

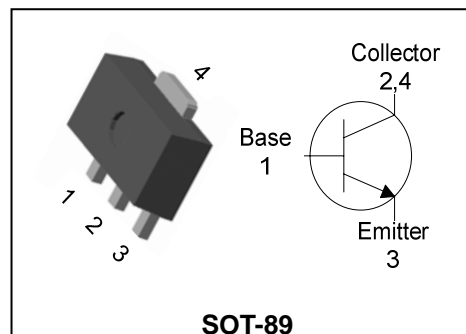
Applications

- Power amplifier application
- High current switching application

Features

- Power Transistor General Purpose application
- Low saturation voltage
: $V_{CE(sat)} = 0.4V$ Typ.
- High Voltage : $V_{CEO} = 65V$ Min.

PIN Connection



Ordering Information

| Type NO. | Marking | Package Code |
|----------|-------------|--------------|
| STC503F | C503 YWW | SOT-89 |

Absolute Maximum Ratings

[Ta=25℃]

| Characteristic | Symbol | Rating | Unit |
|-----------------------------|------------|---------|----------|
| Collector-Base voltage | V_{CBO} | 80 | V |
| Collector-Emitter voltage | V_{CEO} | 65 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 3 | A(DC) |
| | I_{CP}^* | 6 | A(Pulse) |
| Collector Power dissipation | P_C | 0.5 | W |
| | P_C^{**} | 1 | W |
| Junction temperature | T_j | 150 | ℃ |
| Storage temperature | T_{stg} | -55~150 | ℃ |

*: Single pulse, $t_p = 300 \mu s$

**: When mounted on ceramic substrate(250 mm²×0.8t)

Electrical Characteristics

(Ta=25℃)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|-----------------------------------|------|------|------|------|
| Collector-Emitter breakdown voltage | BV_{CEO} | $I_C = 1mA, I_B = 0$ | 65 | - | - | V |
| Collector cut-off current | I_{CBO} | $V_{CB} = 65V, I_E = 0$ | - | - | 50 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 5V, I_C = 0$ | - | - | 50 | μA |
| DC current gain | h_{FE}^* | $V_{CE} = 5V, I_C = 0.5A$ | 300 | - | 500 | - |
| Base-Emitter on voltage | $V_{BE(ON)}$ | $V_{CE} = 5V, I_C = 0.5A$ | - | 0.7 | 1 | V |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 2A, I_B = 0.2A$ | - | 0.4 | 1 | V |
| Transition frequency | f_T | $V_{CB} = 5V, I_C = 50mA$ | - | 250 | - | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | - | 15 | - | pF |

