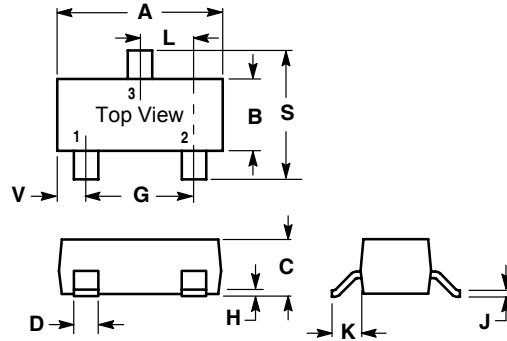
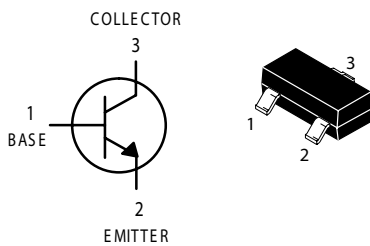


A suffix of "-C" specifies halogen & lead-free

**FEATURES**

- General Purpose Transistor NPN Type
- Collect current : 0.1A
- Operating Temp. : -55°C ~ +150°C
- RoHS compliant product



| SOT-23              |       |       |
|---------------------|-------|-------|
| Dim                 | Min   | Max   |
| A                   | 2.800 | 3.040 |
| B                   | 1.200 | 1.400 |
| C                   | 0.890 | 1.110 |
| D                   | 0.370 | 0.500 |
| G                   | 1.780 | 2.040 |
| H                   | 0.013 | 0.100 |
| J                   | 0.085 | 0.177 |
| K                   | 0.450 | 0.600 |
| L                   | 0.890 | 1.020 |
| S                   | 2.100 | 2.500 |
| V                   | 0.450 | 0.600 |
| All Dimension in mm |       |       |

**ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)**

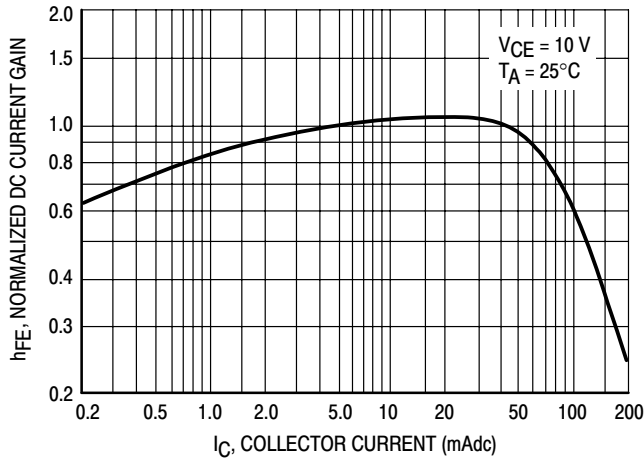
| Parameter                            | Symbol           | Test conditions                            | MIN                      | MAX | UNIT    |
|--------------------------------------|------------------|--|--------------------------|-----|---------|
| Collector-base breakdown voltage     | BC846            | $I_C = 10 \mu A, I_E = 0$                  | 80                       |     | V       |
|                                      | BC847            |  | 50                       |     |         |
|                                      | BC848            |  | 30                       |     |         |
| Collector-emitter breakdown voltage  | BC846            | $I_C = 10 mA, I_B = 0$                     | 65                       |     | V       |
|                                      | BC847            |  | 45                       |     |         |
|                                      | BC848            |  | 30                       |     |         |
| Emitter-base breakdown voltage       | $V_{EBO}$        | $I_E = 10 \mu A, I_C = 0$                  | 6                        |     | V       |
| Collector cut-off current            | BC846            | $V_{CB} = 70 V, I_E = 0$                   |                          |     | $\mu A$ |
|                                      | BC847            |  | $V_{CB} = 50 V, I_E = 0$ | 0.1 |         |
|                                      | BC848            |  | $V_{CB} = 30 V, I_E = 0$ |     |         |
| Collector cut-off current            | BC846            | $V_{CE} = 60 V, I_B = 0$                   |                          |     | $\mu A$ |
|                                      | BC847            |  | $V_{CE} = 45 V, I_B = 0$ | 0.1 |         |
|                                      | BC848            |  | $V_{CE} = 30 V, I_B = 0$ |     |         |
| Emitter cut-off current              | $I_{EBO}$        | $V_{EB} = 5 V, I_C = 0$                    |                          | 0.1 | $\mu A$ |
| DC current gain                      | BC846A,847A,848A | $V_{CE} = 5V, I_C = 2mA$                   | 110                      | 220 |         |
|                                      | BC846B,847B,848B |  | 200                      | 450 |         |
|                                      | BC847C,BC848C    |  | 420                      | 800 |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$    | $I_C = 100mA, I_B = 5 mA$                  |                          | 0.5 | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$    | $I_C = 100 mA, I_B = 5mA$                  |                          | 1.1 | V       |
| Transition frequency                 | $f_T$            | $V_{CE} = 5 V, I_C = 10mA$<br>$f = 100MHz$ | 100                      |     | MHz     |

