

### Features

- Low current
- Low voltage
- Matched pairs
- RoHS compliant with Halogen-free

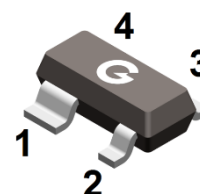
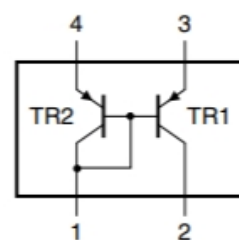
HF

### Applications

- Applications With Working Point Independent of Temperature
- Current Mirrors

### Mechanical Data

- Case: SOT-143
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-143

### Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| BCV62       | SOT-143 | 3000 pcs / Tape & Reel | 3Mp          |
| BCV62A      | SOT-143 | 3000 pcs / Tape & Reel | 3Jp          |
| BCV62B      | SOT-143 | 3000 pcs / Tape & Reel | 3Kp          |
| BCV62C      | SOT-143 | 3000 pcs / Tape & Reel | 3Lp          |

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

| Parameter                 | Symbol           | Value | Unit |
|---------------------------|------------------|-------|------|
| Collector-Base Voltage    | V <sub>CBO</sub> | -30   | V    |
| Collector-Emitter Voltage | V <sub>CEO</sub> | -30   | V    |
| Emitter-Base Voltage      | V <sub>EBO</sub> | -6    | V    |
| Collector Current         | I <sub>C</sub>   | -100  | mA   |
| Peak Collector Current    | I <sub>CM</sub>  | -200  | mA   |

### Thermal Characteristics

| Parameter                                         | Symbol           | Value      | Unit |
|---------------------------------------------------|------------------|------------|------|
| Power Dissipation (T <sub>A</sub> = 25°C)         | P <sub>D</sub>   | 250        | mW   |
| Thermal Resistance Junction-to-Air <sup>*1</sup>  | R <sub>θJA</sub> | 320        | °C/W |
| Thermal Resistance Junction-to-Case <sup>*1</sup> | R <sub>θJC</sub> | 230        | °C/W |
| Thermal Resistance Junction-to-Lead <sup>*1</sup> | R <sub>θJL</sub> | 250        | °C/W |
| Operating Junction Temperature                    | T <sub>J</sub>   | -65 ~ +150 | °C   |
| Storage Temperature Range                         | T <sub>STG</sub> | -65 ~ +150 | °C   |

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

| Parameter                            | Symbol                | Test Condition                                               | Min. | Typ. | Max.  | Unit |
|--------------------------------------|-----------------------|--------------------------------------------------------------|------|------|-------|------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$         | $I_C = -100\mu\text{A}, I_E = 0$                             | -30  | -    | -     | V    |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$         | $I_C = -10\text{mA}, I_B = 0$                                | -30  | -    | -     | V    |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$         | $I_E = -100\mu\text{A}, I_C = 0$                             | -6   | -    | -     | V    |
| Collector Cut-Off Current            | $I_{CBO}$             | $V_{CB} = -30\text{V}, I_E = 0$                              | -    | -    | -15   | nA   |
| Emitter Cut-Off Current              | $I_{EBO}$             | $V_{EB} = -5\text{V}, I_C = 0$                               | -    | -    | -100  | nA   |
| DC Current Gain                      | $h_{FE}$              | $V_{CE} = -5\text{V}, I_C = -100\mu\text{A}$                 | 100  | -    | -     | -    |
|                                      |                       | $V_{CE} = -5\text{V}, I_C = -2\text{mA}, \text{BCV62}$       | 100  | -    | 800   | -    |
|                                      |                       | $V_{CE} = -5\text{V}, I_C = -2\text{mA}, \text{BCV62A}$      | 125  | -    | 250   | -    |
|                                      |                       | $V_{CE} = -5\text{V}, I_C = -2\text{mA}, \text{BCV62B}$      | 220  | -    | 475   | -    |
|                                      |                       | $V_{CE} = -5\text{V}, I_C = -2\text{mA}, \text{BCV62C}$      | 420  | -    | 800   | -    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$         | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$                    | -    | -    | -0.3  | V    |
|                                      |                       | $I_C = -100\text{mA}, I_B = -5\text{mA}$                     | -    | -    | -0.65 | V    |
| Base-Emitter Saturation Voltage *2   | $V_{BE(sat)}$         | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$                    | -    | -0.7 | -     | V    |
|                                      |                       | $I_C = -100\text{mA}, I_B = -5\text{mA}$                     | -    | -    | -1    | V    |
| Base-Emitter Turn-on Voltage *3      | $V_{BE(on)}$          | $I_C = -2\text{mA}, V_{CE} = -5\text{V}$                     | -0.6 | -    | -0.75 | V    |
|                                      |                       | $I_C = -10\text{mA}, V_{CE} = -5\text{V}$                    | -    | -    | -0.82 | V    |
| Transition Frequency                 | $f_T$                 | $V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$ | 100  | -    | -     | MHz  |
| Collector Output Capacitance         | $C_{ob}$              | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$             | -    | 4.5  | -     | pF   |
| $V_{BE}$ Matching                    | $ V_{BE1} - V_{BE2} $ | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$                     | -    | -    | 20    | mV   |
| $h_{FE}$ Matching                    | $h_{FE1}/h_{FE2}$     | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$                     | 0.8  | -    | 1.2   | -    |

