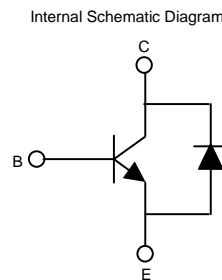
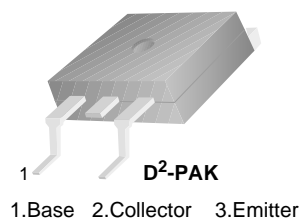


FJB3307D

High Voltage Fast Switching NPN Power Transistor

Features

- Built-in Diode between Collector and Emitter
- Suitable for Electronic Ballast and Switch Mode Power Supplies



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) | 8 | A |
| I_{CP} | * Collector Current (Pulse) | 16 | A |
| I_B | Base Current (DC) | 4 | A |
| I_{BP} | * Base Current (Pulse) | 8 | A |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 to 150 | $^\circ\text{C}$ |

* Pulse Test: $PW = 300\mu\text{s}$, Duty Cycle = 2% Pulsed

Thermal Characteristics

| Symbol | Parameter | Value | Units | |
|-----------------|---|--------------------------|--------------------|---|
| P_D | Total Device Dissipation | $T_a = 25^\circ\text{C}$ | 1.72 | W |
| | | $T_c = 25^\circ\text{C}$ | 80 | W |
| $R_{\theta ja}$ | Thermal Resistance, Junction to Ambient | 72.5 | $^\circ\text{C/W}$ | |
| $R_{\theta jc}$ | Thermal Resistance, Junction to Case | 1.56 | $^\circ\text{C/W}$ | |

Electrical Characteristics $T_a = 25^\circ\text{C}$ 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_{EBO} | Emitter Cut-off Current | $V_{EB} = 9\text{V}, I_C = 0$ | | | 1 | mA |
| h_{FE1} h_{FE2} | DC Current Gain | $V_{CE} = 5\text{V}, I_C = 2\text{A}$ $V_{CE} = 5\text{V}, I_C = 5\text{A}$ | 8 5 | | 40 30 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 2\text{A}, I_B = 0.4\text{A}$ $I_C = 5\text{A}, I_B = 1\text{A}$ $I_C = 5\text{A}, I_B = 1\text{A}, T_a = 100^\circ\text{C}$ $I_C = 8\text{A}, I_B = 2\text{A}$ | | | 1 2 3 3 | V V V V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 2\text{A}, I_B = 0.4\text{A}$ $I_C = 5\text{A}, I_B = 1\text{A}$ $I_C = 5\text{A}, I_B = 1\text{A}, T_a = 100^\circ\text{C}$ | | | 1.2 1.6 2 | V V V |
| V_F | Diode Forward Voltage | $I_C = 3\text{A}$ | | | 2.5 | V |
| C_{ob} | Output Capacitance | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$ | | 60 | | pF |
| t_{STG} | Storage Time | $V_{CC} = 125\text{V}, I_C = 5\text{A}$ | | | 3 | μs |
| t_F | Fall Time | $I_{B1} = -I_{B2} = 1\text{A}, R_L = 50\Omega$ | | | 0.7 | μs |
| t_{STG} | Storage Time | $V_{CC} = 30\text{V}, I_C = 5\text{A}, L = 200\mu\text{H}$ $I_{B1} = 1\text{A}, R_{BB} = 0\Omega,$ | | | 2.3 | μs |
| t_F | Fall Time | $V_{BE(OFF)} = -5\text{V},$ $V_{CLAMP} = 250\text{V}$ | | | 150 | ns |

* Pulse test: $PW = 300\mu\text{s}$, Duty Cycle = 2% Pulsed

h_{FE} Classification

| Classification | H1 | H2 |
|----------------|---------|---------|
| h_{FE1} | 15 ~ 28 | 26 ~ 39 |

