

## Features

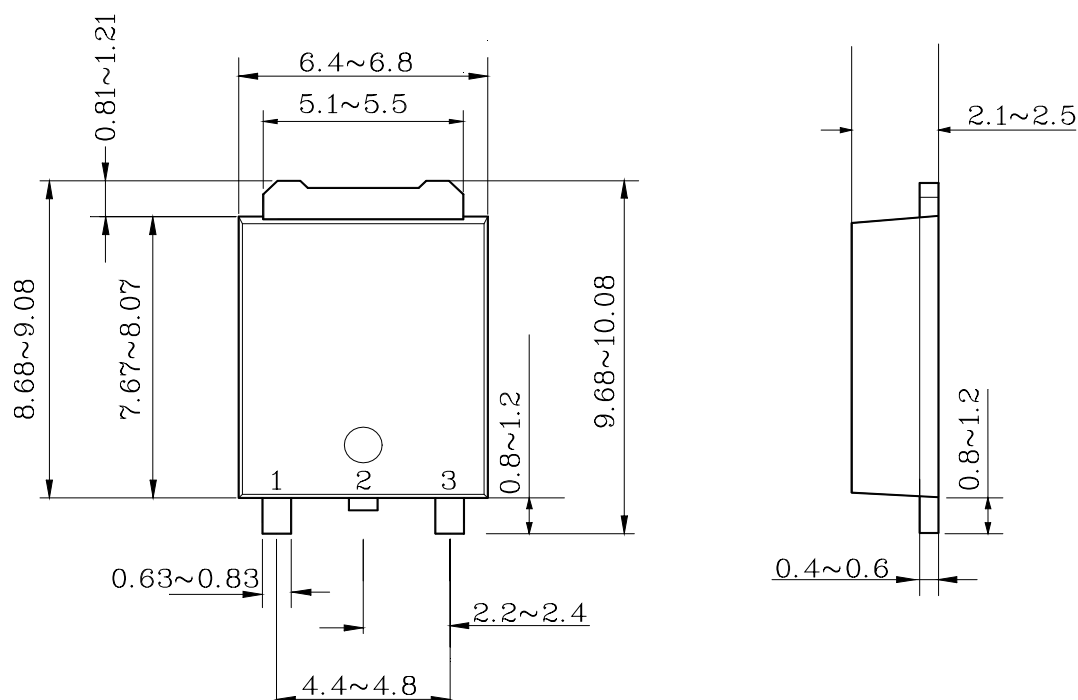
- Low saturation switching application
- Voltage regulator application
- High Voltage :  $V_{CEO}=60V$  Min.

## Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| STC405D  | STC405  | D-PAK        |

## Outline Dimensions

unit : mm



### PIN Connections

1. Base
2. Collector
3. Emitter

### Absolute maximum ratings

| Characteristic                                           | Symbol    | Rating  | Unit               |
|----------------------------------------------------------|-----------|---------|--------------------|
| Collector-Base voltage                                   | $V_{CBO}$ | 80      | V                  |
| Collector-Emitter voltage                                | $V_{CEO}$ | 60      | V                  |
| Emitter-base voltage                                     | $V_{EBO}$ | 5       | V                  |
| Collector current                                        | $I_C$     | 5       | A                  |
| Collector Power dissipation ( $T_c=25^{\circ}\text{C}$ ) | $P_C$     | 15      | W                  |
| Junction temperature                                     | $T_j$     | 150     | $^{\circ}\text{C}$ |
| Storage temperature                                      | $T_{stg}$ | -55~150 | $^{\circ}\text{C}$ |

### Electrical Characteristics

| Characteristic                       | Symbol        | Test Condition                            | Min. | Typ. | Max. | Unit          |
|--------------------------------------|---------------|-------------------------------------------|------|------|------|---------------|
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=80\text{V}, I_E=0$                | -    | -    | 10   | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=5\text{V}, I_C=0$                 | -    | -    | 10   | $\mu\text{A}$ |
| Collector-Emitter breakdown voltage  | $BV_{CEO}$    | $I_C=1\text{mA}, I_B=0$                   | 60   | -    | -    | V             |
| DC current gain                      | $h_{FE}$      | $V_{CE}=5\text{V}, I_C=1\text{A}$         | 200  | -    | 400  | -             |
|                                      |               | $V_{CE}=5\text{V}, I_C=3\text{A}$         | 80   | -    | -    | -             |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C=3\text{A}, I_B=300\text{mA}$         | -    | -    | 1    | V             |
| Base-Emitter saturation voltage      | $V_{BE(SAT)}$ | $I_C=3\text{A}, I_B=300\text{mA}$         | -    | -    | 1.5  | V             |
| Transition frequency                 | $f_T$         | $V_{CB}=5\text{V}, I_C=50\text{mA}$       | -    | 8    | -    | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ | -    | 25   | -    | pF            |

