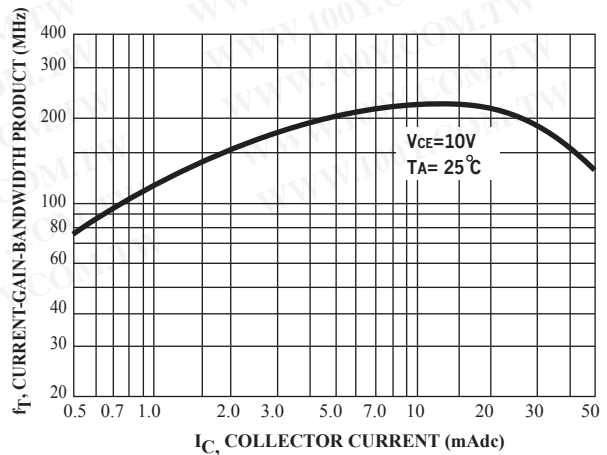


Figure 6. Current-Gain- Bandwidth Product

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**BC850B/C**

### BC846 Series

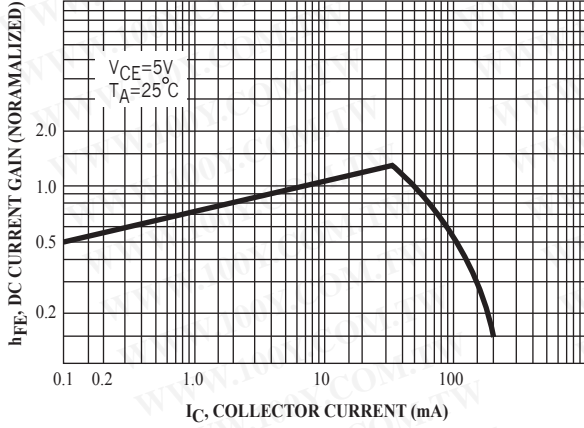


Figure 7. DC Current Gain

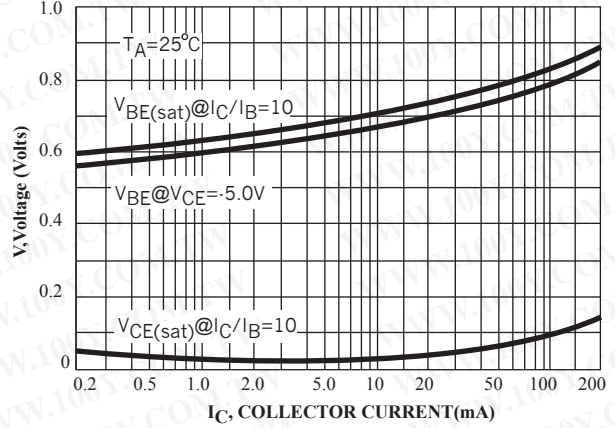


Figure 8. "ON" Voltage

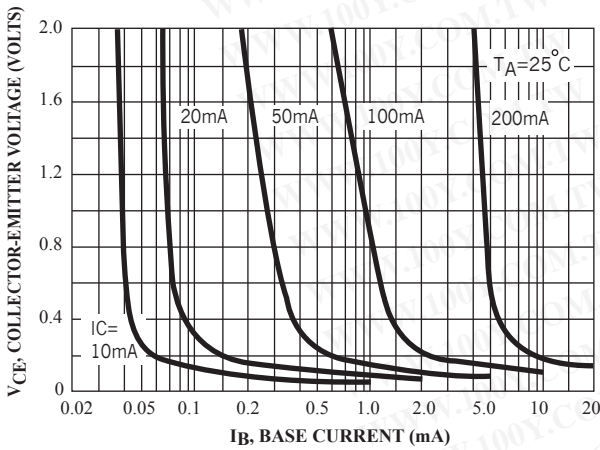


Figure 9. Collector Saturation Region

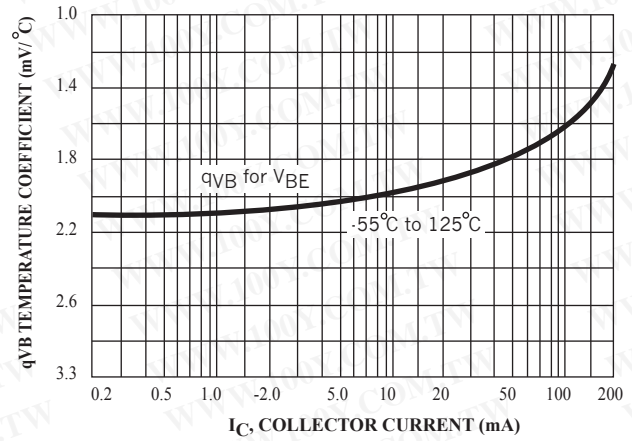


Figure 10. Base-Emitter Temperature Coefficient

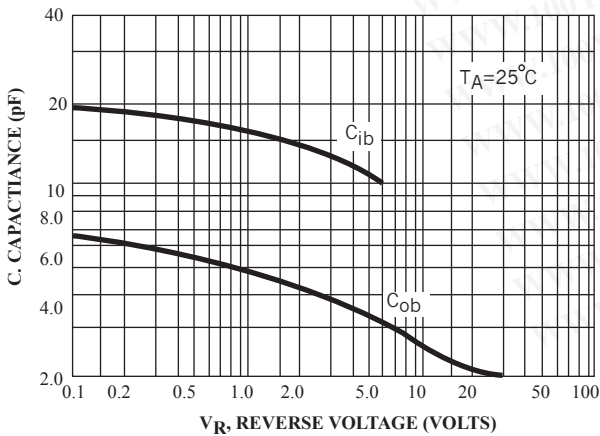


Figure 11. Capacitance

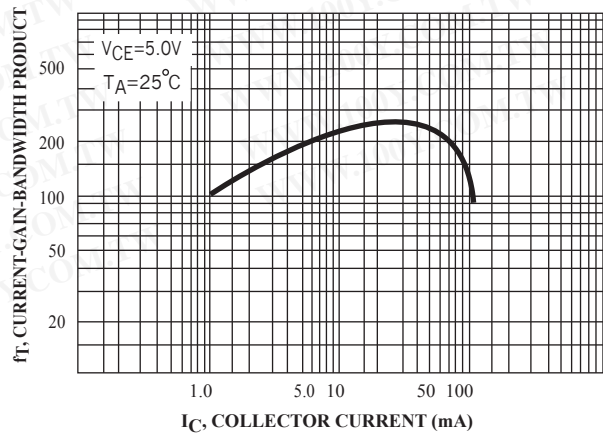


Figure 12. Current-Gain-Bandwidth Product