Typical Performance Characteristics

Figure 1. Static Characteristic

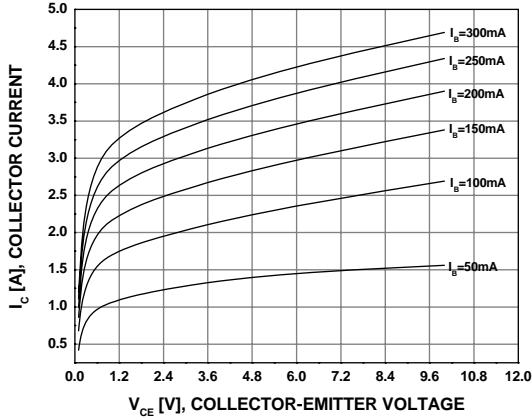


Figure 2. DC Current Gain

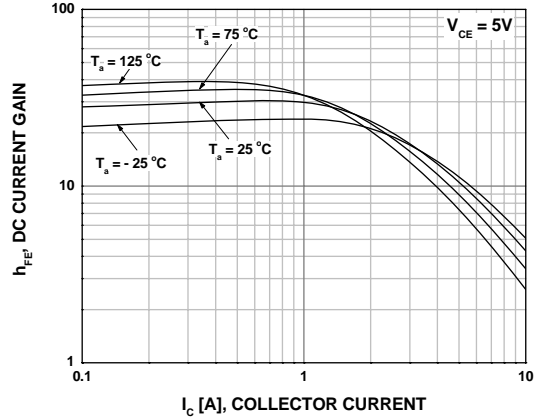


Figure 3. Collector-Emitter Saturation Voltage

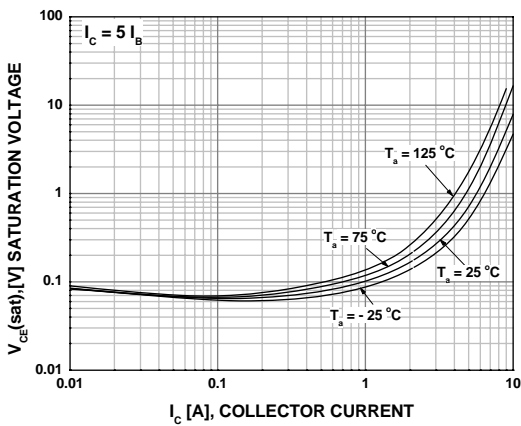


Figure 4. Base-Emitter Saturation Voltage

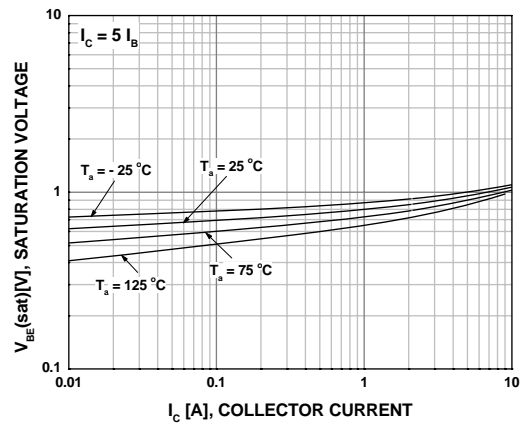


Figure 5. Collector Output Capacitance

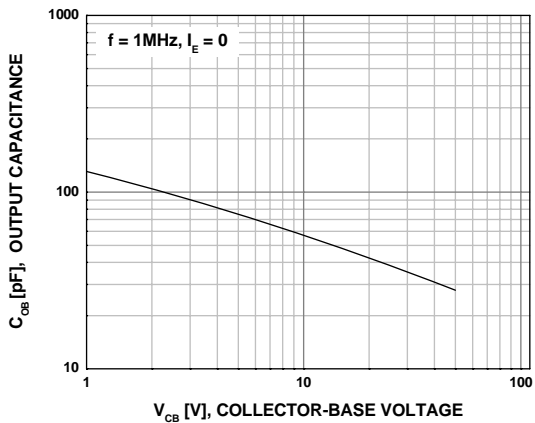
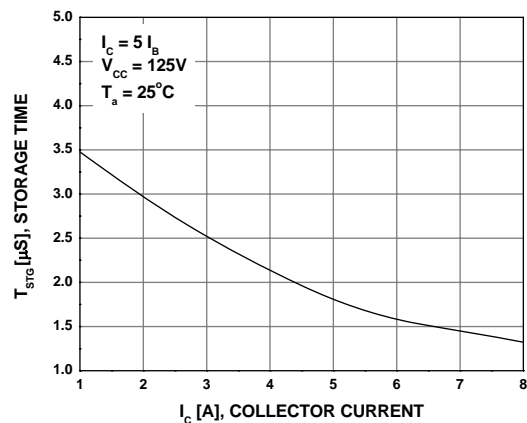


Figure 6. Storage Time (Resistive Load)



Typical Performance Characteristics (Continued)

Figure 7. Fall Time (Resistive Load)

