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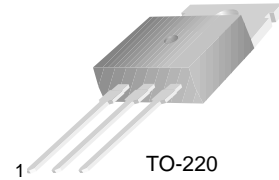


FJP5027

FJP5027

High Voltage and High Reliability

- High Speed Switching
- Wide SOA



1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage | 1100 | V |
| V_{CEO} | Collector-Emitter Voltage | 800 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current (DC) | 3 | A |
| I_{CP} | Collector Current (Pulse) | 10 | A |
| I_B | Base Current | 1.5 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 50 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 55 ~ 150 | $^\circ\text{C}$ |

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|------------------------|--------------------------------------|---|---------|------|------|---------------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = 1\text{mA}, I_E = 0$ | 1100 | | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = 5\text{mA}, I_B = 0$ | 800 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = 1\text{mA}, I_C = 0$ | 7 | | | V |
| $V_{CEX(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = 1.5\text{A}, I_{B1} = -I_{B2} = 0.3\text{A}$ $L = 2\text{mH}, \text{Clamped}$ | 800 | | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 800\text{V}, I_E = 0$ | | | 10 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5\text{V}, I_C = 0$ | | | 10 | μA |
| h_{FE1} h_{FE2} | DC Current Gain | $V_{CE} = 5\text{V}, I_C = 0.2\text{A}$ $V_{CE} = 5\text{V}, I_C = 1\text{A}$ | 10 8 | | 40 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 1.5\text{A}, I_B = 0.3\text{A}$ | | | 2 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 1.5\text{A}, I_B = 0.3\text{A}$ | | | 1.5 | V |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$ | | 60 | | pF |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 10\text{V}, I_C = 0.2\text{A}$ | | 15 | | MHz |
| t_{ON} | Turn On Time | $V_{CC} = 400\text{V}$ | | | 0.5 | μs |
| t_{STG} | Storage Time | $I_C = 5I_{B1} = -2.5I_{B2} = 2\text{A}$ | | | 3 | μs |
| t_F | Fall Time | $R_L = 200\Omega$ | | | 0.3 | μs |

h_{FE} Classification

| Classification | N | R | O |
|----------------|---------|---------|---------|
| h_{FE1} | 10 ~ 20 | 15 ~ 30 | 20 ~ 40 |

Typical Characteristics

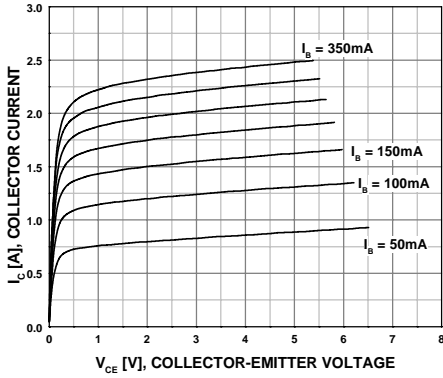


Figure 1. Static Characteristic

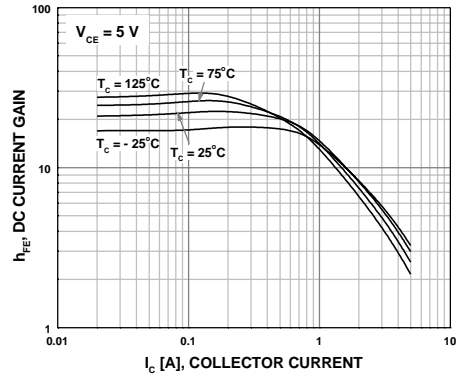


Figure 2. DC current Gain

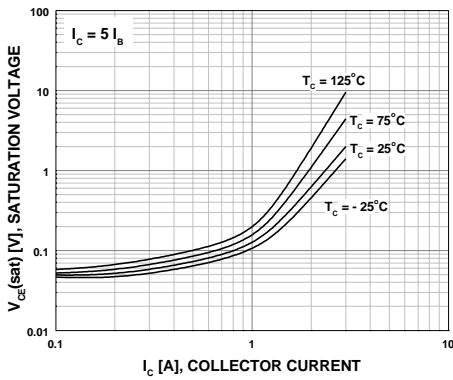


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

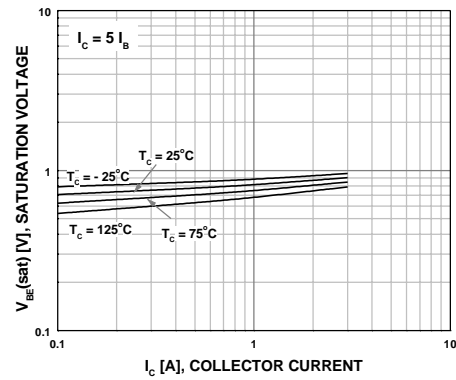


Figure 4. Base-Emitter On Voltage

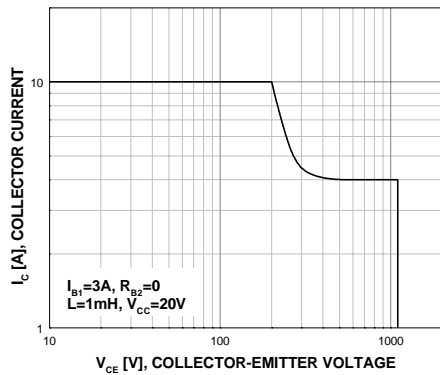


Figure 5. Switching Time

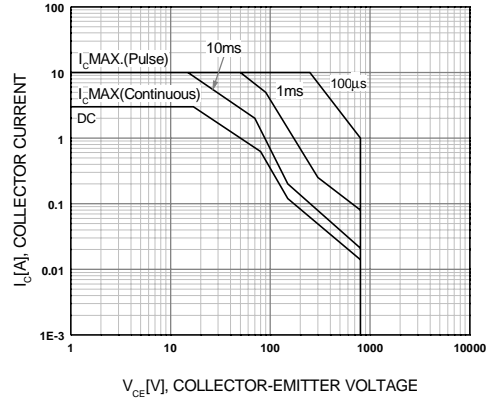


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

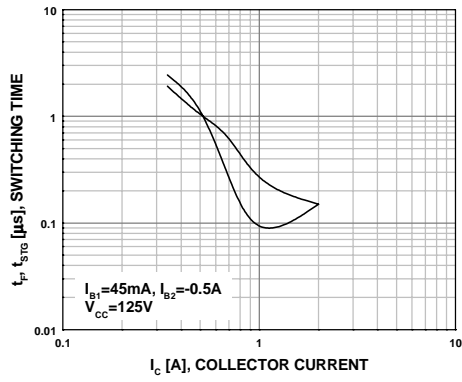


Figure 7. Resistive Load Switching Characteristics

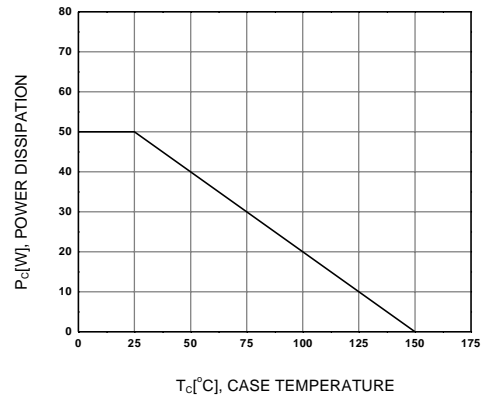


Figure 8. Power Derating



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