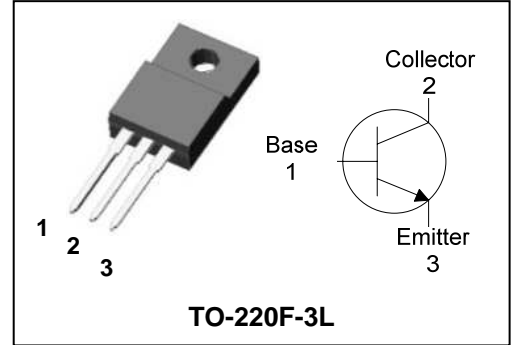


Features

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

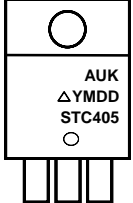
PIN Connection



Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| STC405 | STC405 | TO-220F-3L |

Marking Diagram

| | |
|--|--|
|  | <p>Column 1 : Manufacturer</p> <p>Column 2 : Production Information</p> <p style="padding-left: 20px;">- Δ : Factory Management Code</p> <p style="padding-left: 20px;">- YMDD : Date Code (Year, Month, Date)</p> <p>Column 3 : Device Code</p> |
|--|--|

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 ($T_c = 25^\circ C$) | P_C | 20 | W |
| Collector Power dissipation ($T_a = 25^\circ C$) | | 2 | |
| Junction temperature | T_j | 150 | $^\circ C$ |
| Storage temperature | T_{stg} | -55~150 | $^\circ C$ |

| Characteristic | | Symbol | Typ. | Max. | Unit |
|--------------------|------------------|---------------|------|------|--------------|
| Thermal resistance | Junction-case | $R_{th(J-C)}$ | - | 6.25 | $^\circ C/W$ |
| | Junction-ambient | $R_{th(J-A)}$ | - | 62.5 | |

