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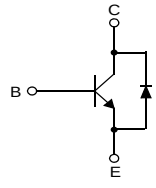
July 2008

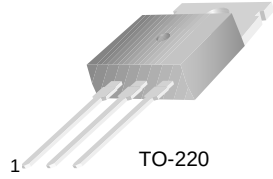
FJP5304D
NPN Silicon Transistor

High Voltage High Speed Power Switch Application

- Wide Safe Operating Area
- Built-in Free Wheeling diodeSuitable for Electronic Ballast Application
- Suitable for Electronic Ballast Application
- Small Variance in Storage Time

Equivalent Circuit





TO-220

1.Base 2.Collector 3.Emitter

Absolute Maximum Ratings T_C=25°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	12	V
I_C	Collector Current (DC)	4	A
I_{CP}	* Collector Current (Pulse)	8	A
I_B	Base Current (DC)	2	A
I_{BP}	* Base Current (Pulse)	4	A
P_C	Collector Dissipation (T_C=25°C)	70	W
T_{STG}	Storage Temperature	- 65 ~ 150	°C

* Pulse Test Pulse Width = 5ms, Duty Cycle ≤ 1.0%

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 1mA, 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 = 1mA, I_C = 0	12			V
I_{CES}	Collector Cut-off Current	V_{CE} = 700V, V_{EB} = 0			100	mA
I_{CEO}	Collector Cut-off Current	V_{CE} = 400V, IB = 0			250	mA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 12V, I_C = 0			100	mA

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h_{FE}	DC Current Gain	V_{CE} = 5V, I_C = 10mA V_{CE} = 5V, I_C = 2A	10 8		 40	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A I_C = 1A, I_B = 0.2A I_C = 2.5A, I_B = 0.5A			0.7 1.0 1.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A I_C = 1A, I_B = 0.2A I_C = 2.5A, I_B = 0.5A			1.1 1.2 1.3	V
V_f	Internal Diode Forward Voltage Drop	I_F = 2A			2.5	V
Inductive Load Switching (V_{CC} = 200V)						
t_{stg}	Storage Time	I_C = 2A, I_{B1} = 0.4A V_{BE}(off) = -5V, L = 200μH		0.6		μs
tf	Fall Time			0.1		
Resistive Load Switching (V_{CC} = 250V)						
t_{stg}	Storage Time	I_C = 2A, I_{B1} = I_{B2} = 0.4A T_P = 30μs			2.9	μs
tf	Fall Time			0.2		

* Pulse test: PW≤300μs, Duty cycle≤2%

Thermal Characteristics

Symbol	Parameter	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.78	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	°C/W