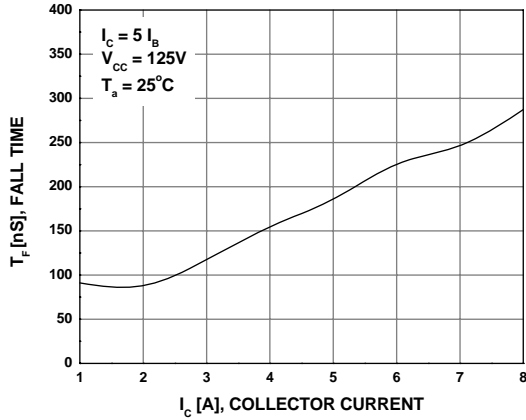


Figure 8. Storage Time (Inductive Load)

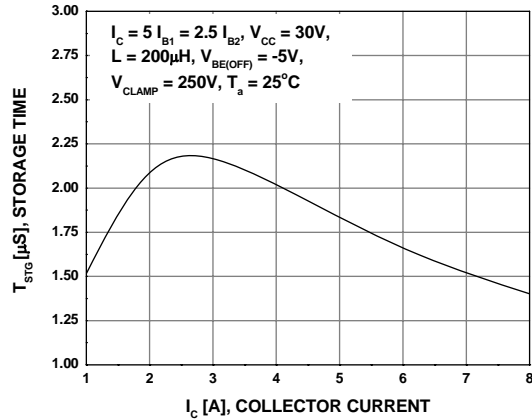


Figure 9. Fall Time (Inductive Load)

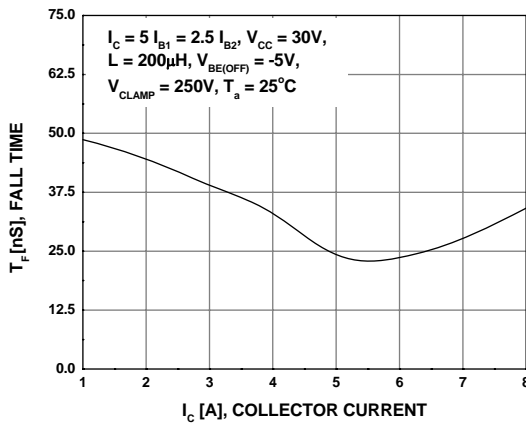


Figure 10. Power Derating

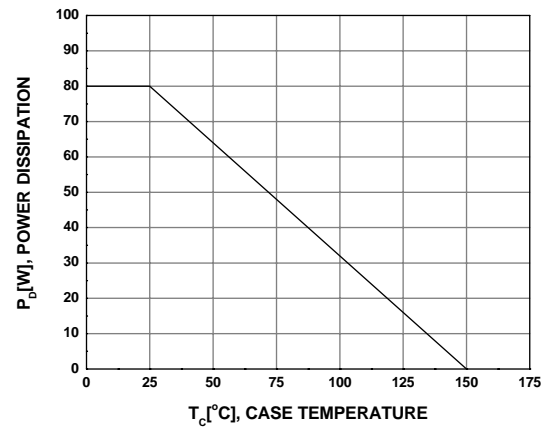


Figure 11. Reverse Bias Safe Operating Area

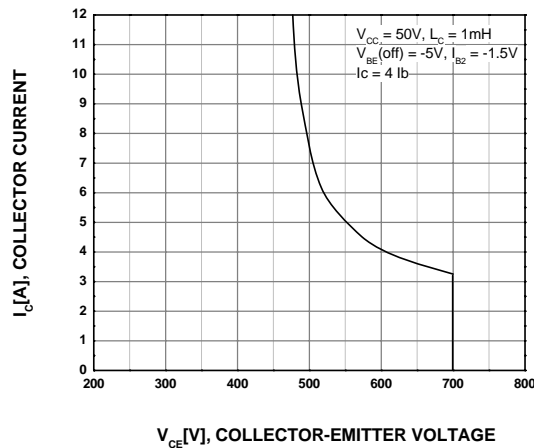
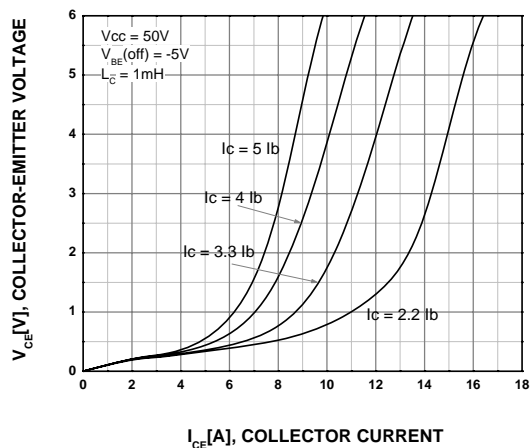
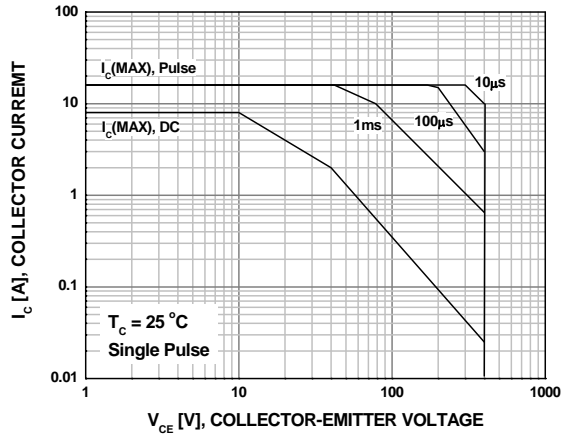


