



FUKUCOM COMPANY LTD.

福 靈 有 限 公 司

FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,
KWUN TONG, KOWLOON, HONG KONG.

TEL: 2790-0314 FAX: 2790-0206

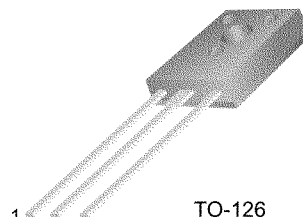
KSE13003

FAIRCHILD
SEMICONDUCTOR®

KSE13003

High Voltage Switch Mode Applications

- High Speed Switching
- Suitable for Switching Regulator and Motor Control



TO-126
1. Emitter 2. Collector 3. Base

NPN Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage | 700 | V |
| V_{CEO} | Collector-Emitter Voltage | 400 | V |
| V_{EBO} | Emitter-Base Voltage | 9 | V |
| I_C | Collector Current (DC) | 1.5 | A |
| I_{CP} | Collector Current (Pulse) | 3 | A |
| I_B | Base Current | 0.75 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 20 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 65 ~ 150 | $^\circ\text{C}$ |

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---------------|---------------------------------------|---|--------|------|---------------|---------------|
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = 5\text{mA}, I_B = 0$ | 400 | | | V |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 9\text{V}, I_C = 0$ | | | 10 | μA |
| h_{FE} | *DC Current Gain | $V_{CE} = 2\text{V}, I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$ | 8 5 | | 40 | |
| $V_{CE(sat)}$ | *Collector Emitter Saturation Voltage | $I_C = 0.5\text{A}, I_B = 0.1\text{A}$ $I_C = 1\text{A}, I_B = 0.25\text{A}$ $I_C = 1.5\text{A}, I_B = 0.5\text{A}$ | | | 0.5 1 3 | V V V |
| $V_{BE(sat)}$ | *Base Emitter Saturation Voltage | $I_C = 0.5\text{A}, I_B = 0.1\text{A}$ $I_C = 1\text{A}, I_B = 0.25\text{A}$ | | | 1 1.2 | V V |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, f = 0.1\text{MHz}$ | | 21 | | pF |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 10\text{V}, I_C = 0.1\text{A}$ | 4 | | | MHz |
| t_{ON} | Turn On Time | $V_{CC} = 125\text{V}, I_C = 1\text{A}$ | | | 1.1 | μs |
| t_{STG} | Storage Time | $I_{B1} = 0.2\text{A}, I_{B2} = -0.2\text{A}$ | | | 4.0 | μs |
| t_F | Fall Time | $R_L = 125\Omega$ | | | 0.7 | μs |

* Pulse Test: Pulse Width=5ms, Duty Cycles \leq 10%



FUKUCOM COMPANY LTD.

福 靈 有 限 公 司

FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,
KWUN TONG, KOWLOON, HONG KONG.

