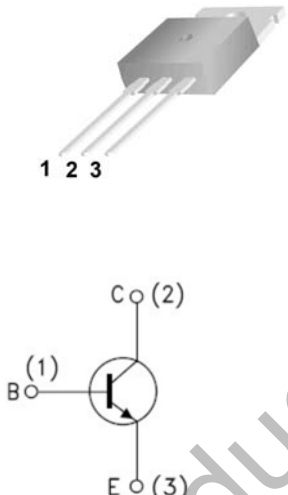


WGD13009

High Voltage Switch Mode Application


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

TO-220



1 2 3

1. Base (B)
2. Collector (C)
3. Emitter (E)



Absolute Maximum Ratings (Ta=25°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°C) | 100 | W |
| T _J | Junction Temperature | 150 | °C |
| T _{STG} | Storage Temperature | - 65 ~ 150 | °C |

Electrical Characteristics T_C=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|-----------------------|--|---|--------|------|---------------|-------------|
| V _{CEO(sus)} | Collector-Emitter Sustaining Voltage | I _C = 10mA, I _B = 0 | 400 | | | V |
| I _{EBO} | Emitter Cut-off Current | V _{EB} = 9V, I _C = 0 | | | 1 | mA |
| h _{FE} | * DC Current Gain | V _{CE} = 5V, I _C = 5A V _{CE} = 5V, I _C = 8A | 8 6 | | 40 30 | |
| V _{CE(sat)} | * Collector-Emitter Saturation Voltage | I _C = 5A, I _B = 1A I _C = 8A, I _B = 1.6A I _C = 12A, I _B = 3A | | | 1 1.5 3 | V V V |
| V _{BE(sat)} | * Base-Emitter Saturation Voltage | I _C = 5A, I _B = 1A I _C = 8A, I _B = 1.6A | | | 1.2 1.6 | V V |
| C _{ob} | Output Capacitance | V _{CB} = 10V, f = 0.1MHz | | 180 | | pF |
| f _T | Current Gain Bandwidth Product | V _{CE} = 10V, I _C = 0.5A | 4 | | | MHz |
| t _{ON} | Turn On Time | V _{CC} = 125V, I _C = 8A | | | 1.1 | μs |
| t _{STG} | Storage Time | I _{B1} = - I _{B2} = 1.6A | | | 3 | μs |
| t _F | Fall Time | R _L = 15,6Ω | | | 0.7 | μs |

