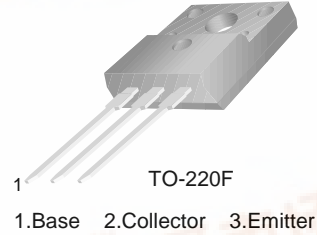


FAIRCHILD
SEMICONDUCTOR®

FJPF5021

High Voltage and High Reliability

- High Speed Switching : $t_F = 0.1\mu s$ (Typ.)
- Wide SOA



NPN Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------|
| V_{CBO} | Collector-Base Voltage | 800 | V |
| V_{CEO} | Collector-Emitter Voltage | 500 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current (DC) | 5 | A |
| I_{CP} | Collector Current (Pulse) | 10 | A |
| I_B | Base Current | 2 | A |
| P_C | Collector Dissipation ($T_C=25^\circ C$) | 40 | W |
| T_J | Junction Temperature | 150 | $^\circ C$ |
| T_{STG} | Storage Temperature | - 55 ~ 150 | $^\circ C$ |

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|------------------------|--------------------------------------|---|---------|------|------|---------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = 1mA, I_E = 0$ | 800 | | | V |
| BV_{CEO} | Collector-Emitter Sustaining Voltage | $I_C = 5mA, I_B = 0$ | 500 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = 1mA, I_C = 0$ | 7 | | | V |
| $V_{CEX(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = 2.5A, I_{B1} = -I_{B2} = 1A$ $L = 1mH, Clamped$ | 500 | | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 500V, I_E = 0$ | | | 10 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5V, I_C = 0$ | | | 10 | μA |
| h_{FE1} h_{FE2} | DC Current Gain | $V_{CE} = 5V, I_C = 0.6A$ $V_{CE} = 5V, I_C = 3A$ | 15 8 | | 50 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 3A, I_B = 0.6A$ | | | 1 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 3A, I_B = 0.6A$ | | | 1.5 | V |
| C_{ob} | Output Capacitance | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | | 80 | | pF |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 10V, I_C = 0.6A$ | | 15 | | MHz |
| t_{ON} | Turn On Time | $V_{CC} = 200V$ | | | 0.5 | μs |
| t_{STG} | Storage Time | $I_C = 5I_{B1} = -2.5I_{B2} = 4A$ | | | 3 | μs |
| t_F | Fall Time | $R_L = 50\Omega$ | | 0.1 | 0.3 | μs |

h_{FE} Classification

| Classification | R | O | Y |
|----------------|---------|---------|---------|
| h_{FE1} | 15 ~ 30 | 20 ~ 40 | 30 ~ 50 |