#### Notes:

1. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper
2.  $V_{BE(sat)}$  decreases by about 1.7 mV/K with increasing temperature
3.  $V_{BE}$  decreases by about 2 mV/K with increasing temperature

Ratings and Characteristic Curves-BCV62A (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

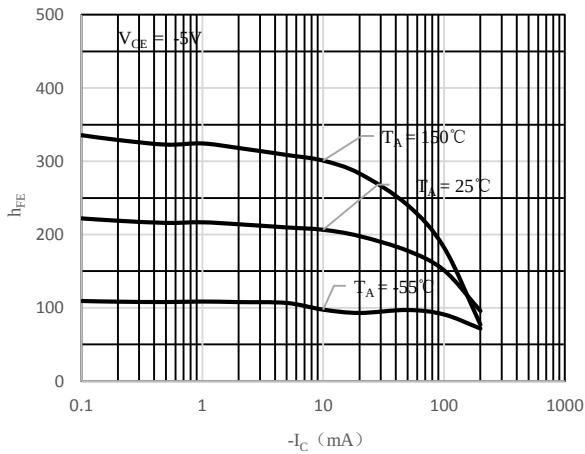


Fig 1  $h_{FE}$  vs.  $I_C$

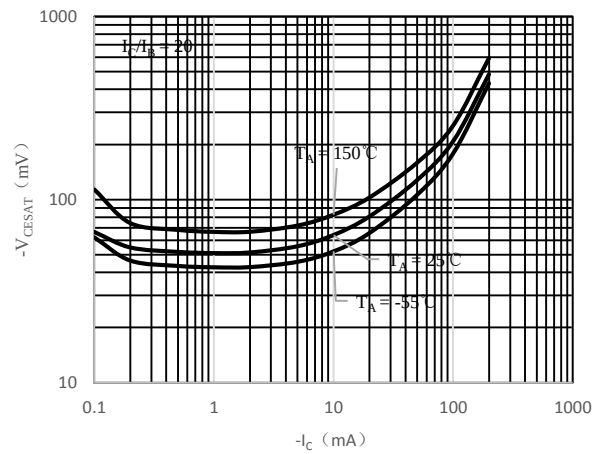


