

Features

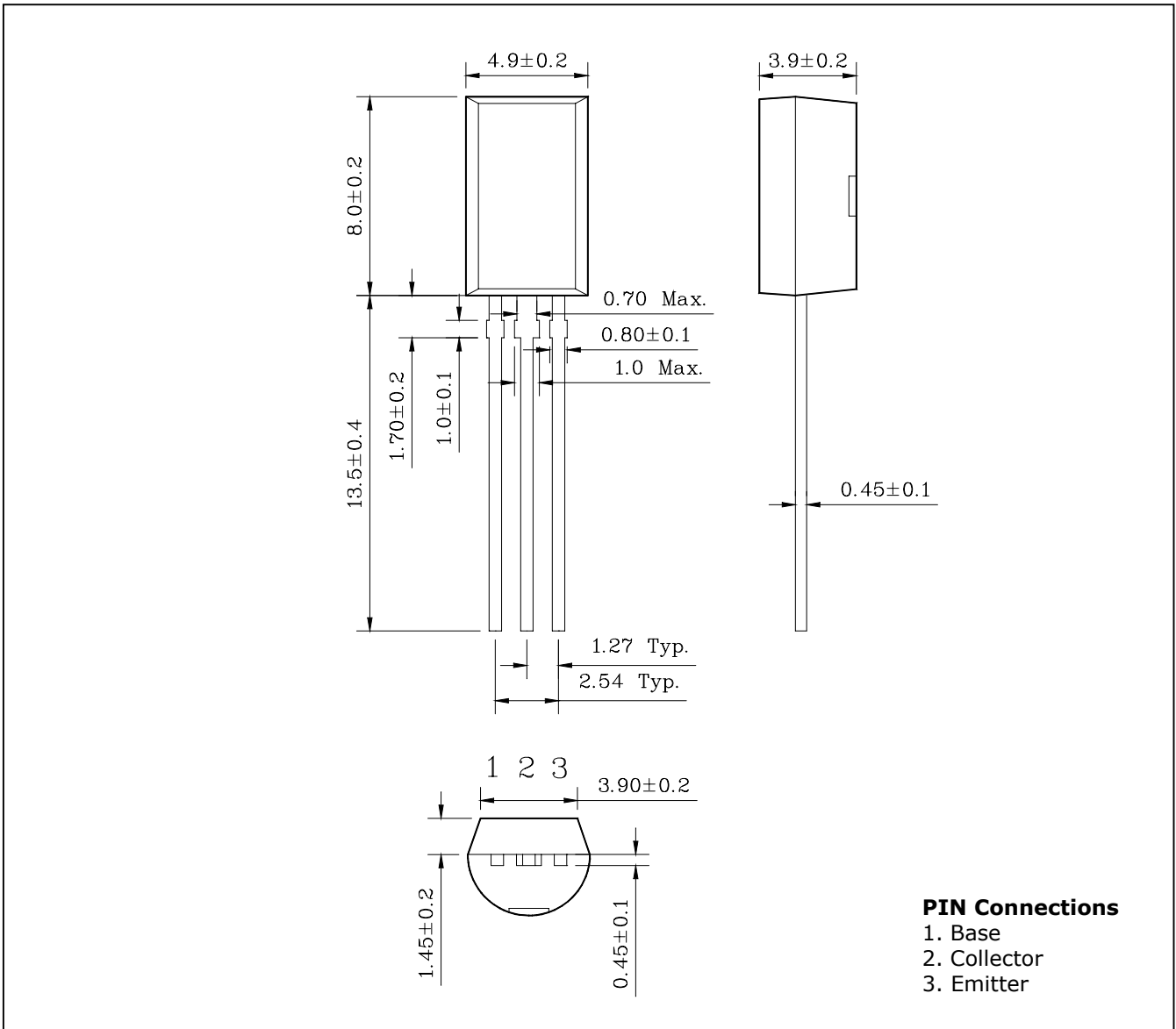
- High speed switching
- VCEO(sus)=400V
- Suitable for Switching Regulator and Motor Control