TEL: 2790-0314 FAX: 2790-0206

KSE13003

Typical Characteristics

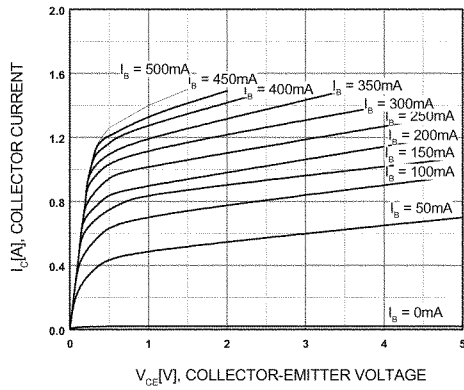


Figure 1. Static Characteristic

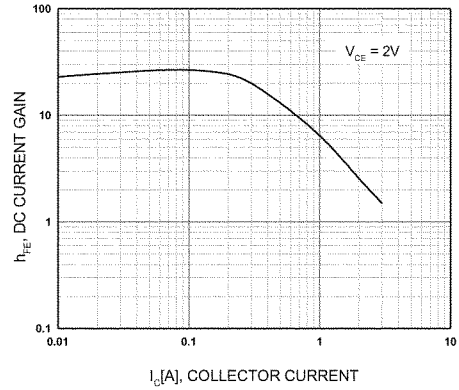


Figure 2. DC current Gain

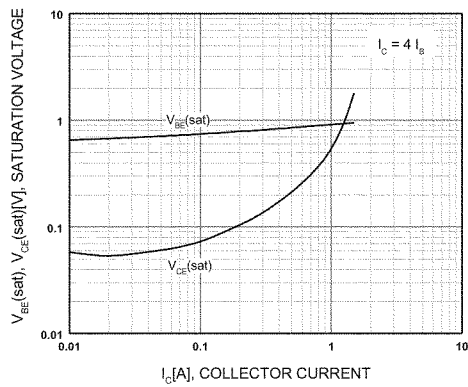


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

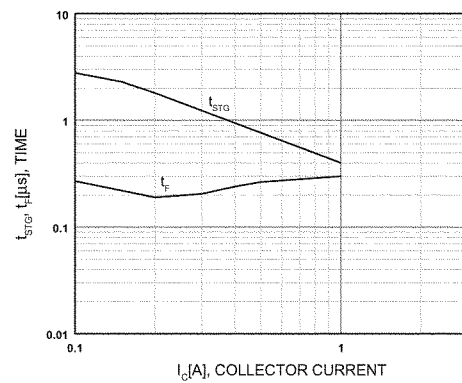


Figure 4. Switching Time

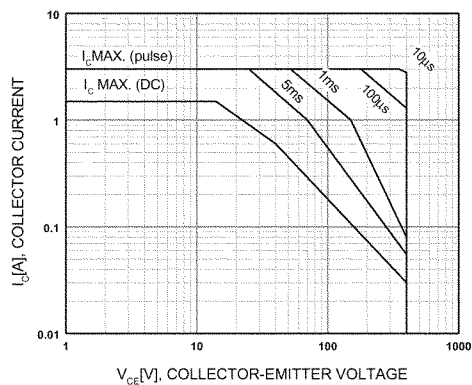


Figure 5. Safe Operating Area

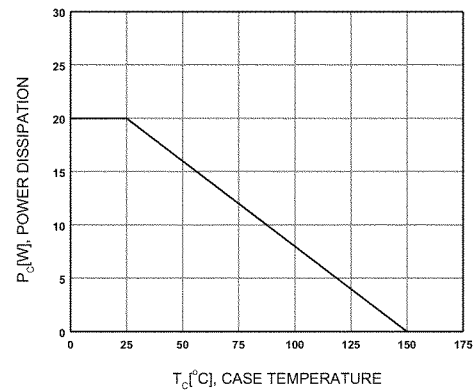


Figure 6. Power Derating



FUKUCOM COMPANY LTD.

福 靈 有 限 公 司

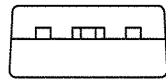
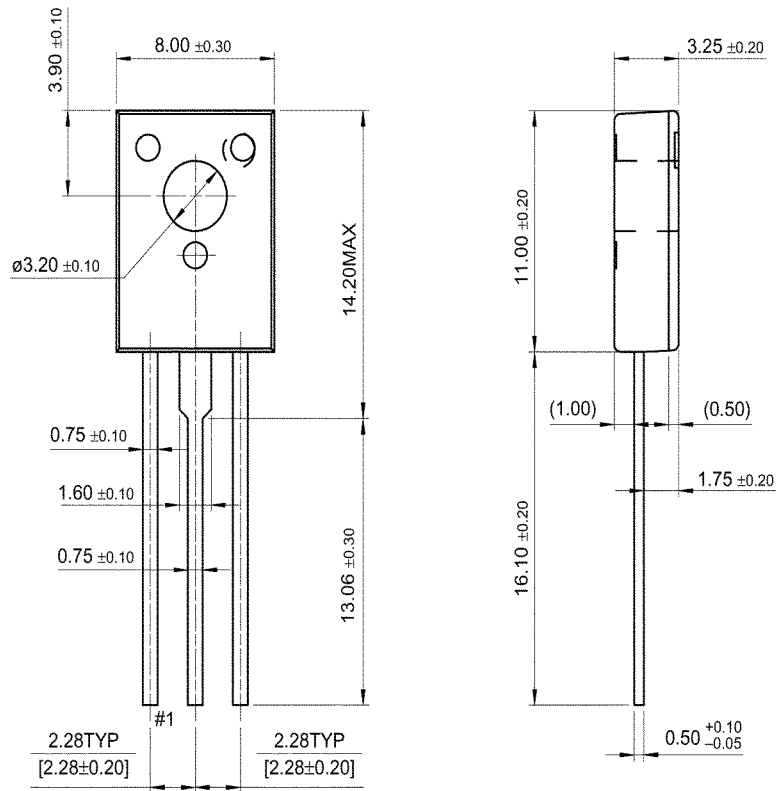
FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,
KWUN TONG, KOWLOON, HONG KONG.

TEL: 2790-0314 FAX: 2790-0206

KSE13003

Package Dimensions

TO-126



Dimensions in Millimeters