**DEVICE MARKING**

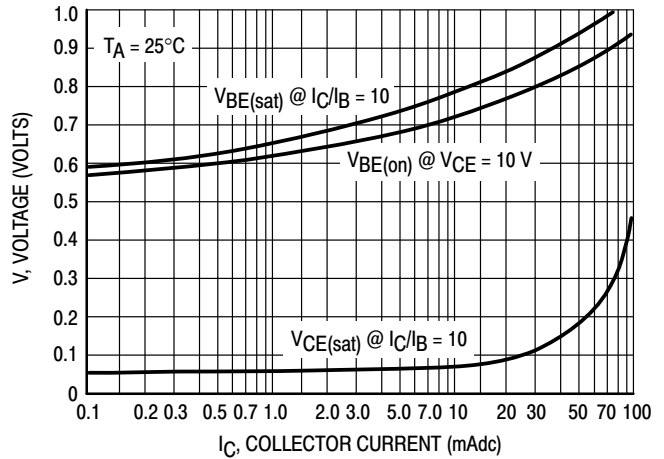
BC846A=1A; BC846B=1B; BC847A=1E; BC847B=1F; BC847C=1G; BC848A=1J; BC848B=1K; BC848C=1L

**Typical Characteristics**

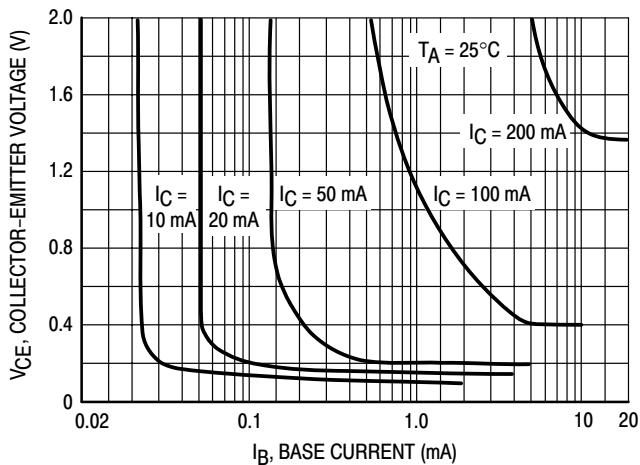
**BC846A/B, BC847A/B, BC848A/B**



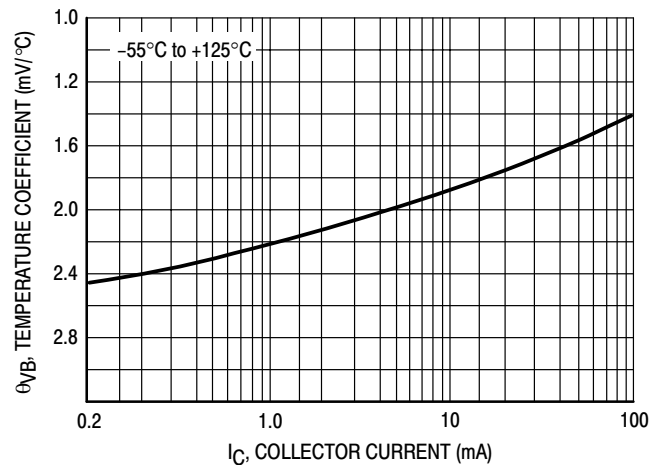
**Figure 1. Normalized DC Current Gain**



