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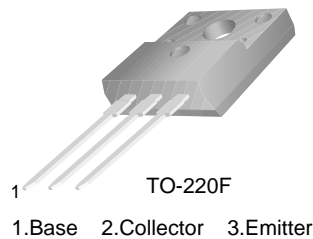
May 2007



FJPF3305

High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Electronic Ballast and Switching Regulator



Absolute Maximum Ratings * $T_a = 25^{\circ}\text{C}$ 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) | 4 | A |
| I_{CP} | Collector Current (Pulse) | 8 | A |
| I_B | Base Current | 2 | A |
| P_C | Collector Dissipation ($T_a = 25^{\circ}\text{C}$) | 30 | W |
| T_J | Junction Temperature | 150 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | -65 ~ 150 | $^{\circ}\text{C}$ |

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

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

| Symbol | Parameter | Conditions | Min. | Typ. | Max | Units |
|------------------------|--------------------------------------|--|---------|------|-------------------|---------------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = 500\mu\text{A}, I_E = 0$ | 700 | | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = 5\text{mA}, I_B = 0$ | 400 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = 500\mu\text{A}, I_C = 0$ | 9 | | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 700\text{V}, I_E = 0$ | | | 1 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 9\text{V}, I_C = 0$ | | | 1 | μA |
| h_{FE1} h_{FE2} | DC Current Gain * | $V_{CE} = 5\text{V}, I_C = 1\text{A}$ $V_{CE} = 5\text{V}, I_C = 2\text{A}$ | 19 8 | | 35 40 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 1\text{A}, I_B = 0.2\text{A}$ $I_C = 2\text{A}, I_B = 0.5\text{A}$ $I_C = 4\text{A}, I_B = 1\text{A}$ | | | 0.5 0.6 1.0 | V V V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 1\text{A}, I_B = 0.2\text{A}$ $I_C = 2\text{A}, I_B = 0.5\text{A}$ | | | 1.2 1.6 | V V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 5\text{V}, I_C = 1\text{A}$ | 4 | | | MHz |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, f = 1\text{MHz}$ | | 65 | | pF |
| t_{ON} | Turn On Time | $V_{CC} = 125\text{V}$ $I_C = 2\text{A} = 5I_{B1} = -5I_{B2}$ $R_L = 62.5\Omega$ | | | 0.8 | μs |
| t_{STG} | Storage Time | | | | 4.0 | μs |
| t_F | Fall Time | | | | 0.9 | μs |

* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$ **h_{FE} Classification**

| Classification | H1 | H2 |
|----------------|---------|---------|
| h_{FE2} | 19 ~ 28 | 26 ~ 35 |

Typical Performance Characteristics

Figure 1. Static Characteristic

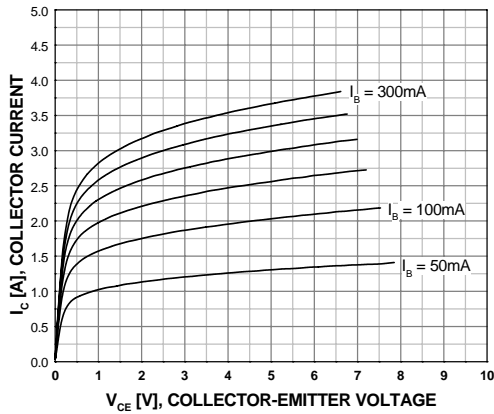


Figure 2. DC Current Gain (R-Grade)

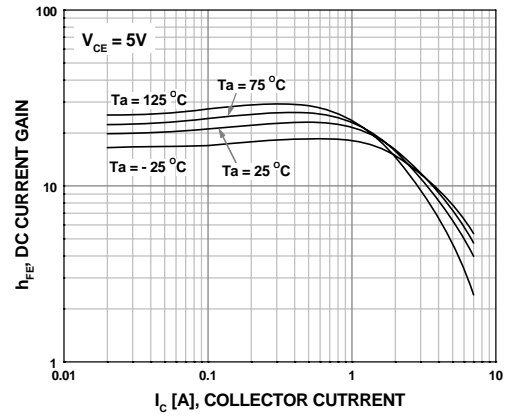


Figure 3. DC Current Gain (O-Grade)

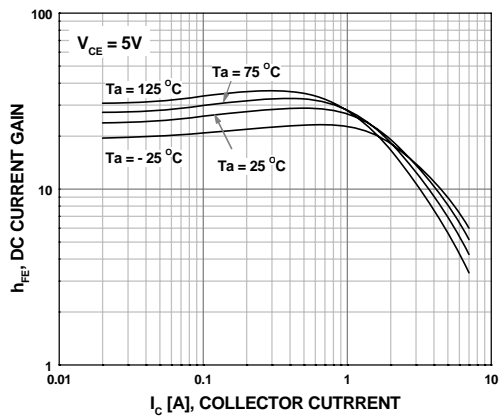


Figure 4. Saturation Voltage (R-Grade)

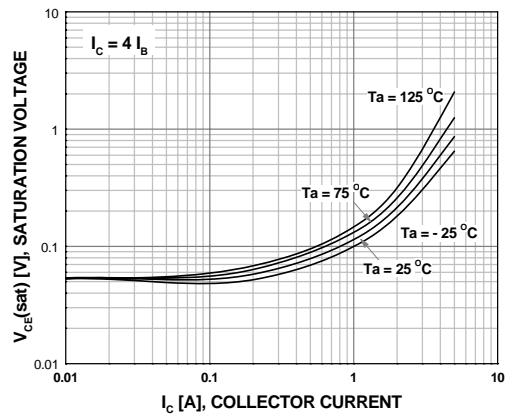


Figure 5. Saturatin Voltage (O-Grade)

