

**Descriptions**

- General purpose application
- Switching application

**Features**

- High voltage :  $V_{CEO} = -30V$
- Complementary pair with BC848F

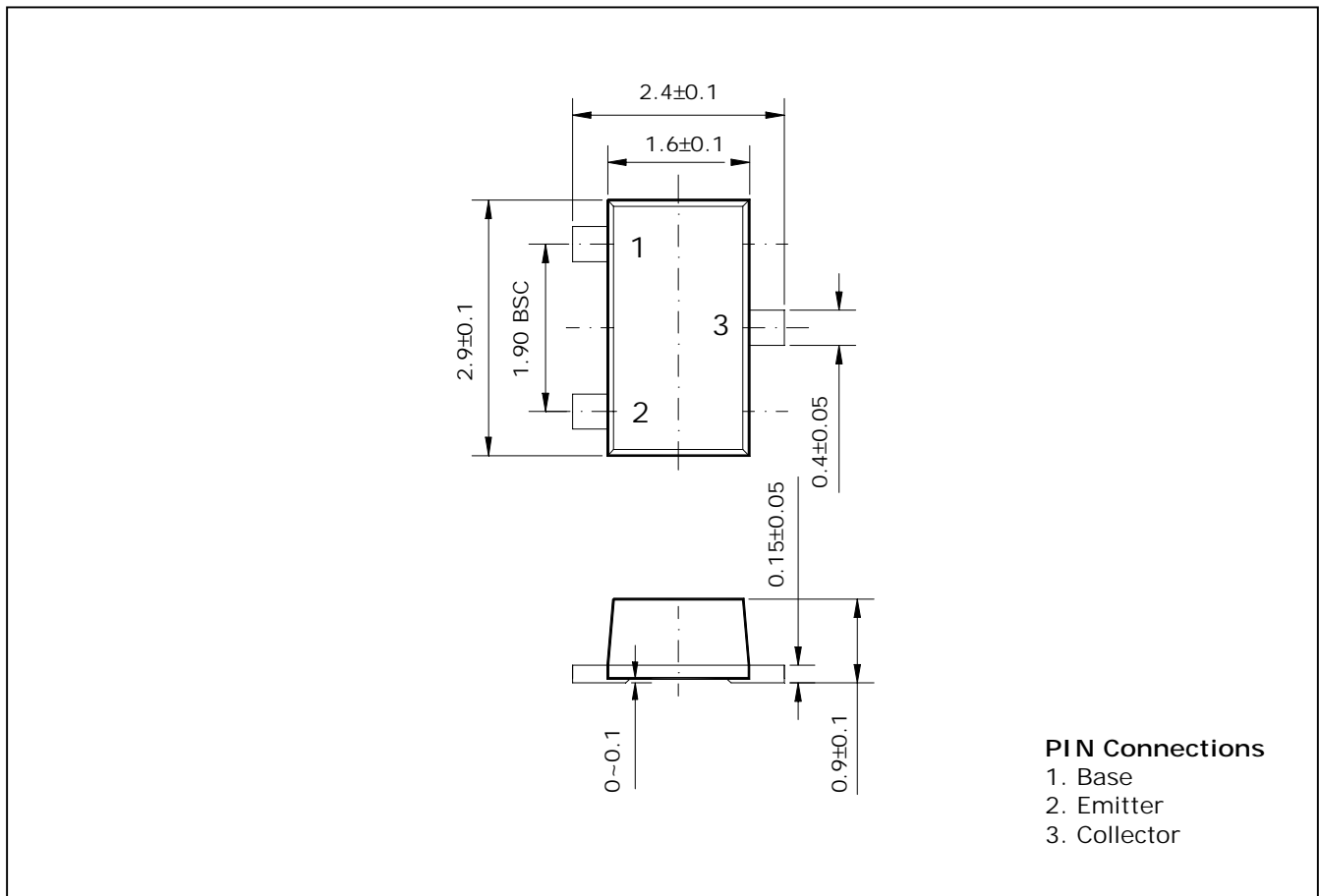
**Ordering Information**

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| BC858F   | VA□     | SOT-23F      |

□ :  $h_{FE}$  rank

**Outline Dimensions**

**unit : mm**



## Absolute maximum ratings

(Ta=25°C)

| Characteristic            | Symbol    | Ratings   | Unit |
|---------------------------|-----------|-----------|------|
| Collector-Base voltage    | $V_{CBO}$ | -30       | V    |
| Collector-Emitter voltage | $V_{CEO}$ | -30       | V    |
| Emitter-Base voltage      | $V_{EBO}$ | -5        | V    |
| Collector current         | $I_C$     | -100      | mA   |
| Collector dissipation     | $P_C$     | 200       | mW   |
| Junction temperature      | $T_J$     | 150       | °C   |
| Storage temperature       | $T_{stg}$ | -55 ~ 150 | °C   |