* Pulse test: PW≤300μs, Duty cycle≤2%

Typical Characteristics

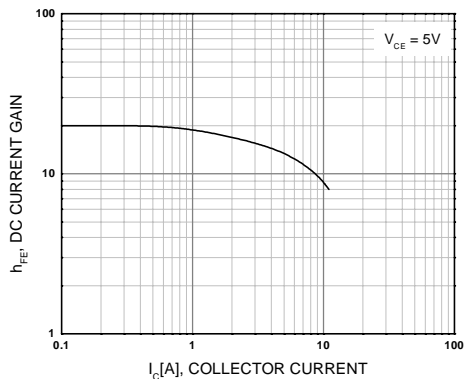


Figure 1. DC current Gain

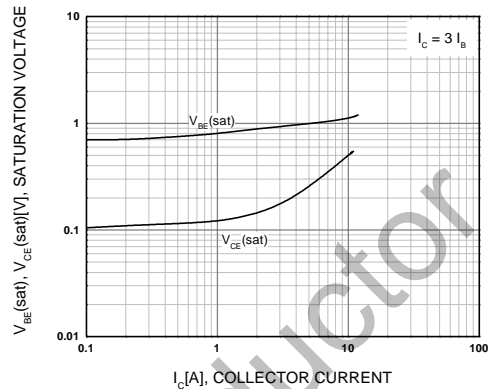


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

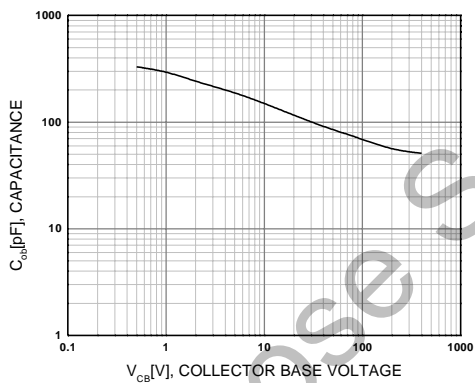


Figure 3. Collector Output Capacitance

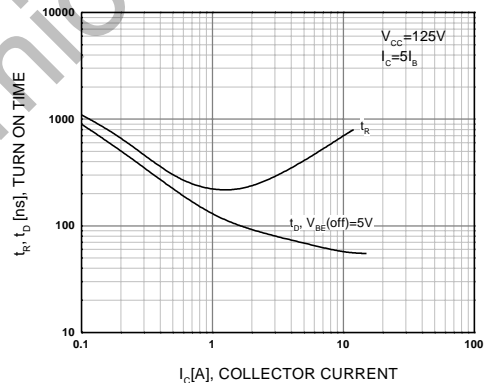


Figure 4. Turn On Time

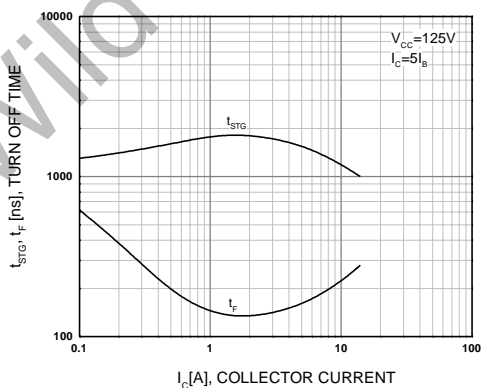