\* HFE rank : 200~400 Only

## Electrical Characteristic Curves

Fig. 1  $P_C - T_a$

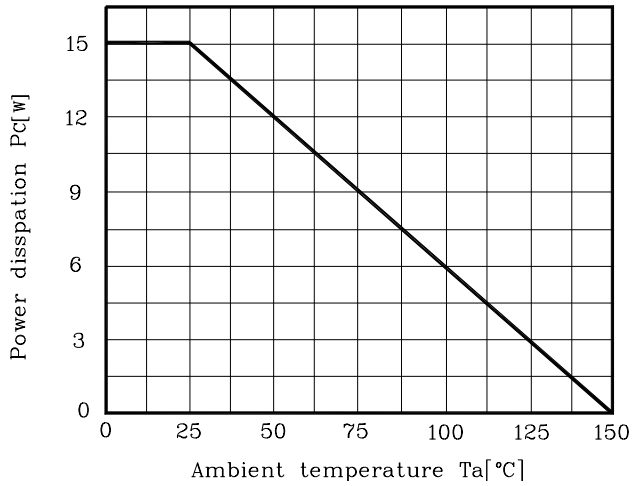


Fig. 2  $V_{CE(sat)} - I_C$

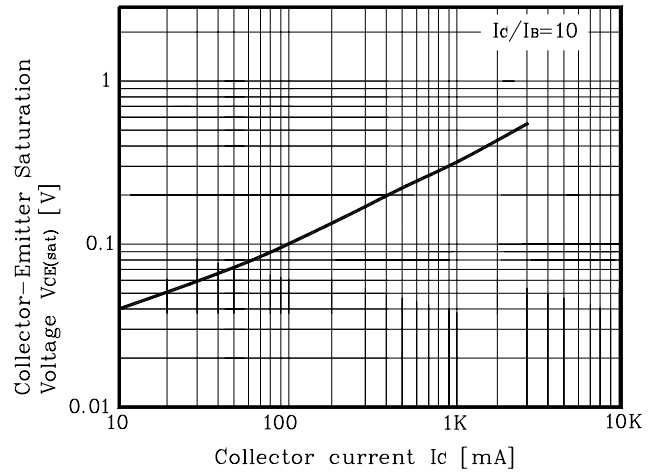


Fig. 3  $h_{FE} - I_C$

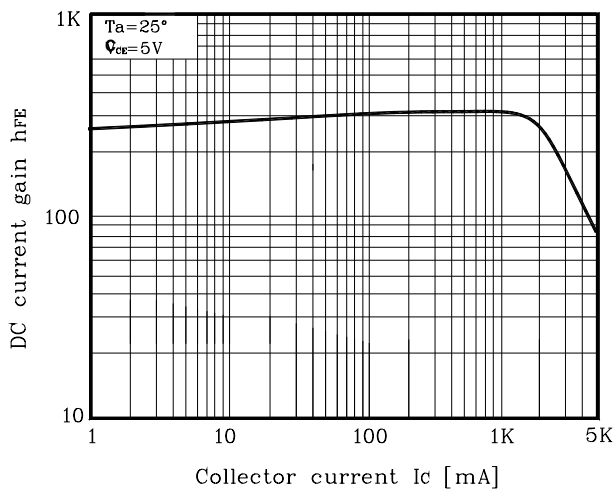


Fig. 4  $I_C - V_{CE}$

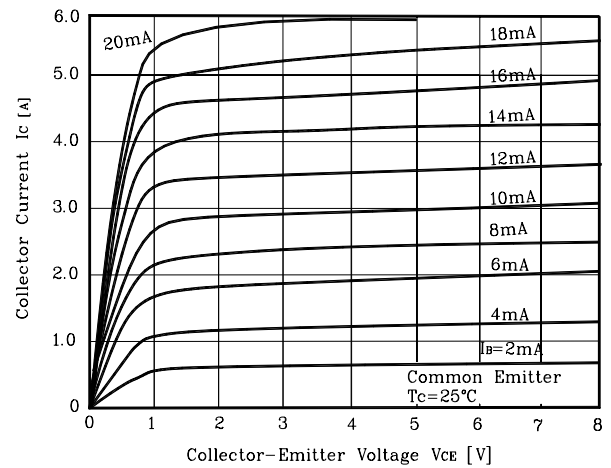
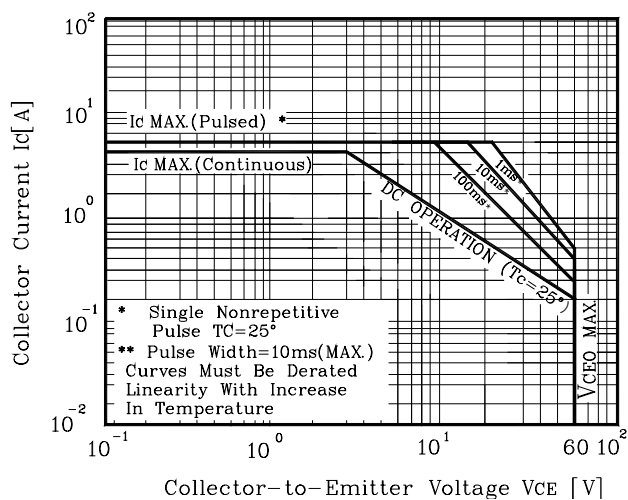


Fig. 5 Safe operating Area



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