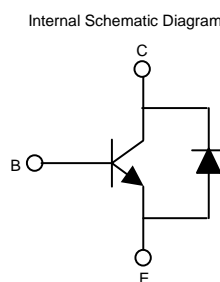
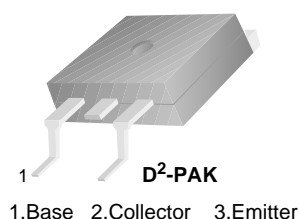


FJB3307D

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

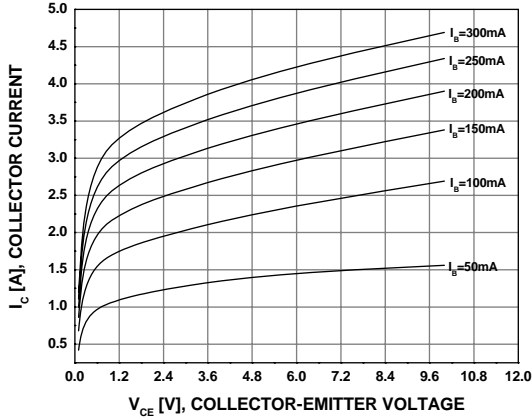


Figure 2. DC Current Gain

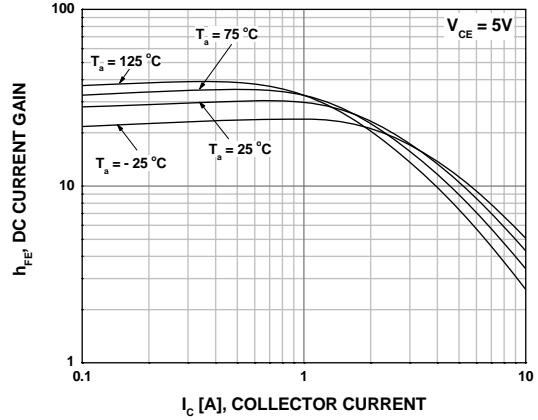


Figure 3. Collector-Emitter Saturation Voltage

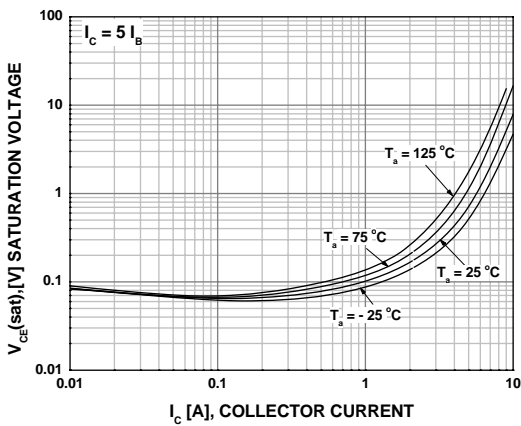


Figure 4. Base-Emitter Saturation Voltage

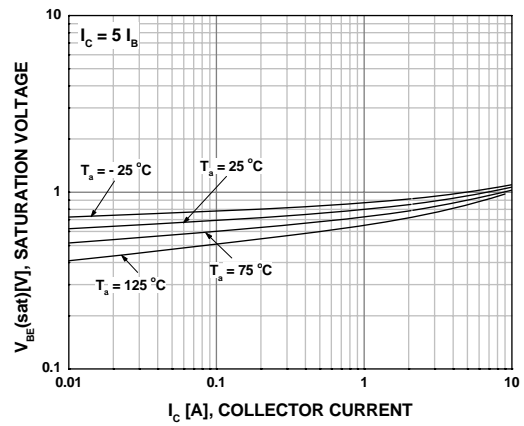


Figure 5. Collector Output Capacitance

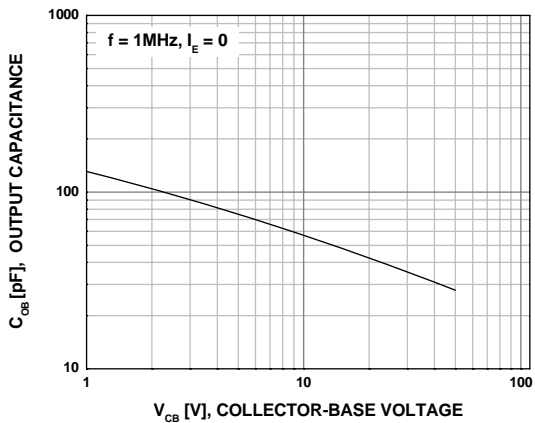
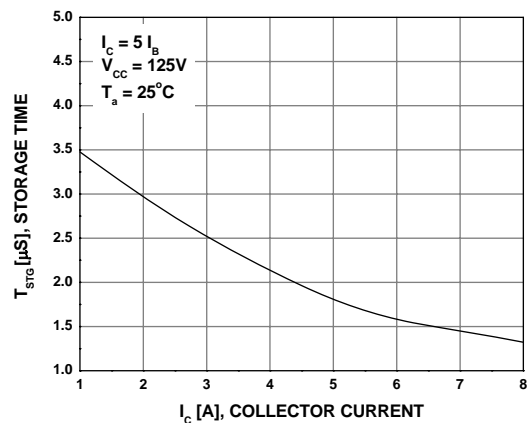


