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July 2008

FJP3307D
High Voltage Fast Switching NPN Power Transistor

Features

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

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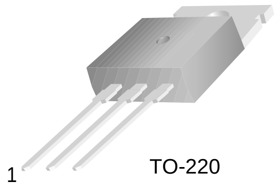
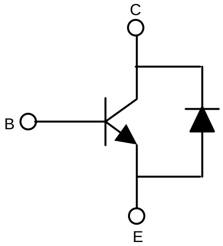


TO-220

1.Base 2.Collector 3.Emitter

Internal Schematic Diagram



Absolute Maximum Ratings

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
P_C	Collector Dissipation (T_C = 25°C)	80	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

* Pulse Test: PW = 300ms, Duty Cycle = 2% Pulsed

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 500\mu A$, $I_E = 0$	700			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5mA$, $I_B = 0$	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 500\mu A$, $I_C = 0$	9			V
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 9V$, $I_C = 0$			1	mA
h_{FE1} h_{FE2}	DC Current Gain	$V_{CE} = 5V$, $I_C = 2A$ $V_{CE} = 5V$, $I_C = 5A$	8 5		40 30	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2A$, $I_B = 0.4A$			1	V
		$I_C = 5A$, $I_B = 1A$			2	V
		$I_C = 8A$, $I_B = 2A$			3	V

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Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A			1.2	V
		I_C = 5A, I_B = 1A			1.6	V
V_F	Diode Forward Voltage	I_C = 3A			2.5	V
C_{ob}	Output Capatitance	V_{CB} = 10V, I_E = 0, f = 1MHz		60		pF
t_{STG}	Storage Time	V_{CC} = 125V, I_C = 5A I_{B1} = -I_{B2} = 1A, R_L = 50Ω			3	µs
t_F	Fall Time				0.7	µs
t_{STG}	Storage Time	V_{CC} = 30V, I_C = 5A, L=200µH I_{B1}=1A, R_{BB} = 0Ω, $V_{BE(OFF)}$= -5V V_{CLAMP} = 250V			2.3	µs
t_F	Fall Time				150	ns

* Pulse test: PW = 300µs, Duty cycl e= 2%

h_{FE} Classification

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

Typical Characteristics

Figure 1. Static Characterstic

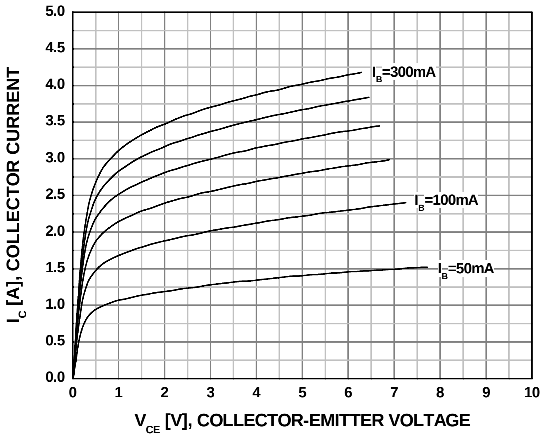


Figure 2. DC Current Gain (H1 Grade)

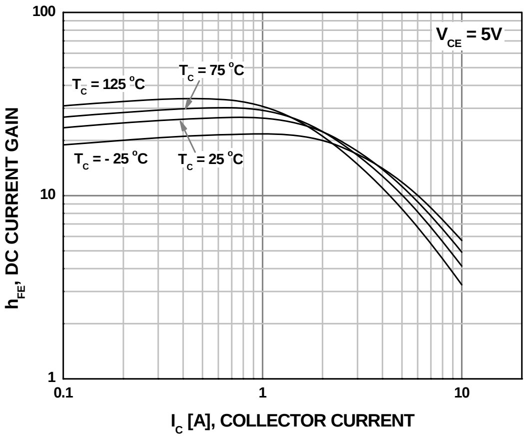


Figure 3. DC Current Gain (H2 Grade)