Electrical Characteristics

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

* h_{FE} rank : 200~ 400 Only

Electrical Characteristic Curves

Fig. 1 $P_C - T_a$

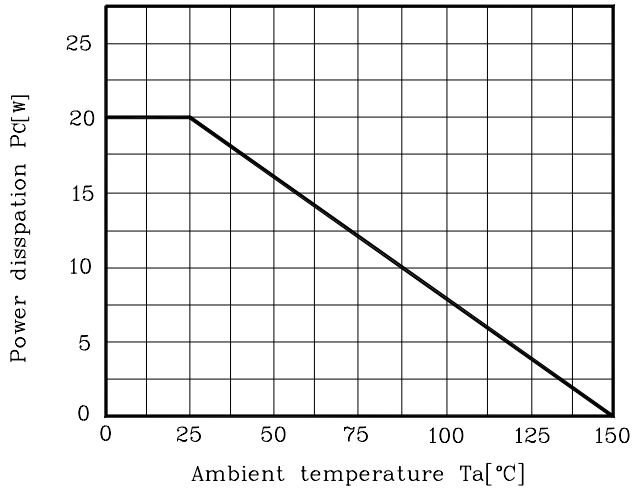


Fig. 2 $V_{CE(sat)} - I_C$

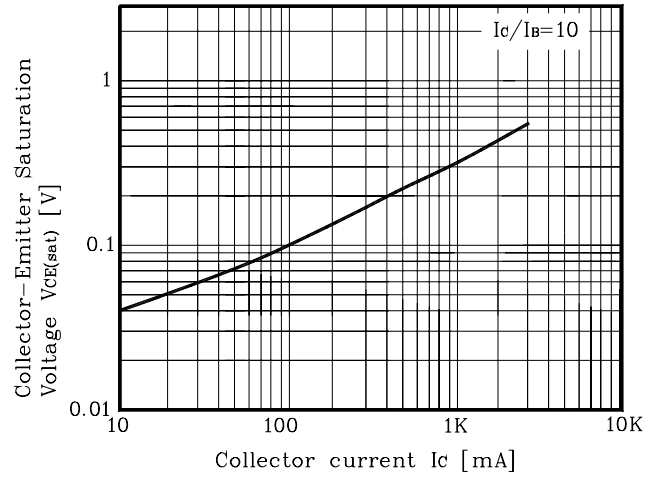


Fig. 3 $h_{FE} - I_C$

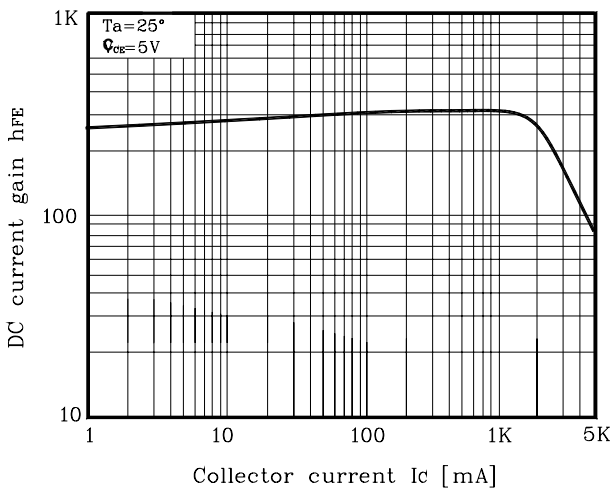


Fig. 4 $I_C - V_{CE}$

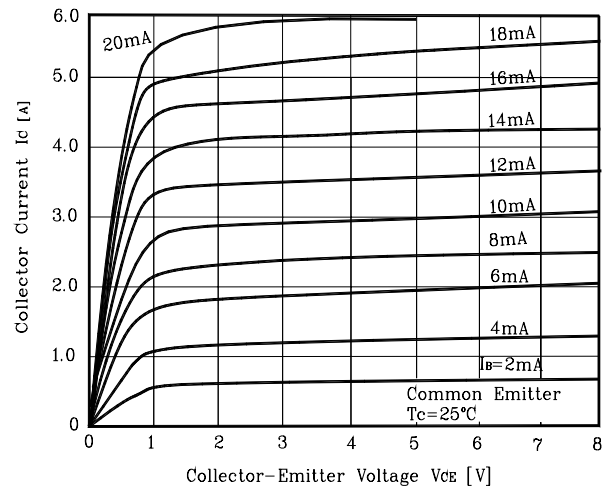
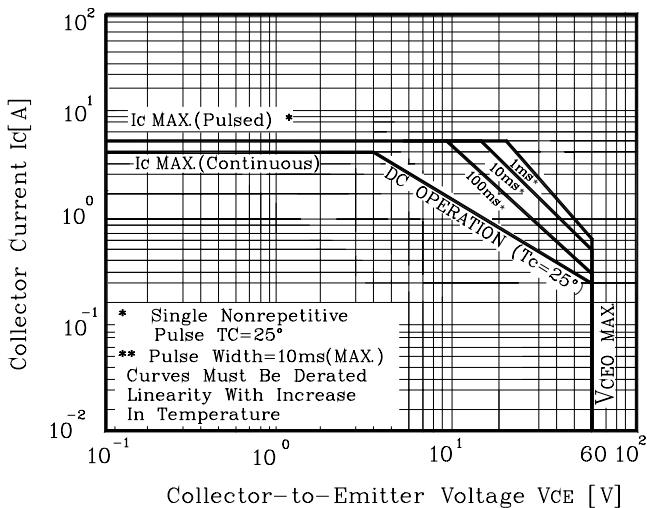
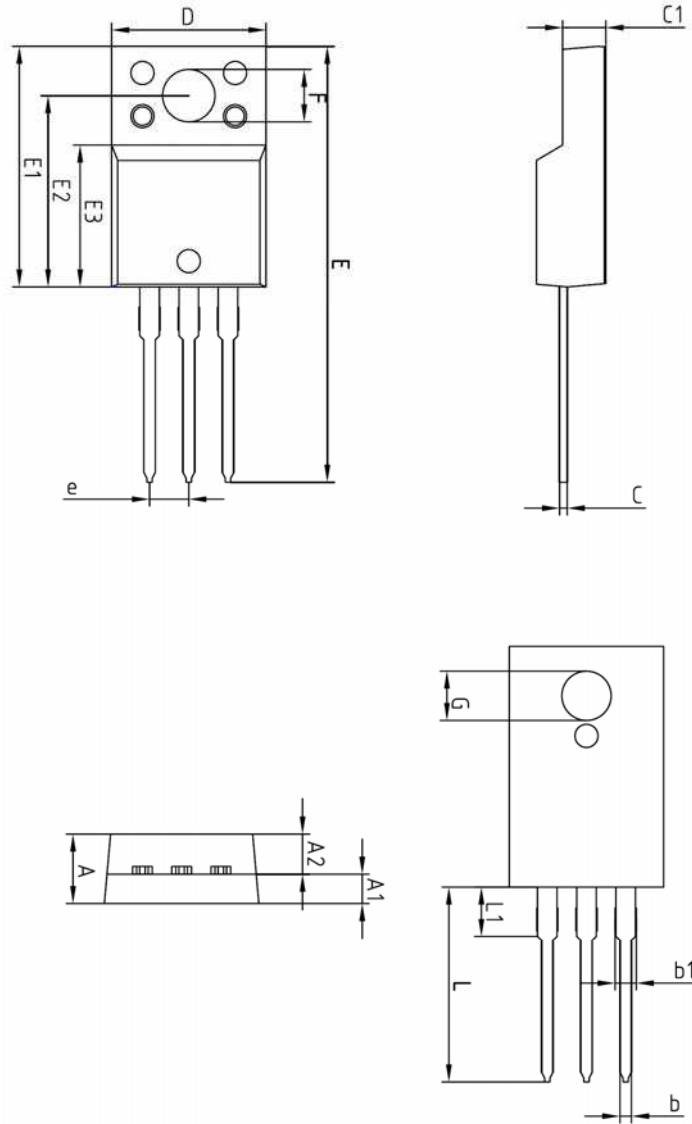


Fig. 5 Safe operating Area



Outline Dimension



| SYMBOL | MILLIMETERS | | | NOTE |
|--------|-------------|---------|---------|------|
| | MINIMUM | NOMINAL | MAXIMUM | |
| A | - | - | 4.60 | |
| A1 | 2.45 | 2.50 | 2.55 | |
| A2 | 1.95 | 2.00 | 2.05 | |
| b | 0.65 | 0.75 | 0.85 | |
| b1 | 1.07 | 1.27 | 1.47 | |
| C | 0.40 | 0.50 | 0.60 | |
| C1 | 2.70 | 2.80 | 2.90 | |
| D | 9.90 | 10.00 | 10.10 | |
| E | 28.00 | - | 28.60 | |
| E1 | 15.50 | 15.60 | 15.70 | |
| E2 | 12.30 | 12.40 | 12.50 | |
| E3 | 9.15 | 9.20 | 9.25 | |
| F | 3.30 | 3.40 | 3.50 | |
| G | 3.10 | 3.20 | 3.30 | |
| e | 2.54 BSC | | | |
| L | 12.40 | - | 13.00 | |
| L1 | 3.46 BSC | | | |

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