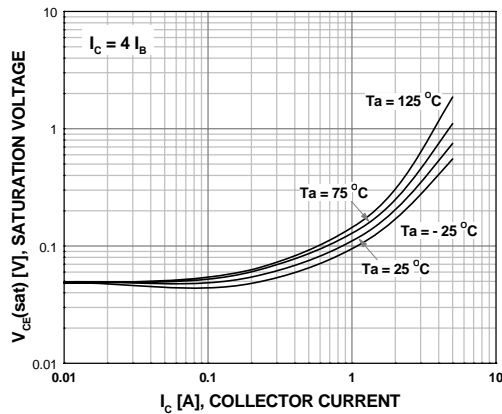
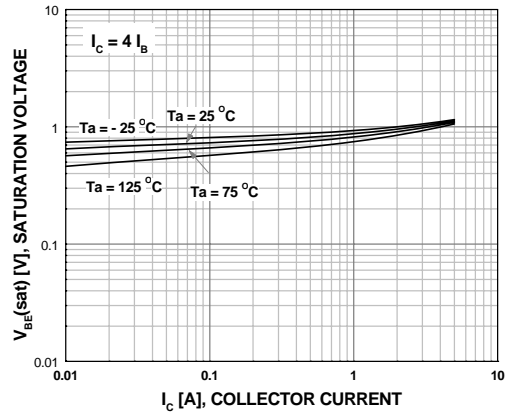


Figure 6. Saturation Voltage (R-Grade)



Typical Performance Characteristics (Continued)

Figure 7. Saturation Voltage (O-Grade)

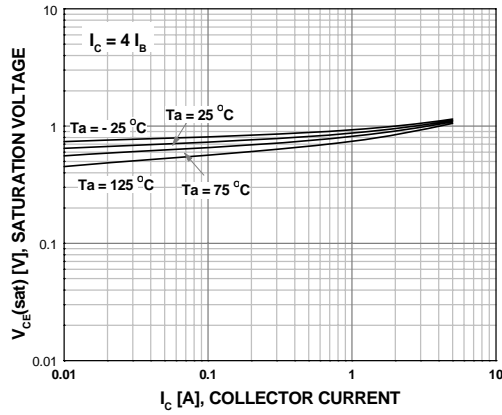


Figure 8. Switching Time

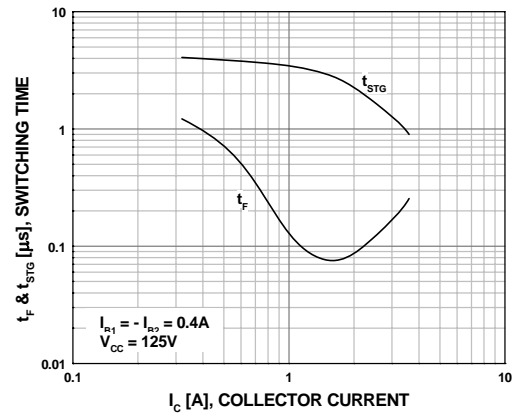


Figure 9. Reverse Biased Safe Operating Area

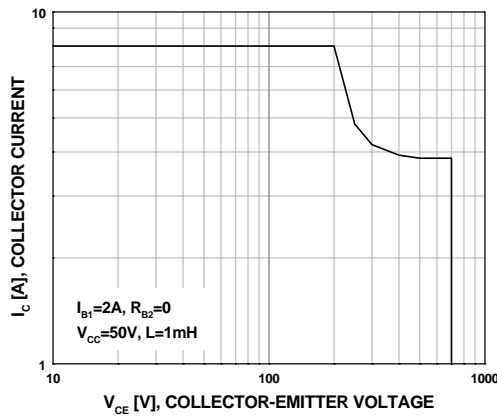


Figure 10. Forward Biased Safe Operating Area

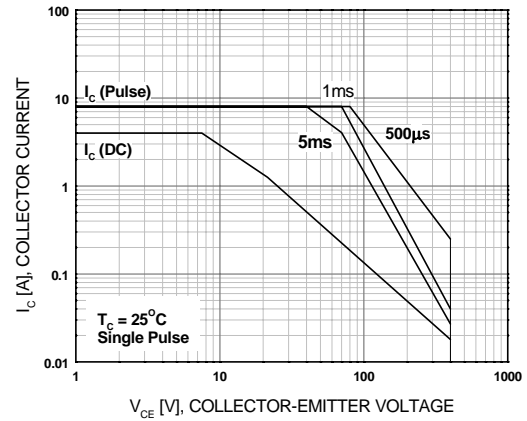
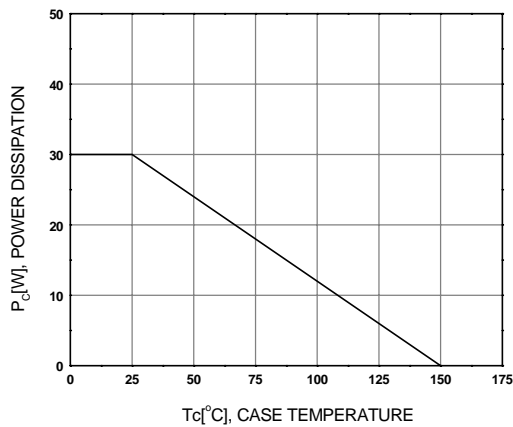


Figure 11. Power Derating



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