



## SOT-23 Plastic-Encapsulate Transistors

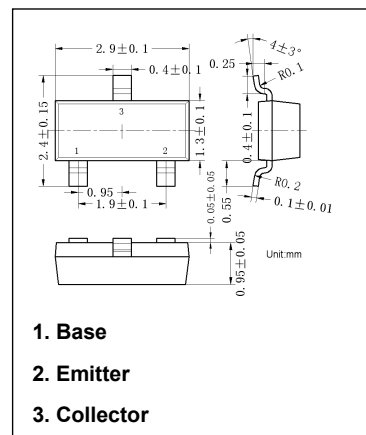
### BC848B NPN Transistors

#### Features

- Ideally suited for automatic insertion
- For switching and AF amplifier applications

#### Marking

- BC848A: 1J
- BC848B: 1K
- BC848C: 1L



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

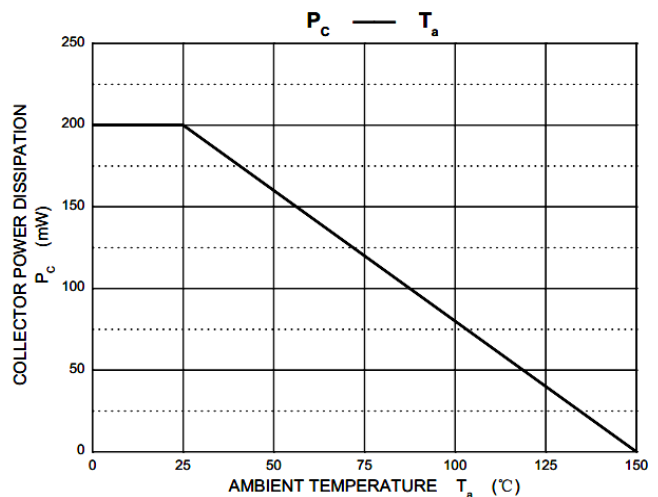
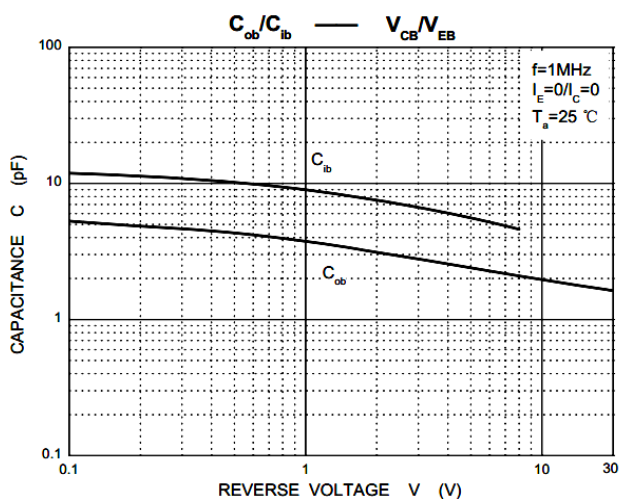
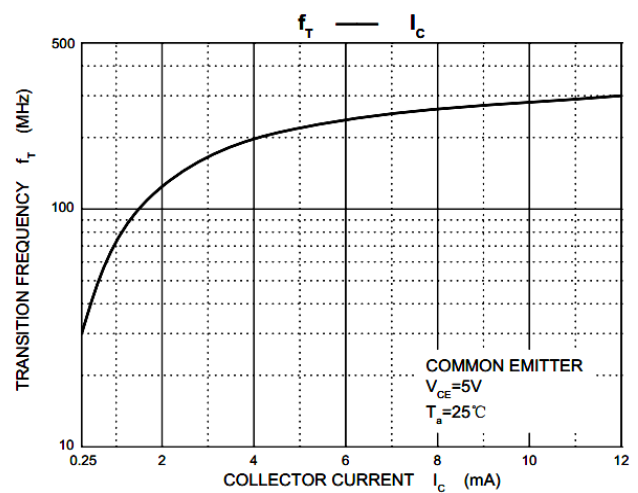
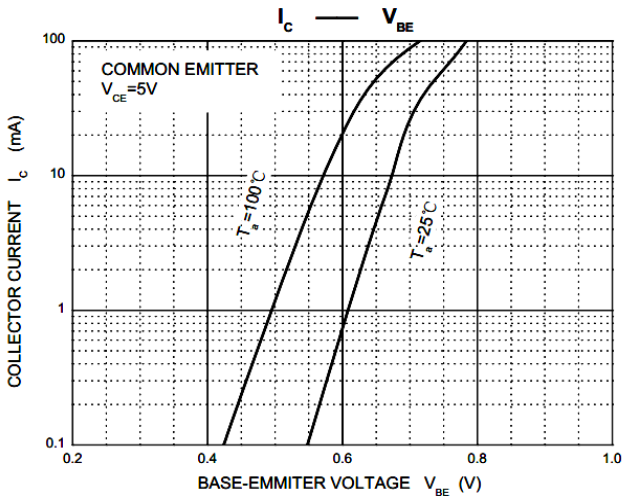
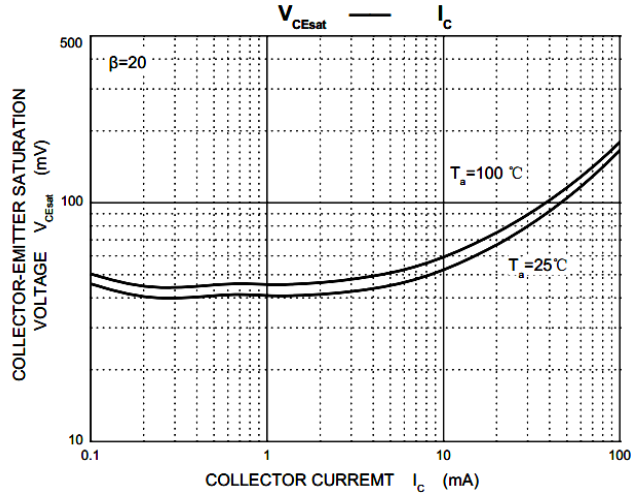
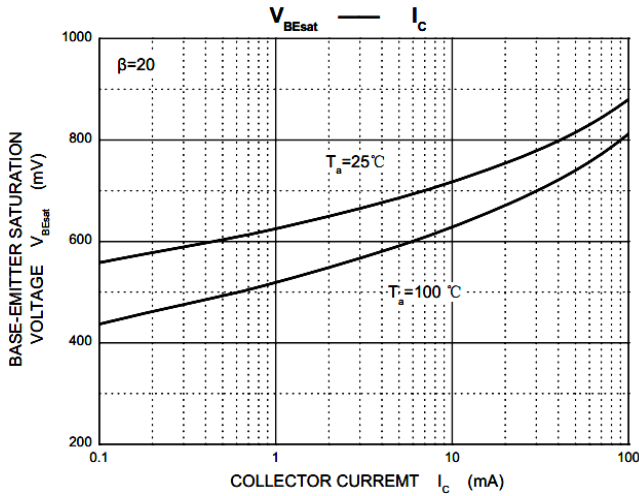
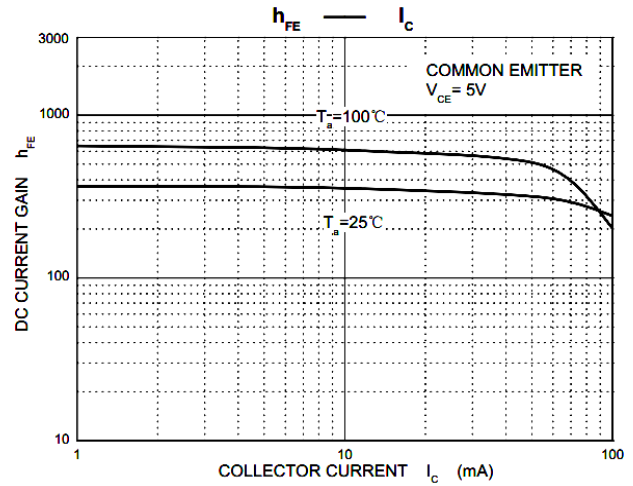
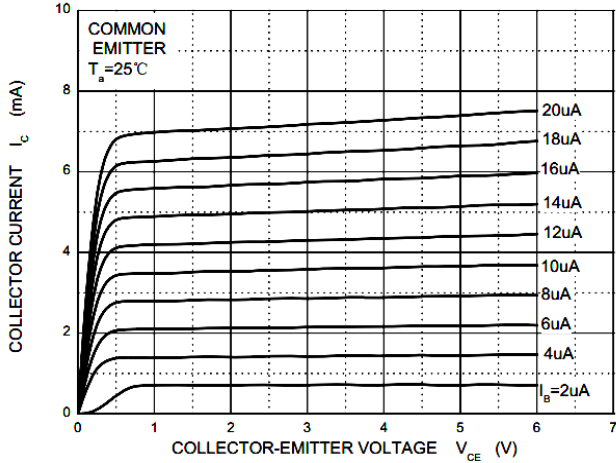
| Symbol          | Parameter                                   | Value        | Unit                        |
|-----------------|---|--------------|-----------------------------|
| $V_{CB0}$       | Collector Base Voltage                      | 30           | V                           |
| $V_{CE0}$       | Collector Emitter Voltage                   | 30           | V                           |
| $V_{EB0}$       | Emitter Base Voltage                        | 6            | V                           |
| $I_c$           | Collector Current                           | 0.1          | A                           |
| $P_c$           | Collector Power Dissipation                 | 200          | mW                          |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | 625          | $^{\circ}\text{C}/\text{W}$ |
| $T_j$           | Junction Temperature                        | 150          | $^{\circ}\text{C}$          |
| $T_{stg}$       | Storage Temperature                         | - 55 to +150 | $^{\circ}\text{C}$          |