Typical Characteristics

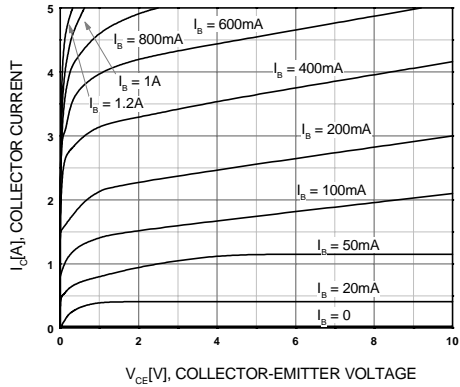


Figure 1. Static Characteristic

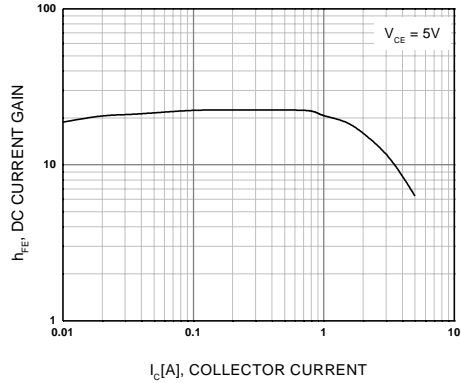


Figure 2. DC current Gain

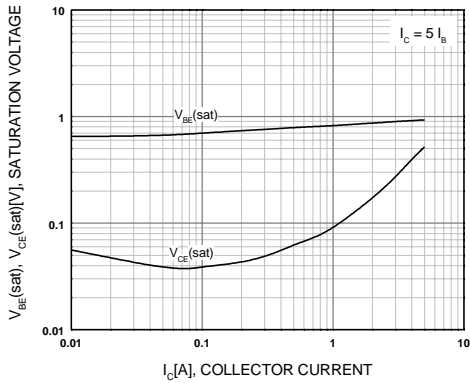


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

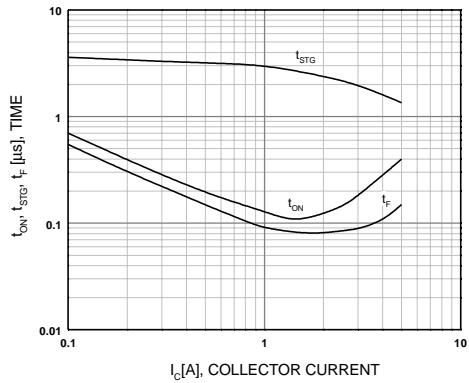


Figure 4. Switching Time

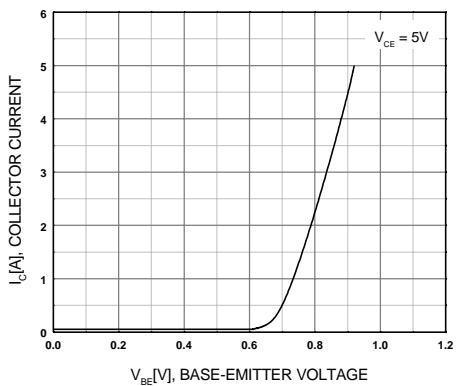


Figure 5. Base-Emitter On Voltage

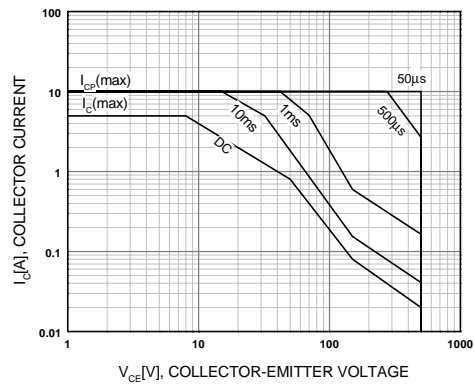


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics (Continued)

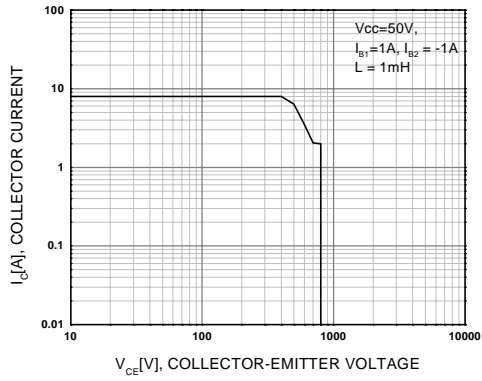


Figure 7. Reverse Bias Safe Operating Area

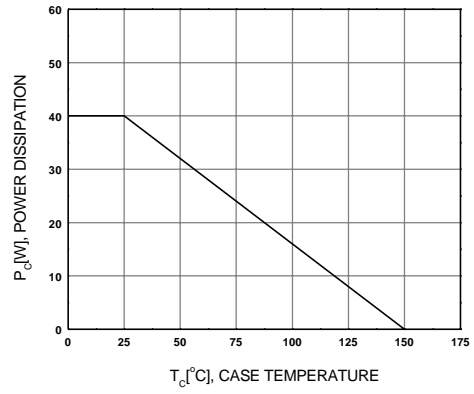
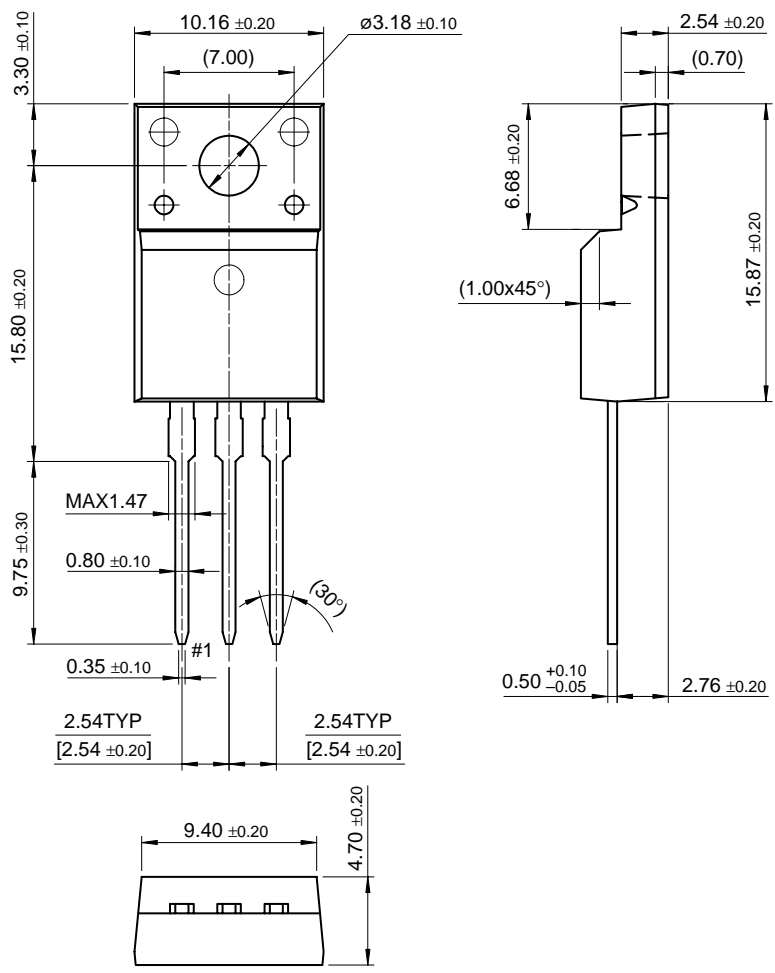


Figure 8. Power Derating

Package Dimensions

FJPF5021

TO-220F



Dimensions in Millimeters

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| CoolFET™ | FASTr™ | MicroFET™ | PowerTrench® | SuperSOT™-6 |
| CROSSVOLT™ | FRFET™ | MicroPak™ | QFET™ | SuperSOT™-8 |
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