Figure 6. Storage Time (Resistive Load)



Typical Performance Characteristics (Continued)

Figure 7. Fall Time (Resistive Load)

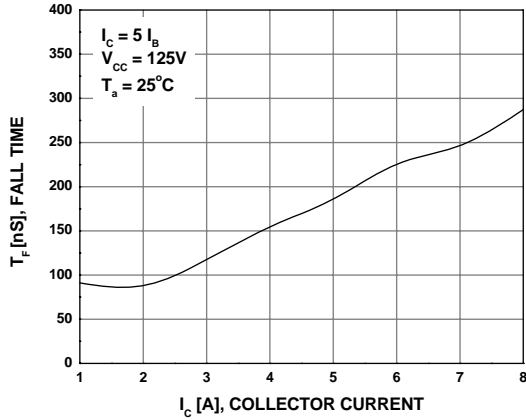


Figure 8. Storage Time (Inductive Load)

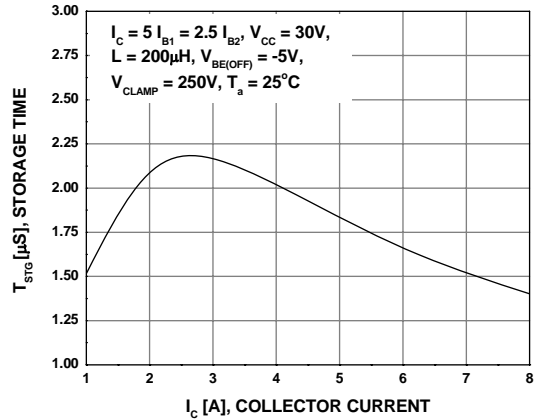


Figure 9. Fall Time (Inductive Load)