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

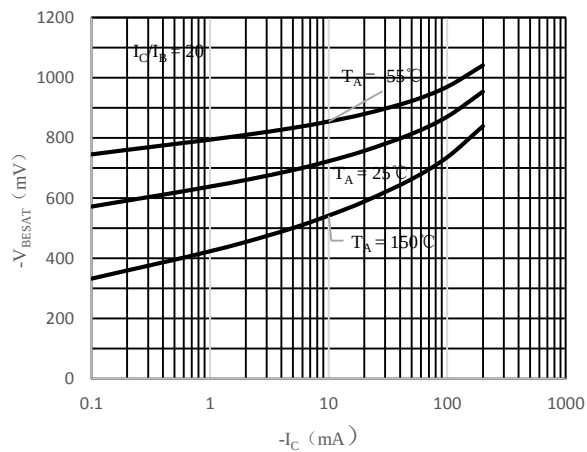


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

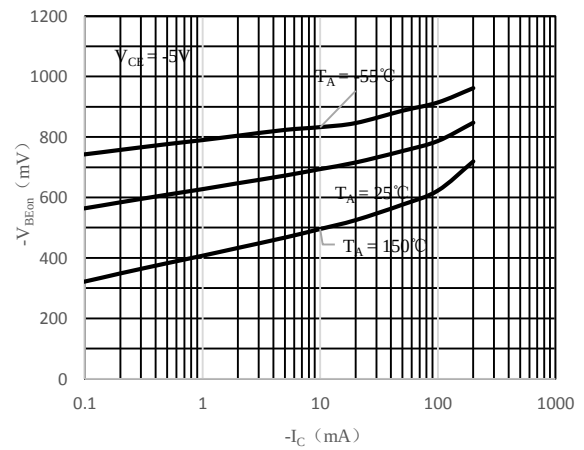
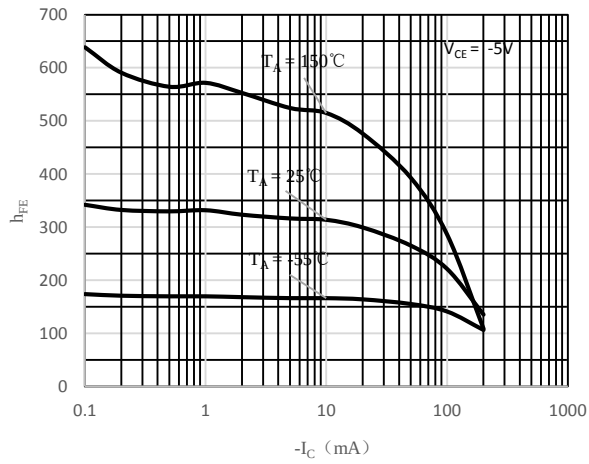
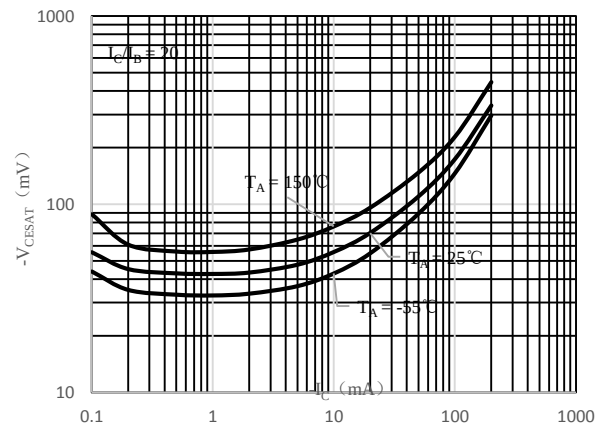


Fig 4  $V_{BE(on)}$  vs.  $I_C$

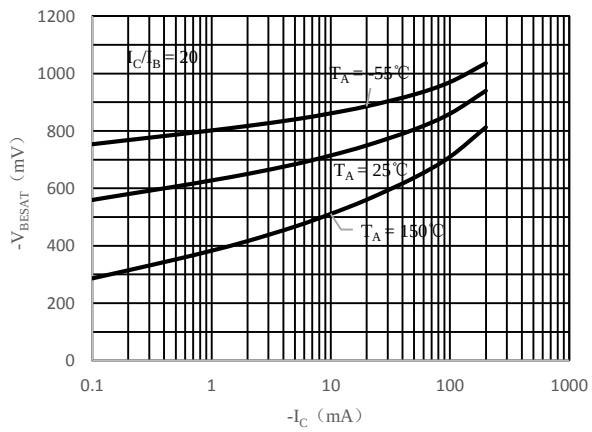
**Ratings and Characteristic Curves-BCV62B** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