#### Electrical Characteristics ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol        | Parameter                            | Test Conditions                                      | Min | Typ | Max | Unit |
|---------------|--------------------------------------|--|-----|-----|-----|------|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage     | $I_c=10\mu\text{A}, I_E=0$                           | 30  |     |     | V    |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_c=10\text{mA}, I_B=0$                             | 30  |     |     | V    |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage       | $I_E=10\mu\text{A}, I_c=0$                           | 6   |     |     | V    |
| $I_{CBO}$     | Collector cut-off current            | $V_{CB}=30\text{V}, I_E=0$                           |     |     | 100 | nA   |
| $I_{CEO}$     | Collector cut-off current            | $V_{CE}=30\text{V}, I_B=0$                           |     |     | 100 | nA   |
| $I_{EBO}$     | Emitter cut-off current              | $V_{EB}=5\text{V}, I_c=0$                            |     |     | 100 | nA   |
| $h_{FE}$      | DC current gain                      | BC848A   | 110 |     | 220 |      |
|               |                                      | BC848B   |     |     |     |      |
|               |                                      | BC848C   |     |     |     |      |
|               |                                      | $V_{CE} = 5\text{V}, I_c = 2\text{mA}$               | 110 |     |     |      |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_c = 100\text{mA}, I_B = 5\text{mA}$               |     |     | 0.5 | V    |
| $V_{BE(sat)}$ | Base-emitter saturation voltage      | $I_c = 100\text{mA}, I_B = 5\text{mA}$               |     |     | 1.1 | V    |
| $f_T$         | Transition frequency                 | $V_{CE}=5\text{V}, I_c=10\text{mA}, f=100\text{MHz}$ | 100 |     |     | MHz  |
| $C_{ob}$      | Collector output capacitance         | $V_{CB} = 10\text{V}, f = 1\text{MHz}$               |     |     | 4.5 | pF   |

# Typical Characteristics

Static Characteristic



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