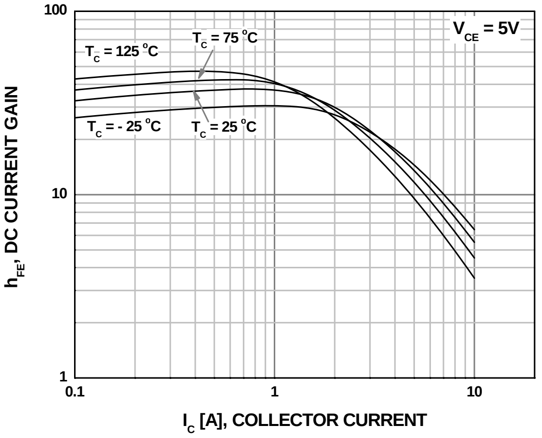


Figure 4. Collector-Emitter Saturation Voltage

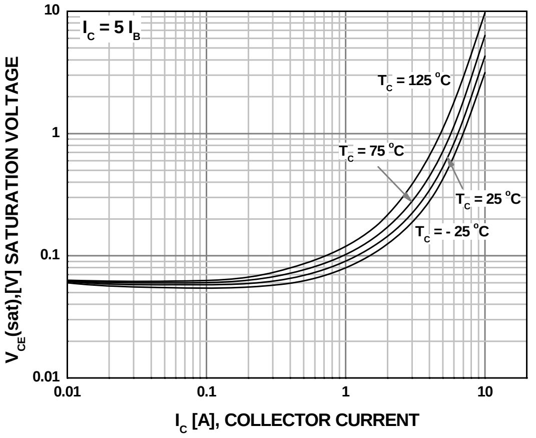


Figure 5. Base-Emitter Saturation Voltage

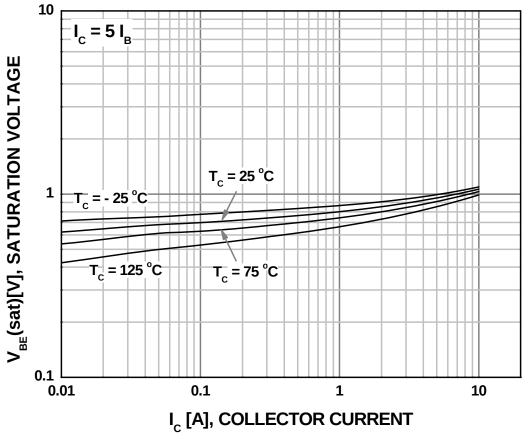
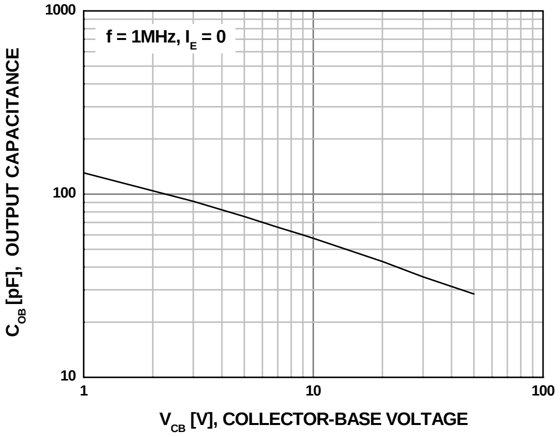


Figure 6. Output Capacitance



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Typical Characteristics (Continued)