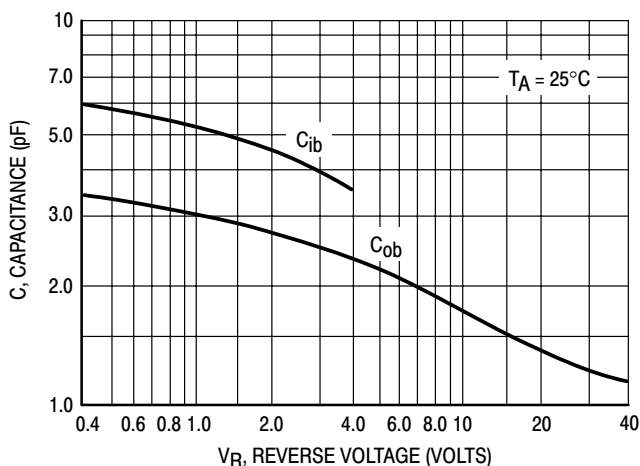
**Figure 2. "Saturation" and "On" Voltages**



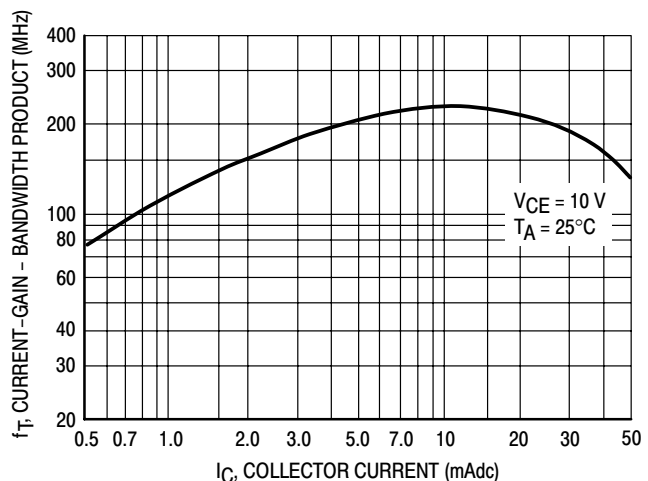
**Figure 3. Collector Saturation Region**