Ordering Information

| Type NO. | Marking | Package Code |
|-----------|----------|--------------|
| STD13003L | STD13003 | TO-92L |

Outline Dimensions

unit : mm



Absolute maximum ratings

(T_c=25°C)

| Characteristic | Symbol | Ratings | Unit |
|--|------------------|---------|------|
| Collector-Base voltage | V _{CB0} | 700 | V |
| Collector-Emitter voltage | V _{CEO} | 400 | V |
| Emitter-base voltage | V _{EBO} | 9 | V |
| Collector current (DC) | I _C | 1.5 | A |
| Collector current (Pulse) | I _{CP} | 3 | A |
| Base current (DC) | I _B | 0.75 | A |
| Total Power dissipation (T _a =25°C) | P _C | 1.5 | W |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55~150 | °C |

Electrical Characteristics

(T_c=25°C)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|------------------------|--|------|------|------|------|
| Collector-Emitter sustaining voltage | V _{CE(sus)} | I _C =5mA, I _B =0 | 400 | - | - | V |
| Emitter cut-off current | I _{EBO} | V _{EB} =9V, I _C =0 | - | - | 10 | uA |
| DC Current gain | h _{FE} * | I _C =0.5A, V _{CE} =2V | 8 | - | 40 | |
| | | I _C =1A, V _{CE} =2V | 5 | - | - | |
| Collector-Emitter saturation voltage | V _{CE(sat)} * | I _C =0.5A, I _B =0.1A | - | - | 0.5 | V |
| | | I _C =1A, I _B =0.25A | - | - | 1 | |
| | | I _C =1.5A, I _B =0.5A | - | - | 3 | |
| Base-Emitter saturation voltage | V _{BE(sat)} * | I _C =0.5A, I _B =0.1A | - | - | 1 | V |
| | | I _C =1A, I _B =0.25A | - | - | 1.2 | |
| Transition frequency | f _T | V _{CB} =10V, I _C =0.1A, f=1MHz | 4 | - | - | MHz |
| Output capacitance | C _{ob} | V _{CB} =10V, I _E =0, f=0.1MHz | - | 21 | - | pF |
| Turn on Time | t _{on} | V _{CC} =125V, I _C =1A I _{B1} =-I _{B2} =0.2A | - | - | 1.1 | μs |
| Storage Time | t _{stg} | | - | - | 4 | |
| Fall Time | t _f | | - | - | 0.7 | |