* hFE rank : 300~500 Only

Electrical Characteristic Curves

Fig. 1 $P_C - T_a$

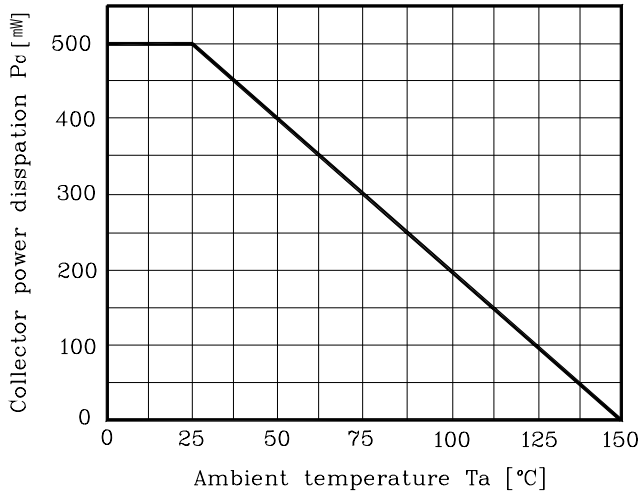


Fig. 2 $I_C - V_{BE}$

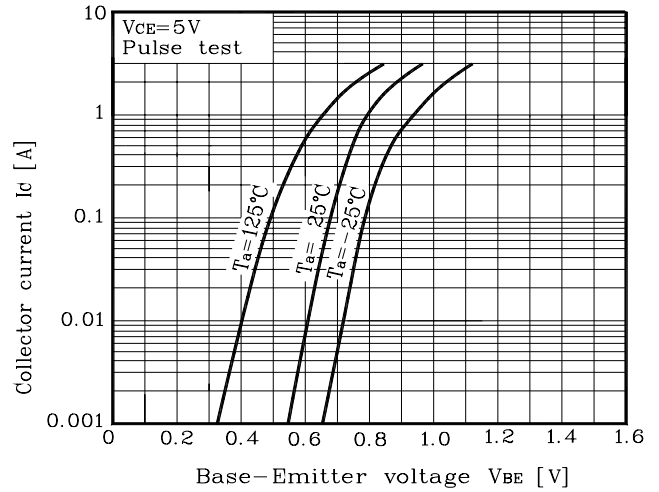


Fig. 3 $V_{CE(sat)} - I_C$

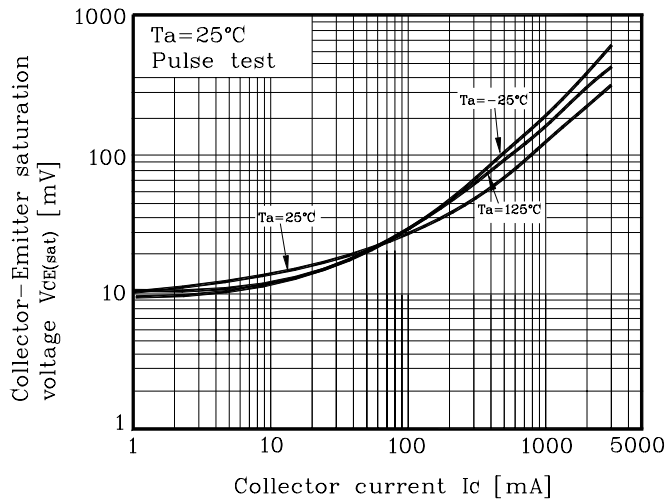


Fig. 4 $I_C - V_{CE}$

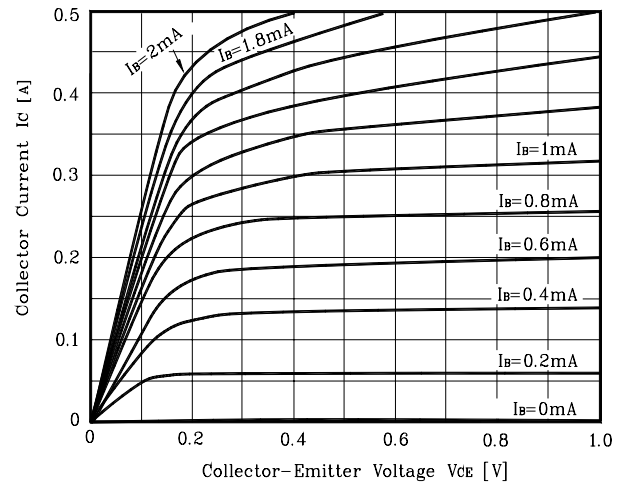


Fig. 5 $I_C - V_{CE}$

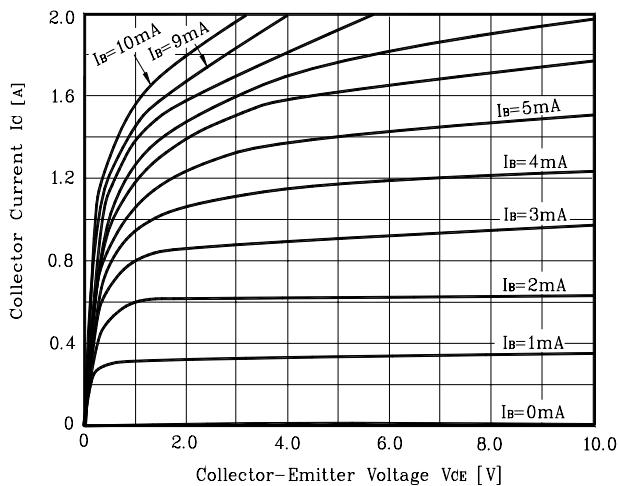
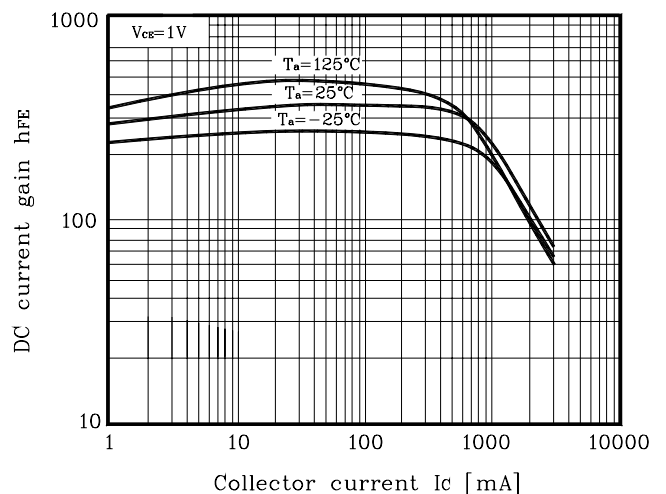