**Figure 4. Base-Emitter Temperature Coefficient**

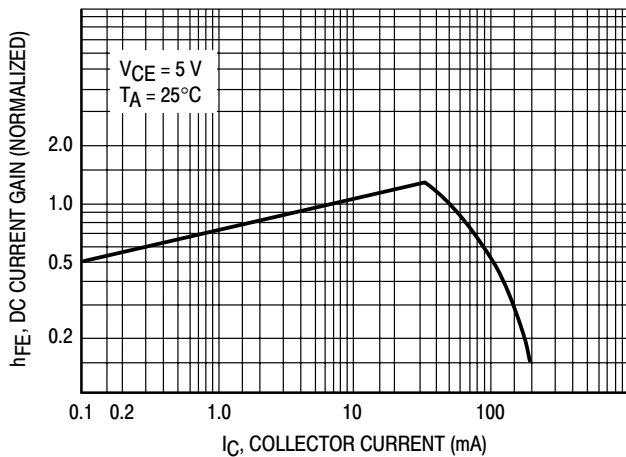


**Figure 5. Capacitances**

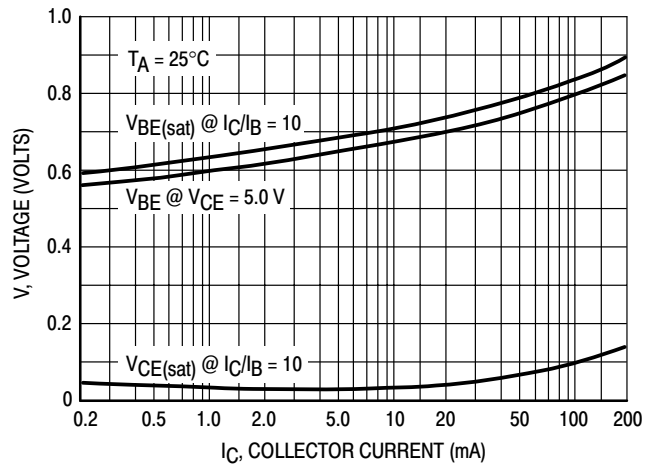


**Figure 6. Current-Gain - Bandwidth Product**

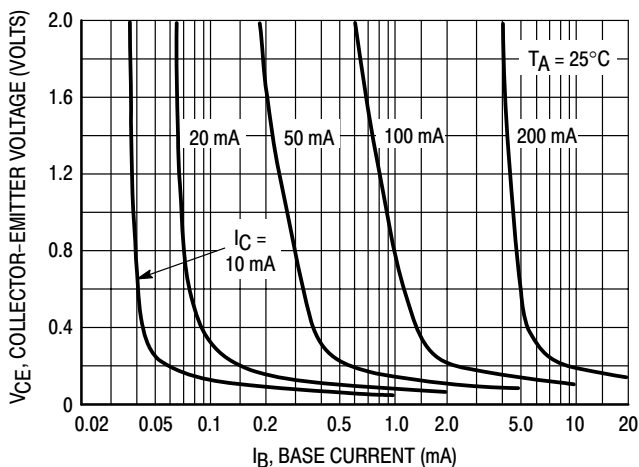
**BC846A/B, BC847A/B, BC848A/B**



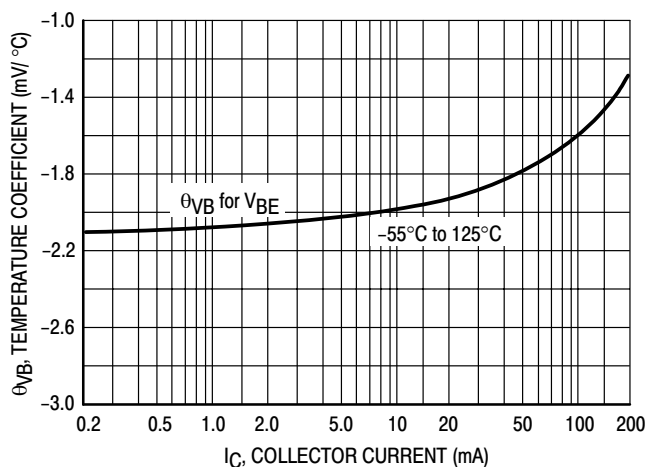
**Figure 7. DC Current Gain**



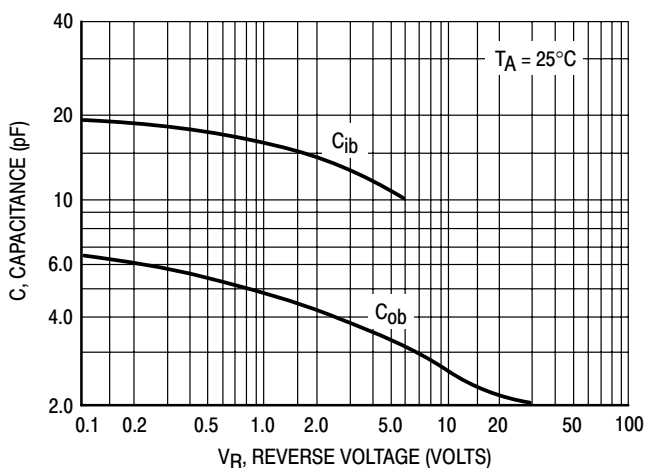
**Figure 8. "On" Voltage**



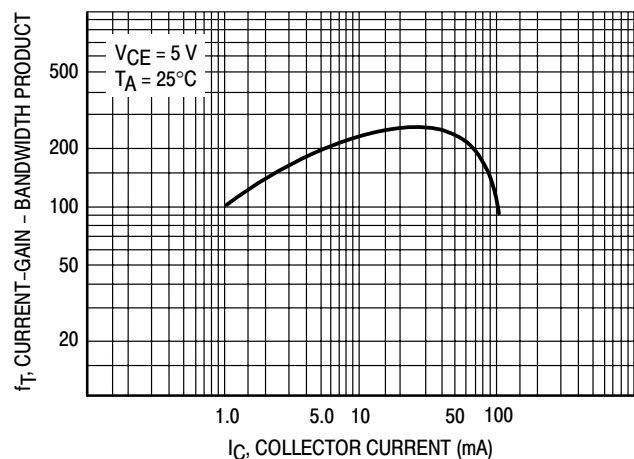
**Figure 9. Collector Saturation Region**



**Figure 10. Base-Emitter Temperature Coefficient**



**Figure 11. Capacitance**



**Figure 12. Current-Gain - Bandwidth Product**