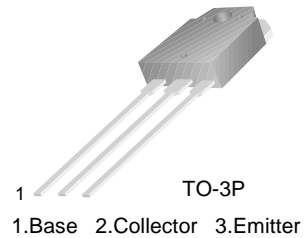


KSE13009L

KSE13009L

High Voltage Switch Mode Applications

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



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) | 12 | A |
| I_{CP} | Collector Current (Pulse) | 24 | A |
| I_B | Base Current | 6 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 130 | 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 |
|----------------|--------------------------------------|---|--------|------|---------------|---------------|
| $V_{CEO(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = 10\text{mA}, I_B = 0$ | 400 | | | V |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 7\text{V}, I_C = 0$ | | | 1 | mA |
| h_{FE} | DC Current Gain | $V_{CE} = 5\text{V}, I_C = 5\text{A}$ $V_{CE} = 5\text{V}, I_C = 8\text{A}$ | 8 6 | | 40 30 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 5\text{A}, I_B = 1\text{A}$ $I_C = 8\text{A}, I_B = 1.6\text{A}$ $I_C = 12\text{A}, I_B = 3\text{A}$ | | | 1 1.5 3 | V V V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 5\text{A}, I_B = 1\text{A}$ $I_C = 8\text{A}, I_B = 1.6\text{A}$ | | | 1.2 1.6 | V V |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, f = 0.1\text{MHz}$ | | 180 | | pF |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 10\text{V}, I_C = 0.5\text{A}$ | 4 | | | MHz |
| t_{ON} | Turn ON Time | $V_{CC} = 125\text{V}, I_C = 8\text{A}$ | | | 1.1 | μs |
| t_{STG} | Storage Time | $I_{B1} = - I_{B2} = 1.6\text{A}$ | | | 3 | μs |
| t_F | Fall Time | $R_L = 15,6\Omega$ | | | 0.7 | μs |