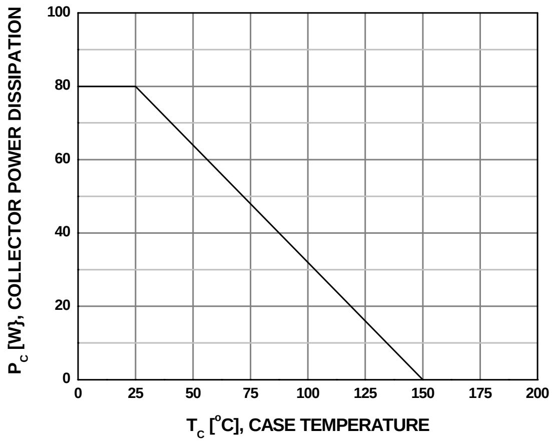

Figure 7. Power Derating

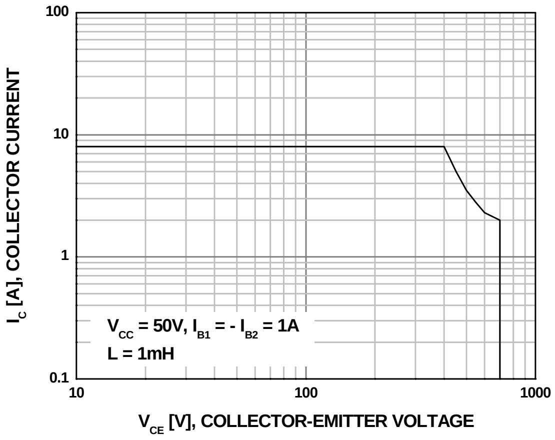

Figure 8. Reverse Biased Safe Operating Area

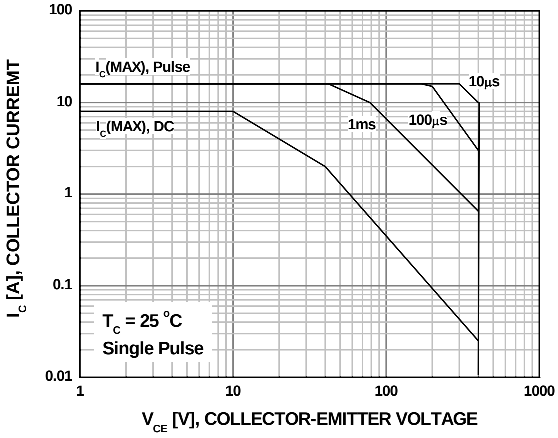

Figure 9. Forward Biased Safe Operating Area

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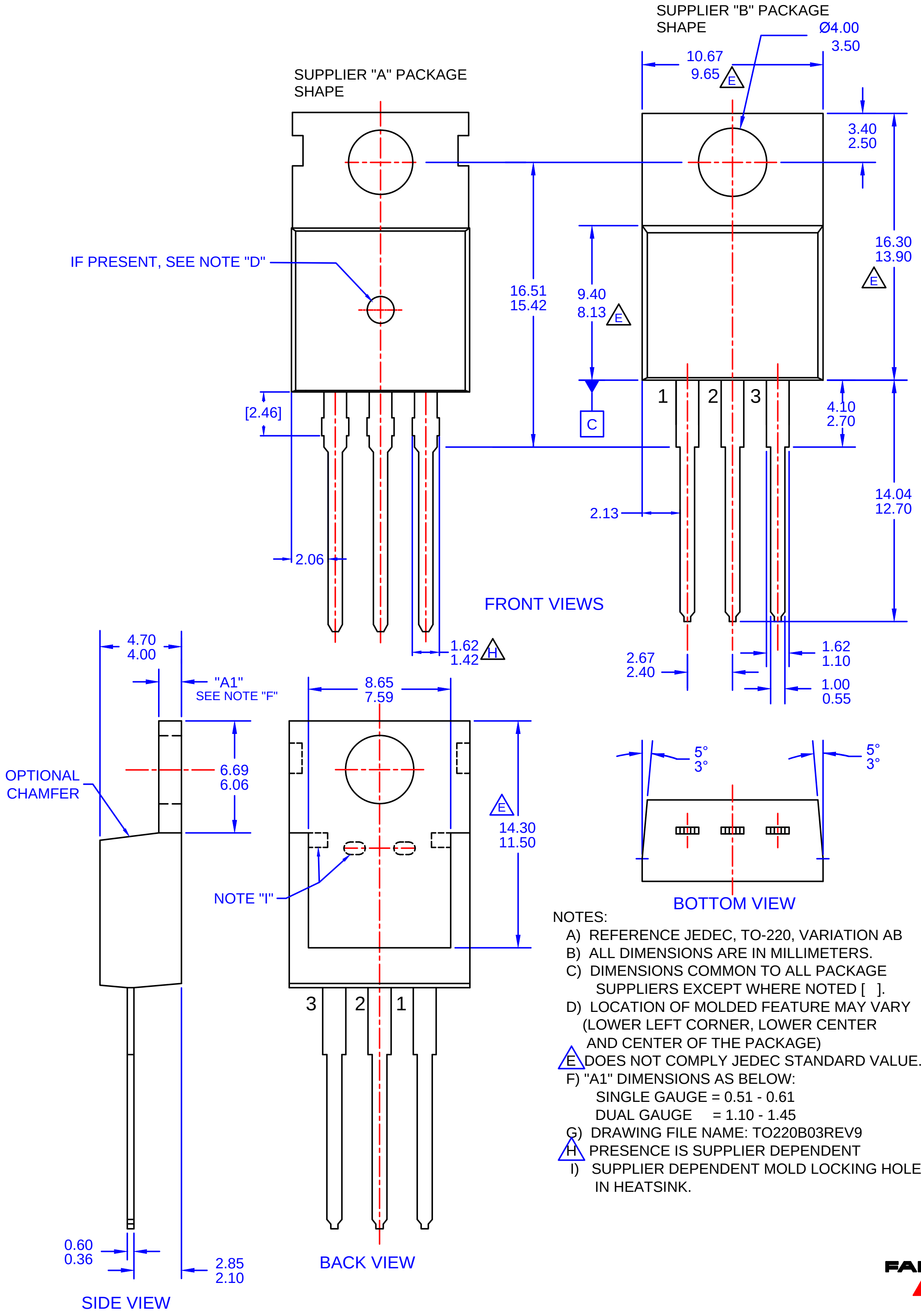

NOTES:

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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