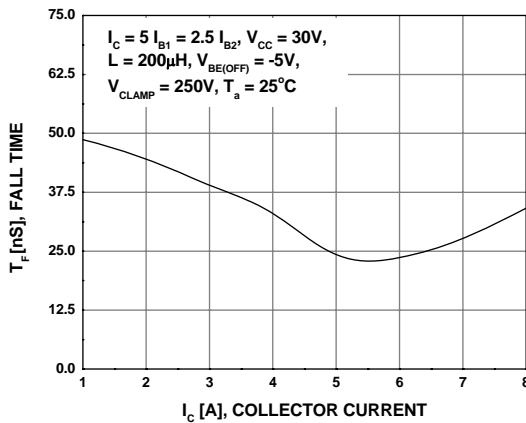


Figure 10. Power Derating

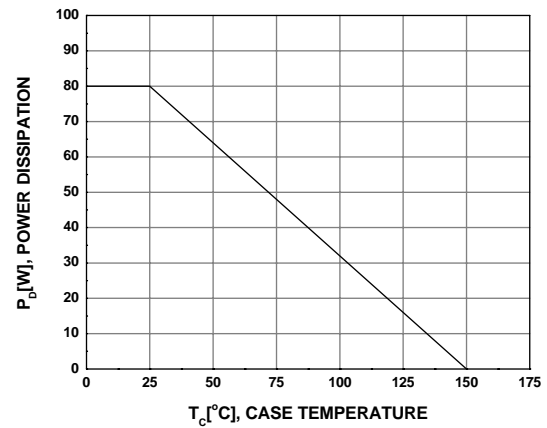


Figure 11. Reverse Bias Safe Operating Area

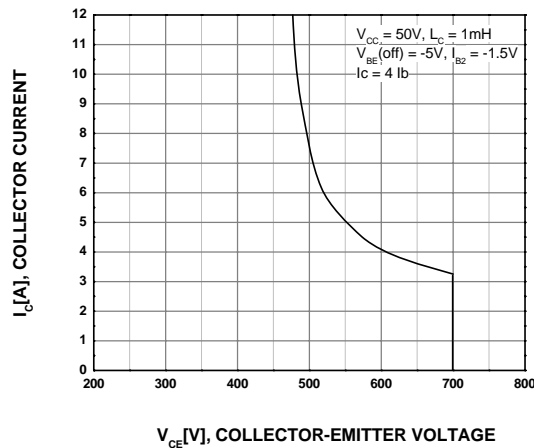
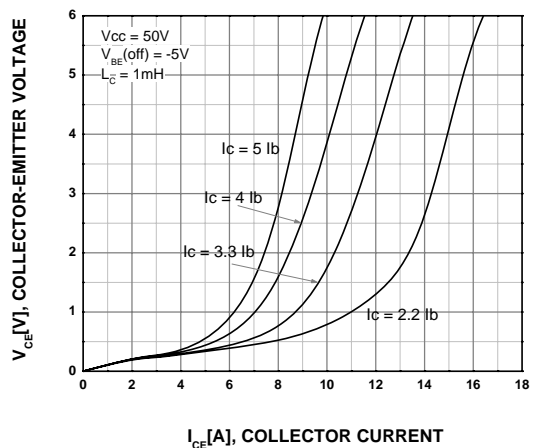
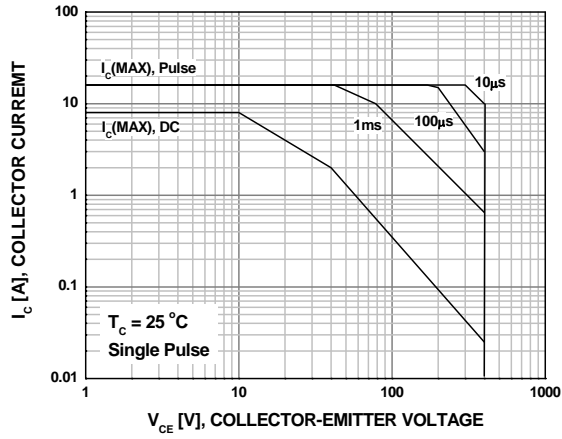


Figure 12. RBSOA Saturation



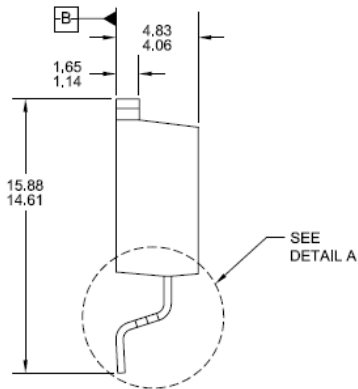
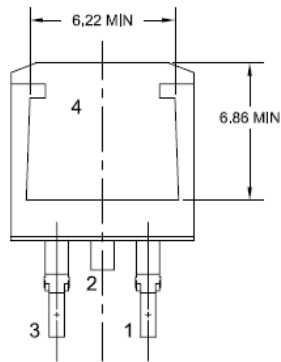
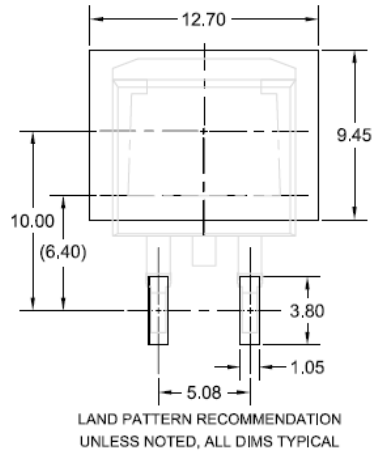
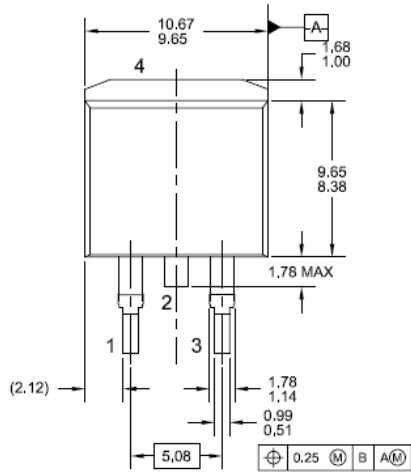
Typical Performance Characteristics (Continued)

Figure 13. Forward Biased Safe Operating Area

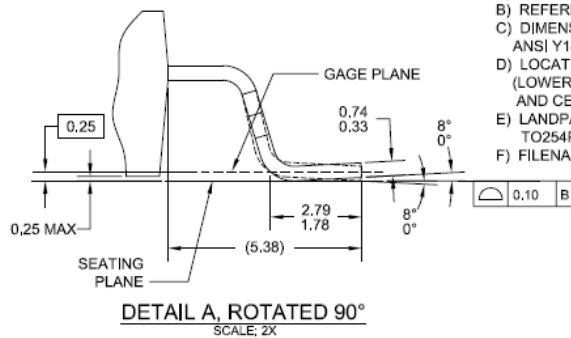


Physical Dimensions

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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