* Pulse test: $PW \leq 300\mu\text{s}$, Duty cycle $\leq 2\%$ Pulse

Typical Characteristics

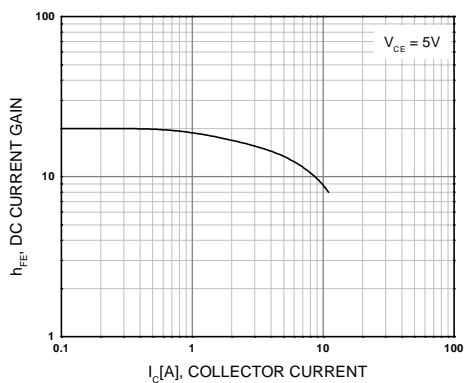


Figure 1. DC current Gain

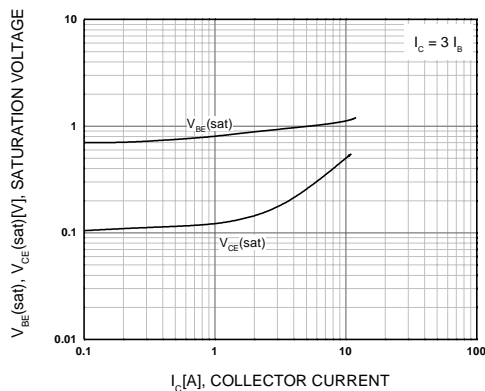


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

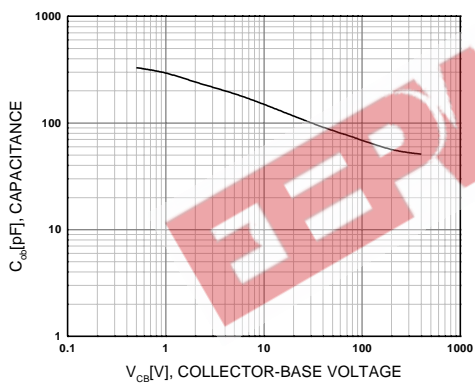


Figure 3. Collector Output Capacitance

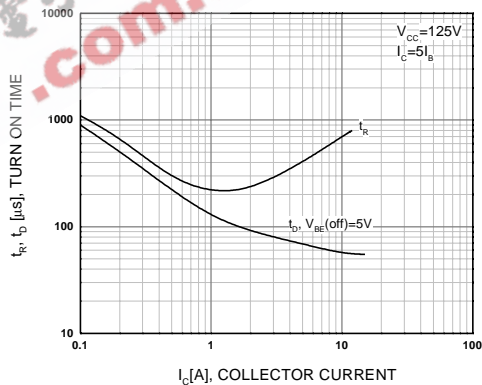


Figure 4. Turn On Time

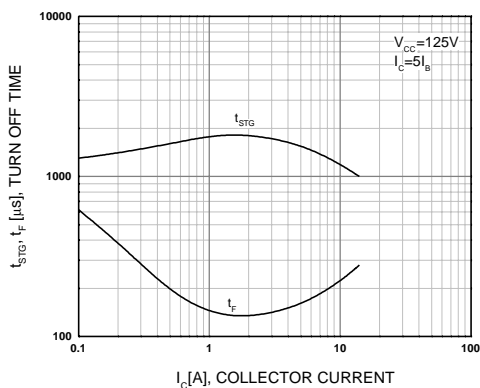
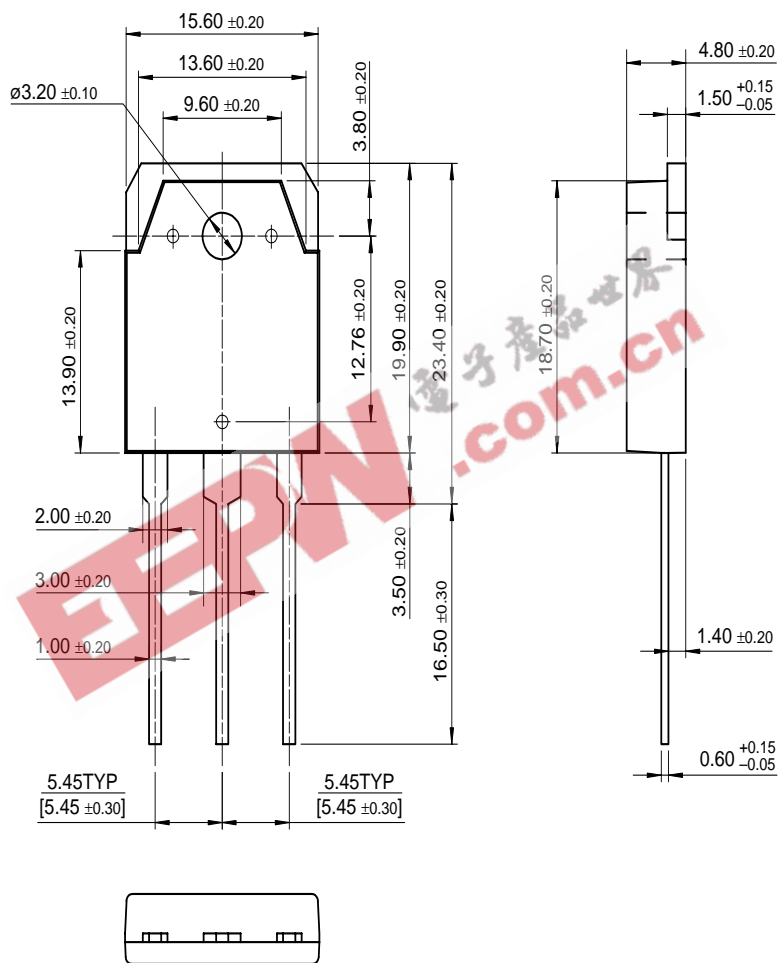


Figure 5. Turn Off Time

Package Demensions

TO-3P



Dimensions in Millimeters

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