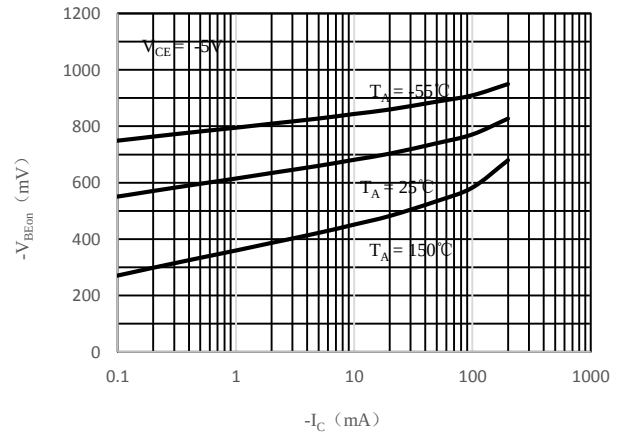
**Fig 1  $h_{FE}$  vs.  $I_C$**



**Fig 2  $V_{CE(sat)}$  vs.  $I_C$**

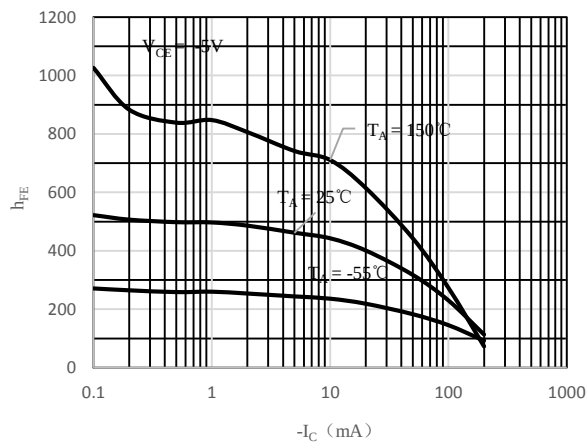


**Fig 3  $V_{BE(sat)}$  vs.  $I_C$**

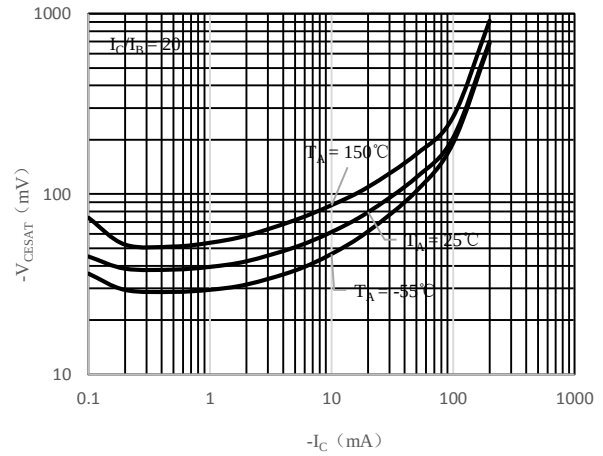


**Fig 4  $V_{BE(on)}$  vs.  $I_C$**

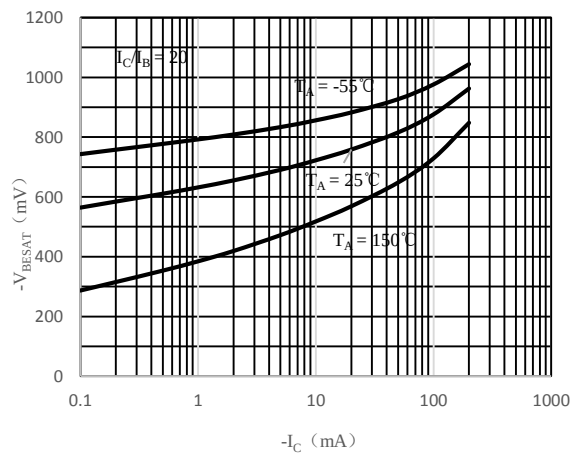
**Ratings and Characteristic Curves-BCV62C** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



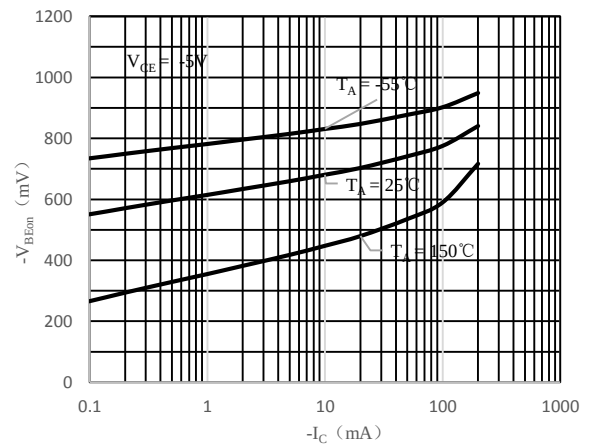
**Fig 1  $h_{FE}$  vs.  $I_C$**



**Fig 2  $V_{CE(sat)}$  vs.  $I_C$**

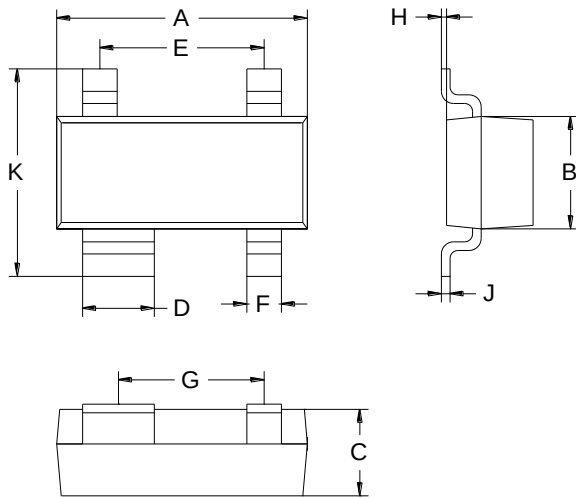


**Fig 3  $V_{BE(sat)}$  vs.  $I_C$**



**Fig 4  $V_{BE(ON)}$  vs.  $I_C$**

**Package Outline Dimensions** (Unit: mm)



| SOT-143   |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 2.70 | 3.10 |
| B         | 1.10 | 1.50 |
| C         | 0.90 | 1.10 |
| D         | 0.78 | 0.88 |
| E         | 1.80 | 2.00 |
| F         | 0.37 | 0.43 |
| G         | 1.59 | 1.79 |
| H         | 0.02 | 0.10 |
| J         | 0.05 | 0.15 |
| K         | 2.20 | 2.60 |

**Package Outline Dimensions** (Unit: mm)

**SOT-143**

