

FJP5027TU Datasheet

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| | |
|------------------------------|---|
| DiGi Electronics Part Number | FJP5027TU-DG |
| Manufacturer | onsemi |
| Manufacturer Product Number | FJP5027TU |
| Description | TRANS NPN 800V 3A TO220-3 |
| Detailed Description | Bipolar (BJT) Transistor NPN 800 V 3 A 15MHz 50 W Through Hole TO-220-3 |



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Purchase and inquiry

Manufacturer Product Number:

FJP5027TU

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

800 V

Current - Collector Cutoff (Max):

10 μ A (ICBO)

Power - Max:

50 W

Operating Temperature:

150°C (TJ)

Package / Case:

TO-220-3

Base Product Number:

FJP5027

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

3 A

Vce Saturation (Max) @ Ib, Ic:

2V @ 300mA, 1.5A

DC Current Gain (hFE) (Min) @ Ic, Vce:

10 @ 200mA, 5V

Frequency - Transition:

15MHz

Mounting Type:

Through Hole

Supplier Device Package:

TO-220-3

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095



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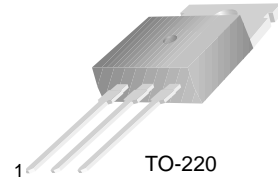
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FJP5027

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

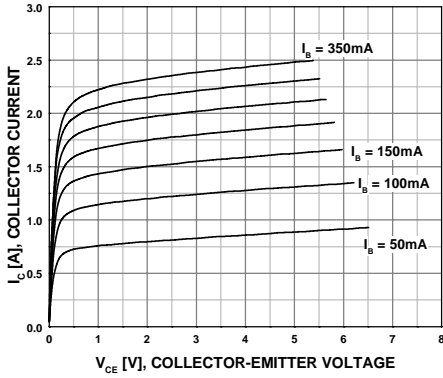


Figure 1. Static Characteristic

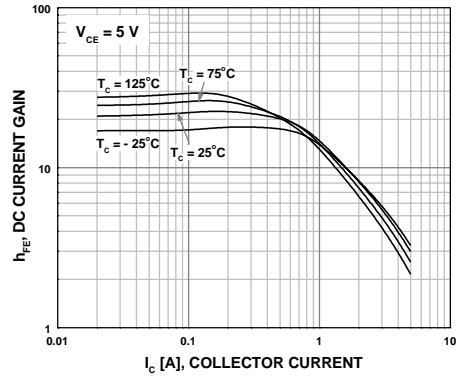


Figure 2. DC current Gain

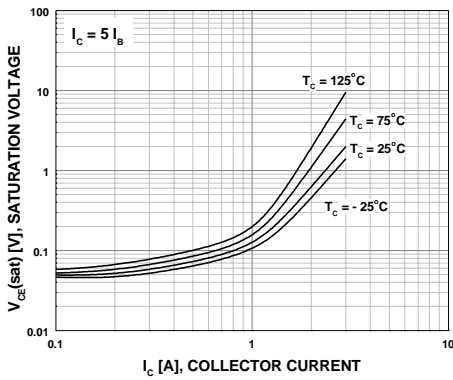


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

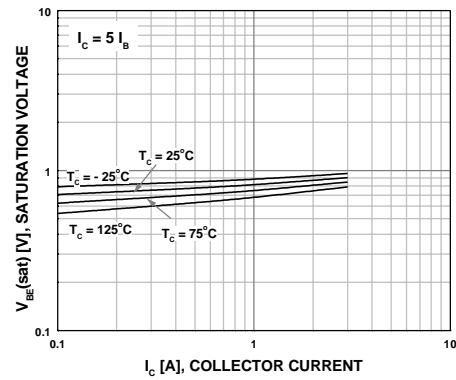


Figure 4. Base-Emitter On Voltage

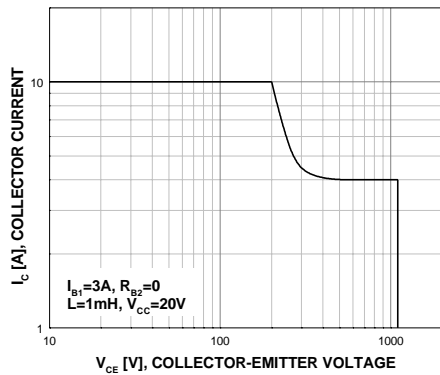


Figure 5. Switching Time

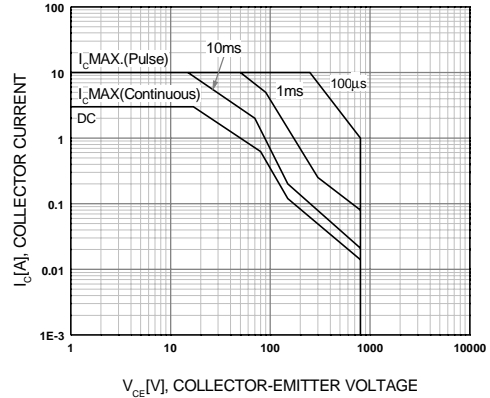


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

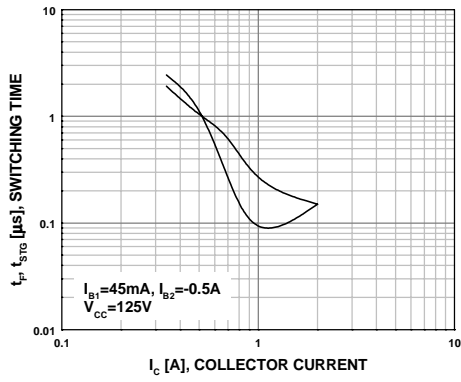


Figure 7. Resistive Load Switching Characteristics

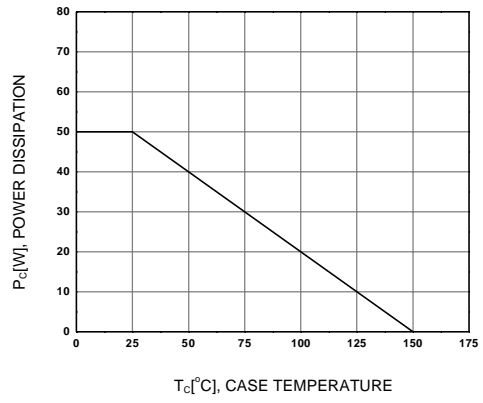
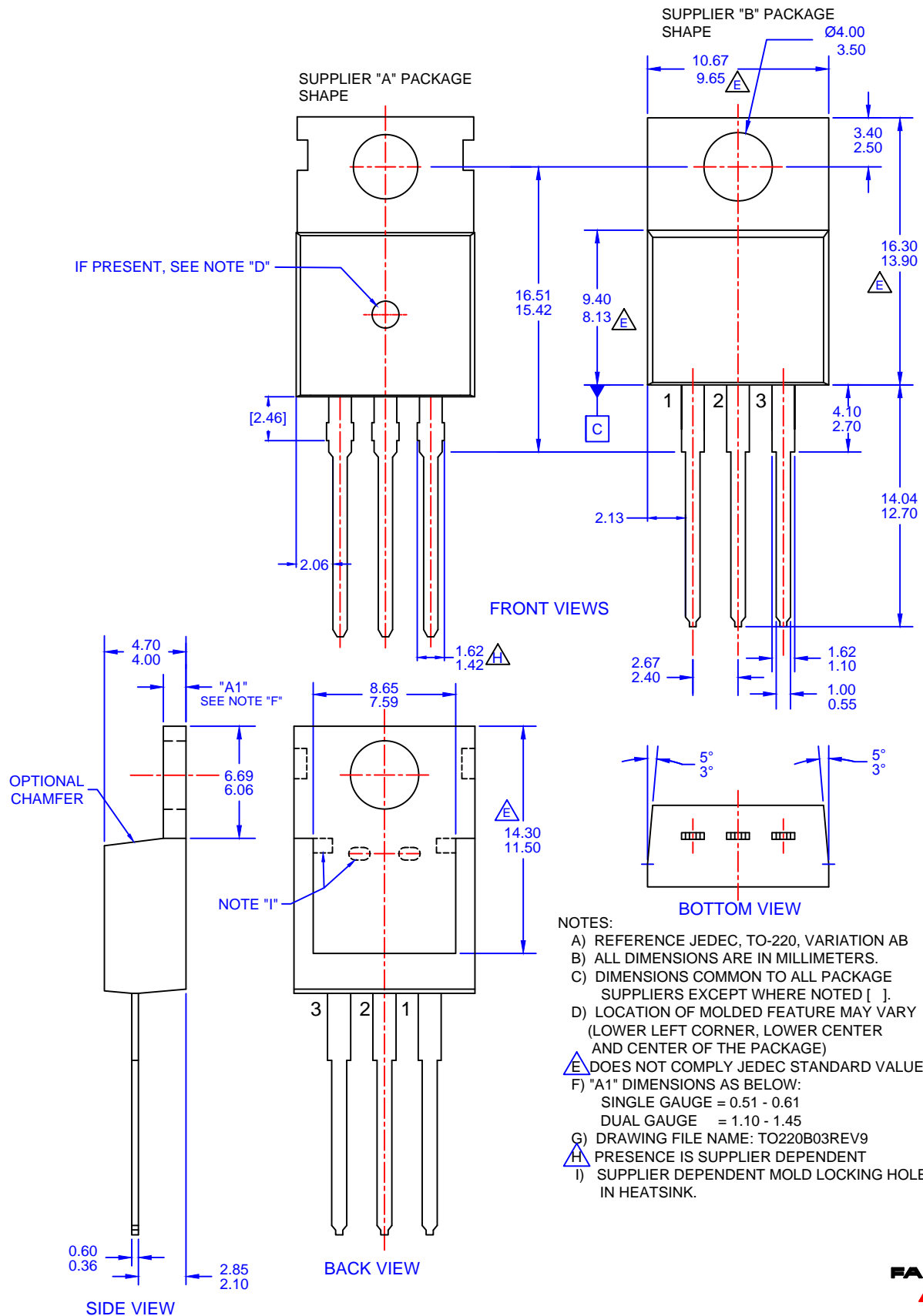



Figure 8. Power Derating



- NOTES:
- A) REFERENCE JEDEC, TO-220, VARIATION AB
 - B) ALL DIMENSIONS ARE IN MILLIMETERS.
 - C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [].
 - D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
 - E) DOES NOT COMPLY JEDEC STANDARD VALUE.
 - F) "A1" DIMENSIONS AS BELOW:
 SINGLE GAUGE = 0.51 - 0.61
 DUAL GAUGE = 1.10 - 1.45
 - G) DRAWING FILE NAME: TO220B03REV9
 - H) PRESENCE IS SUPPLIER DEPENDENT
 - I) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

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