Fig. 6 $h_{FE} - I_C$



Electrical Characteristic Curves

Fig. 7 $h_{FE}-I_C$

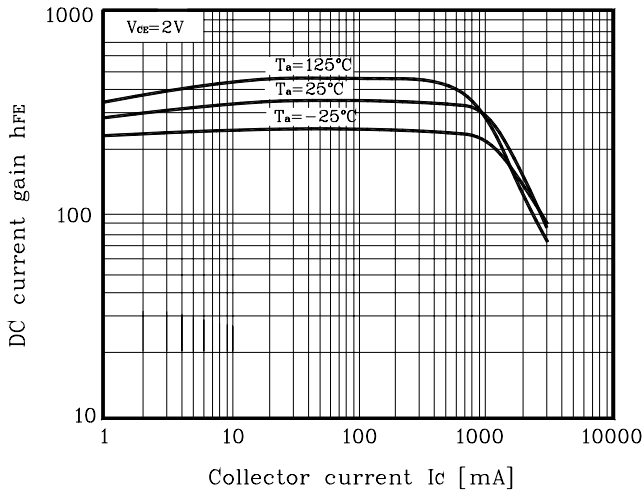


Fig. 8 $h_{FE}-I_C$

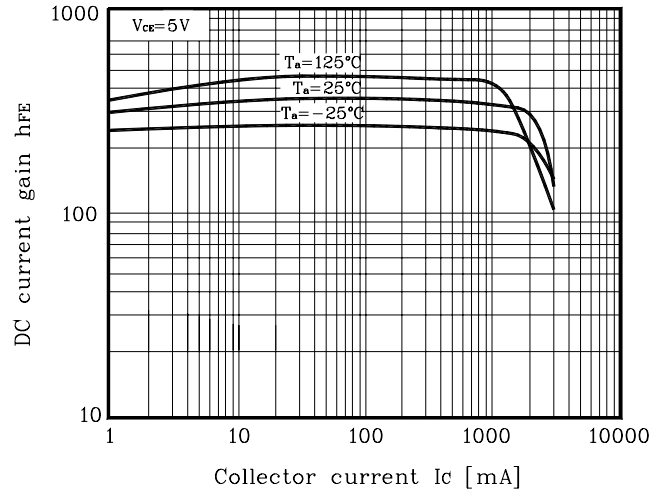


Fig. 9 $C_{ob} - V_{CB}$

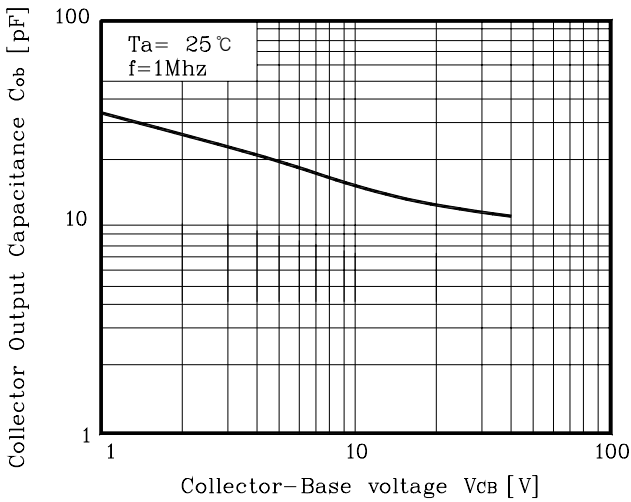


Fig. 10 $f_T - I_C$

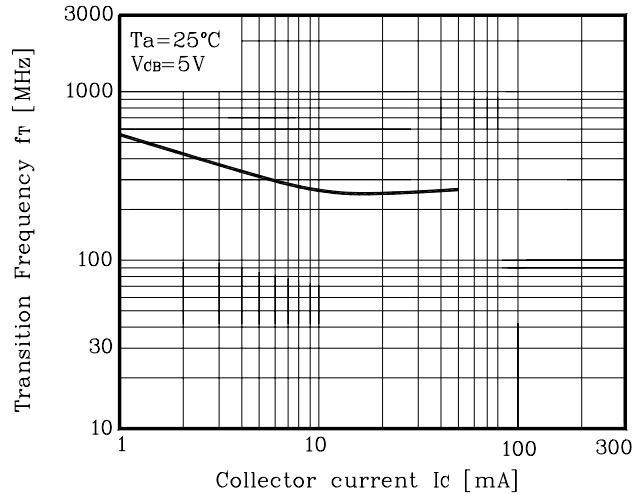
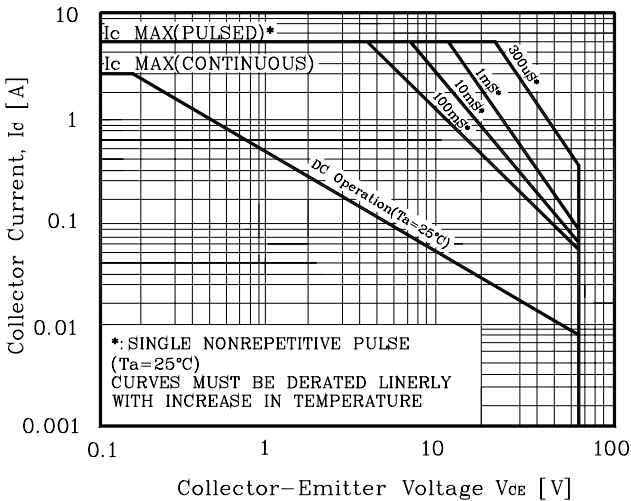
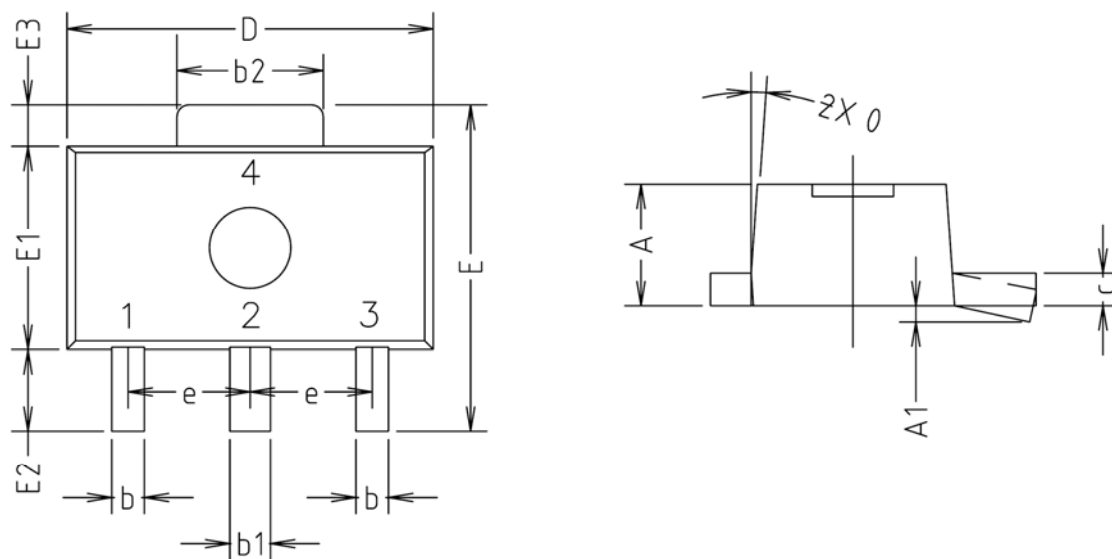


Fig. 11 Safe Operating Area

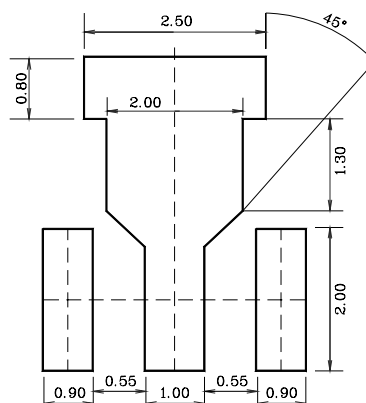


Outline Dimension(mm)



| SYMBOL | MILLIMETERS | | | NOTE |
|--------|-------------|---------|---------|------|
| | MINIMUM | NOMINAL | MAXIMUM | |
| A | 1.40 | 1.50 | 1.60 | |
| A1 | 0.00 | — | 0.10 | |
| b | 0.38 | 0.42 | 0.48 | |
| b1 | 0.48 | 0.52 | 0.58 | |
| b2 | 1.79 | 1.82 | 1.87 | |
| c | 0.40 | 0.42 | 0.46 | |
| D | 4.40 | 4.50 | 4.70 | |
| E | 3.70 | 4.00 | 4.30 | |
| E1 | 2.40 | 2.50 | 2.70 | |
| E2 | 0.80 | 1.00 | 1.20 | |
| E3 | 0.40 | 0.50 | 0.60 | |
| e | 1.50 TYP. | | | |
| θ | 4° TYP. | | | |

※Recommend PCB solder land [Unit: mm]



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