## Electrical Characteristics

(Ta=25°C)

| Characteristic                       | Symbol        | Test Condition  | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|---|------|------|------|------|
| Collector-Emitter breakdown voltage  | $BV_{CEO}$    | $I_C = -1\text{mA}, I_B = 0$  | -30  | -    | -    | V    |
| Base-Emitter turn on voltage         | $V_{BE(ON)}$  | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$  | -    | -    | -700 | mV   |
| Base-Emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -100\text{mA}, I_B = -5\text{mA}$  | -    | -900 | -    | mV   |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -100\text{mA}, I_B = -5\text{mA}$  | -    | -    | -650 | mV   |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -35\text{V}, I_E = 0$   | -    | -    | -15  | nA   |
| DC current gain                      | $h_{FE}^*$    | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$  | 110  | -    | 800  | -    |
| Transition frequency                 | $f_T$         | $V_{CB} = -5\text{V}, I_C = -10\text{mA}$   | -    | 150  | -    | MHz  |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$  | -    | -    | 4.5  | pF   |
| Noise Figure                         | NF            | $V_{CE} = -5\text{V}, I_C = -200\mu\text{A}, f = 1\text{KHz}, R_g = 2\text{K}\Omega, \Delta f = 200\text{Hz}$ | -    | -    | 10   | dB   |

\* :  $h_{FE}$  rank / A : 110 ~ 220, B : 200 ~ 450, C : 420 ~ 800

Electrical Characteristic Curves

Fig. 1  $P_C$ - $T_a$

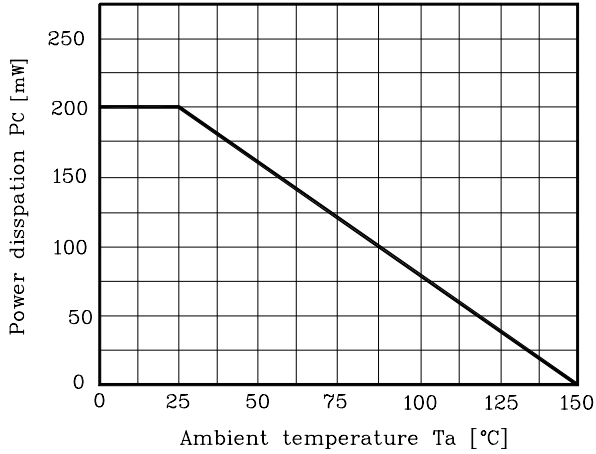


Fig. 2  $I_C$ - $V_{BE}$

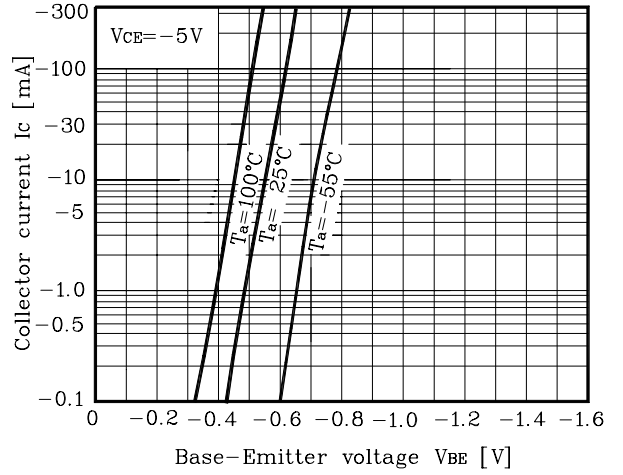


Fig. 3  $I_C$ - $V_{CE}$

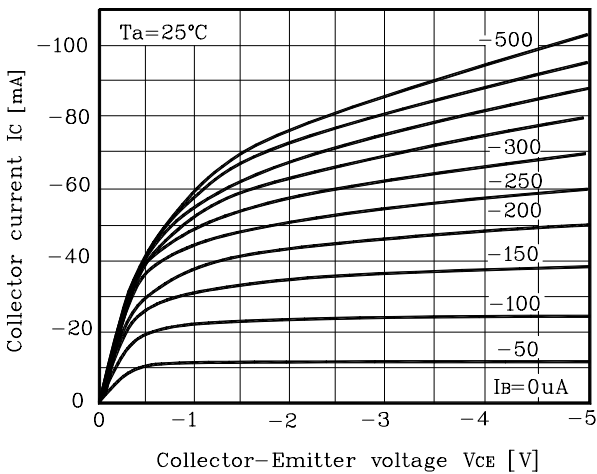


Fig. 4  $h_{FE}$ - $I_C$

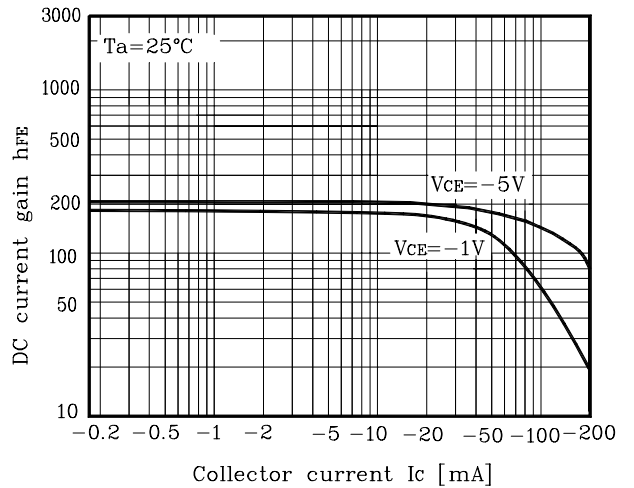


Fig. 5  $V_{CE(sat)}$ - $I_C$