Figure 12. RBSOA Saturation



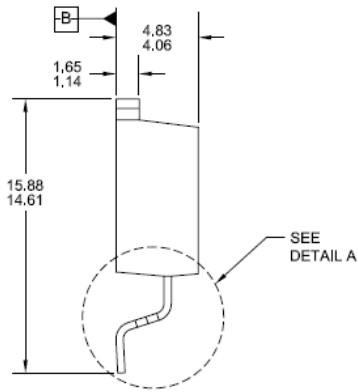
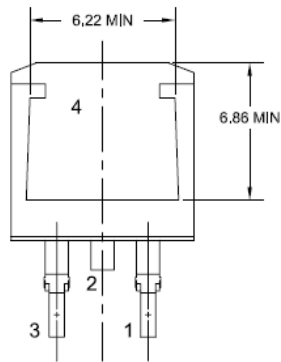
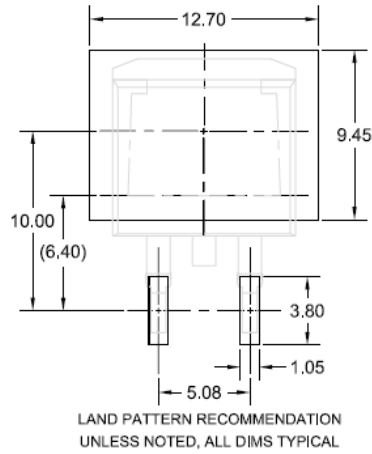
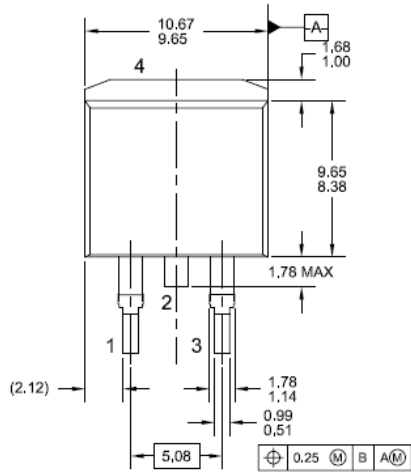
Typical Performance Characteristics (Continued)

Figure 13. Forward Biased Safe Operating Area

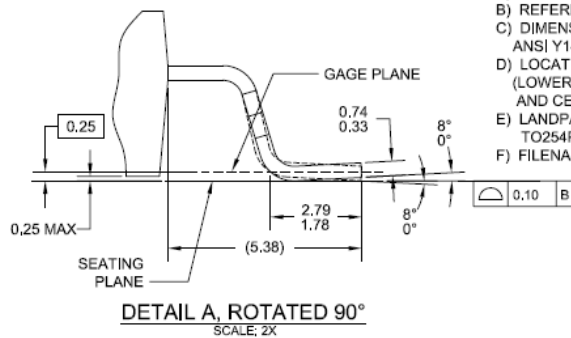


Physical Dimensions

D²-PAK



- NOTES: UNLESS OTHERWISE SPECIFIED
 A) ALL DIMENSIONS ARE IN MILLIMETERS.
 B) REFERENCE JEDEC, TO-263, VARIATION AB.
 C) DIMENSIONING AND TOLERANCING PER ANSI Y14.5M - 1994.
 D) LOCATION OF THE PIN HOLE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE).
 E) LANDPATTERN RECOMMENDATION PER IPC TO254P1524X482-3N
 F) FILENAME: TO263A02REV6







Dimensions in Millimeters



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