* Pulse test: PW ≤ 300 μs, Duty cycle ≤ 2% Pulse

Electrical Characteristic Curves

Fig. 1 $I_C - V_{CE}$

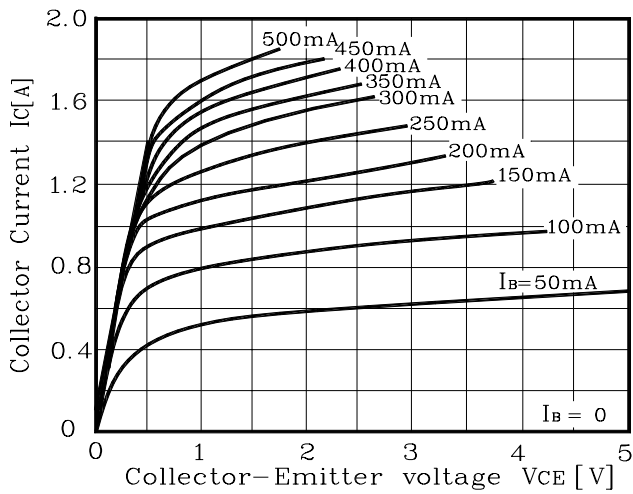


Fig. 2 $V_{BE(sat)}, V_{CE(sat)} - I_C$

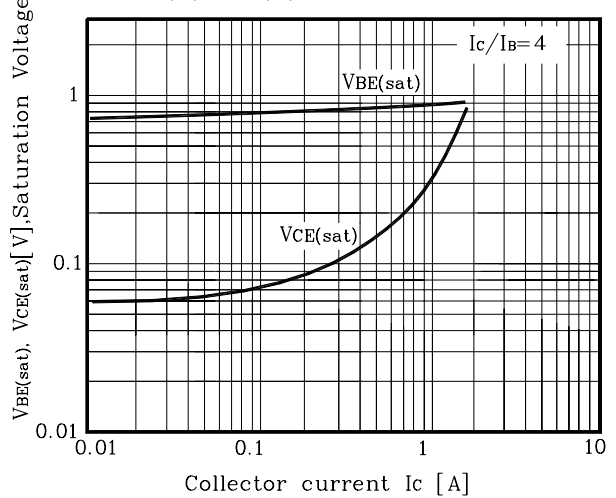


Fig. 3 $h_{FE} - I_C$

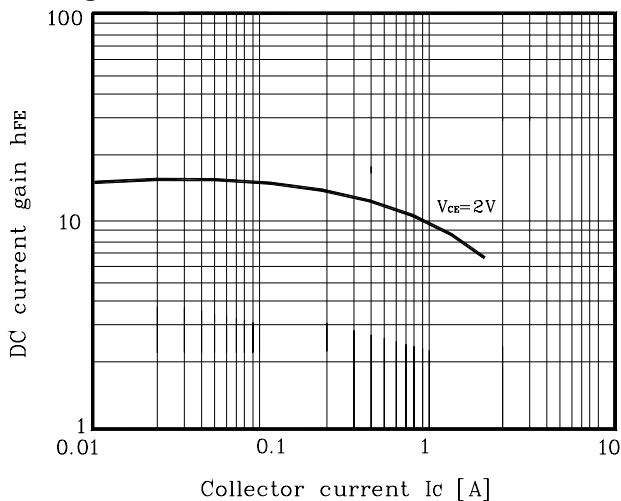


Fig. 4 Turn off time

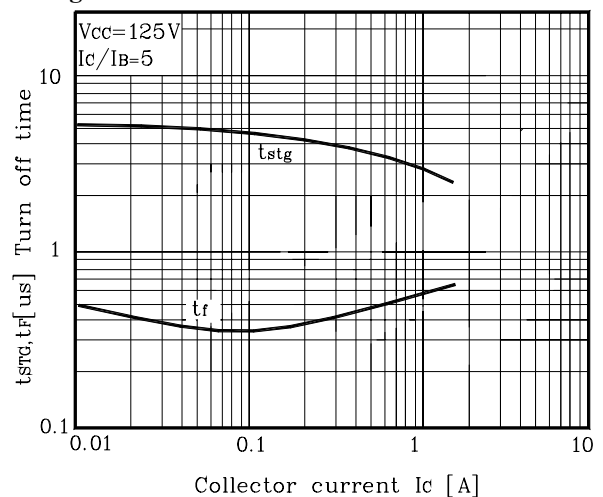


Fig. 5 Turn on time

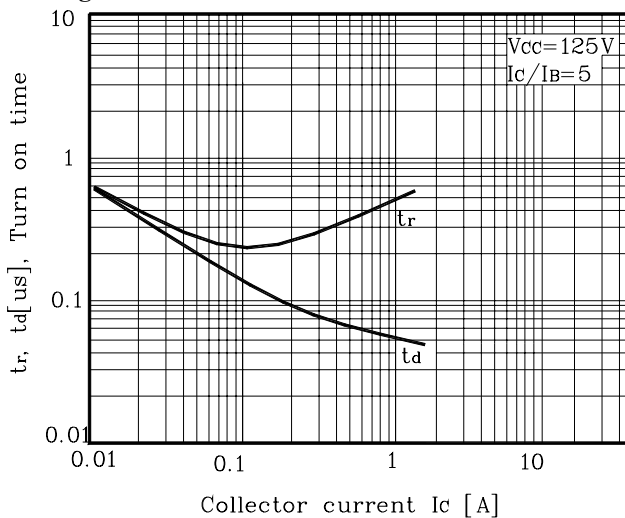


Fig. 6 Safe Operating Area