Figure 5. Turn Off Time

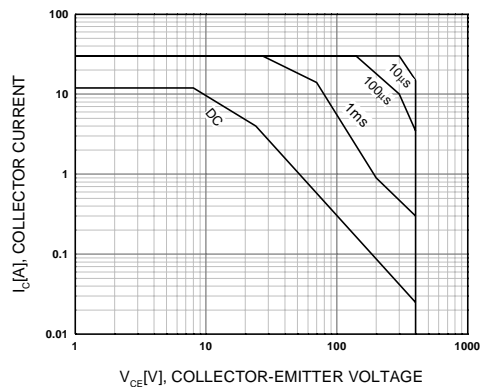


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics

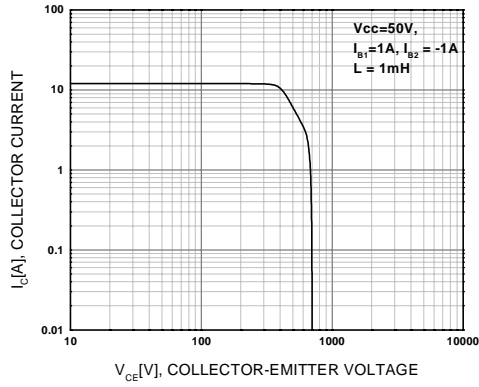


Figure 7. Reverse Bias Safe Operating Area

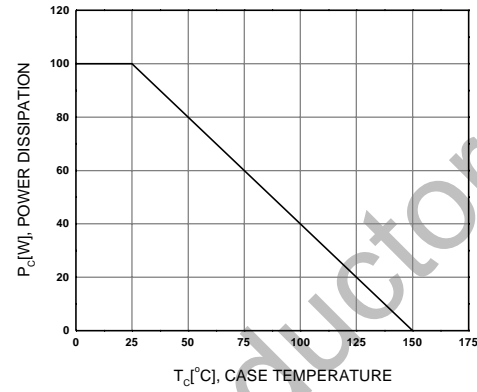


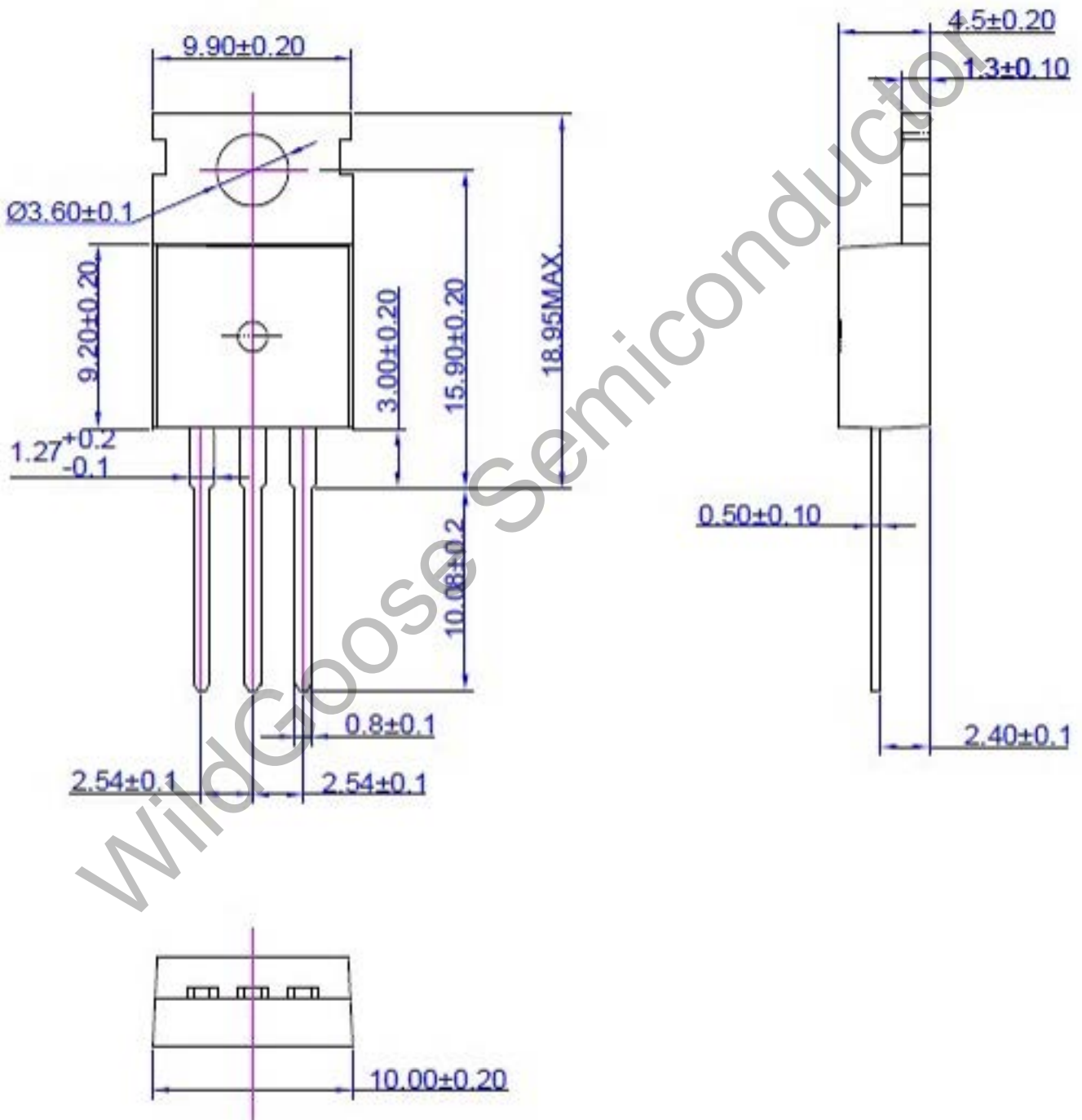
Figure 8. Power Derating

WildGoose Semiconductor

Package Dimension

TO-220

Unit: mm



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