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Typical Characteristics

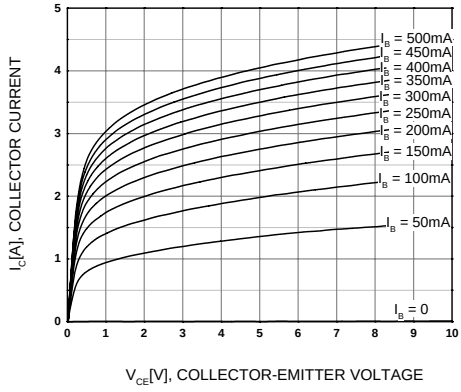


Figure 1. Static Characteristic

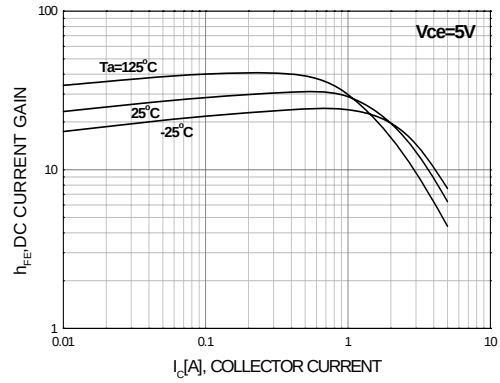


Figure 2. DC Current Gain

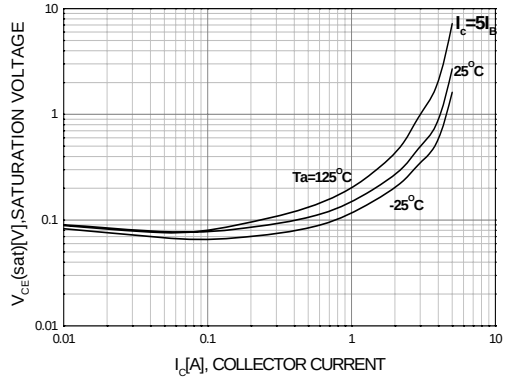


Figure 3. Collector-Emitter Saturation Voltage

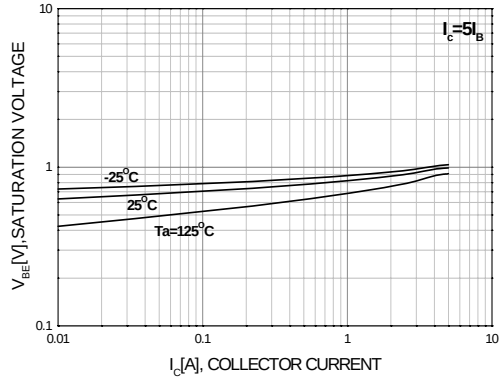


Figure 4. Base-Emitter Saturation Voltage

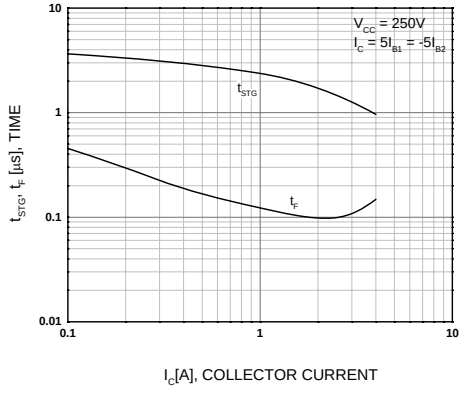


Figure 5. Resitive Load Switching Time

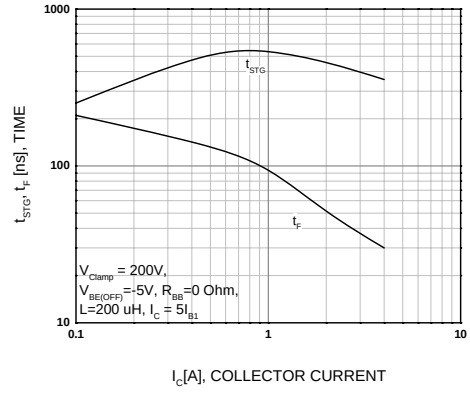


Figure 6. Inductive Load Switching Time

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Typical Characteristics (Continued)

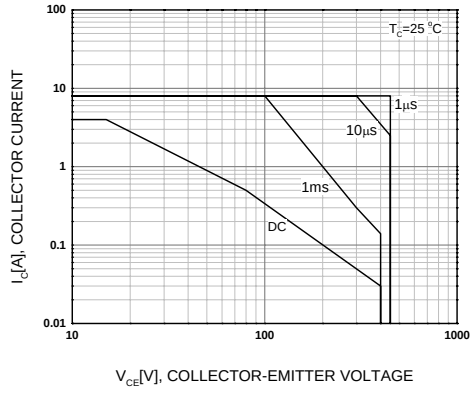


Figure 1. Forward Bias Safe Operating Area

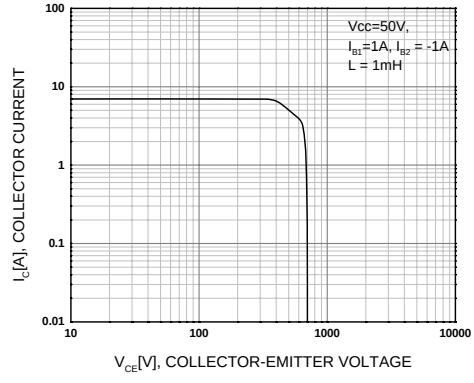


Figure 2. Reverse Bias Safe Operating Area

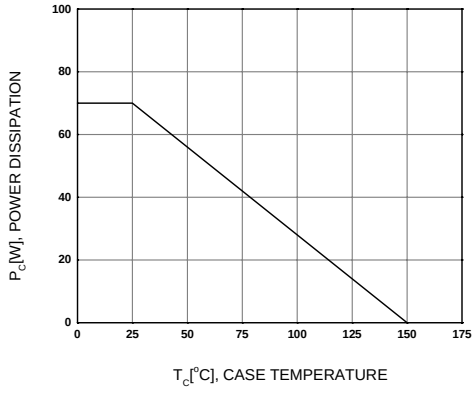
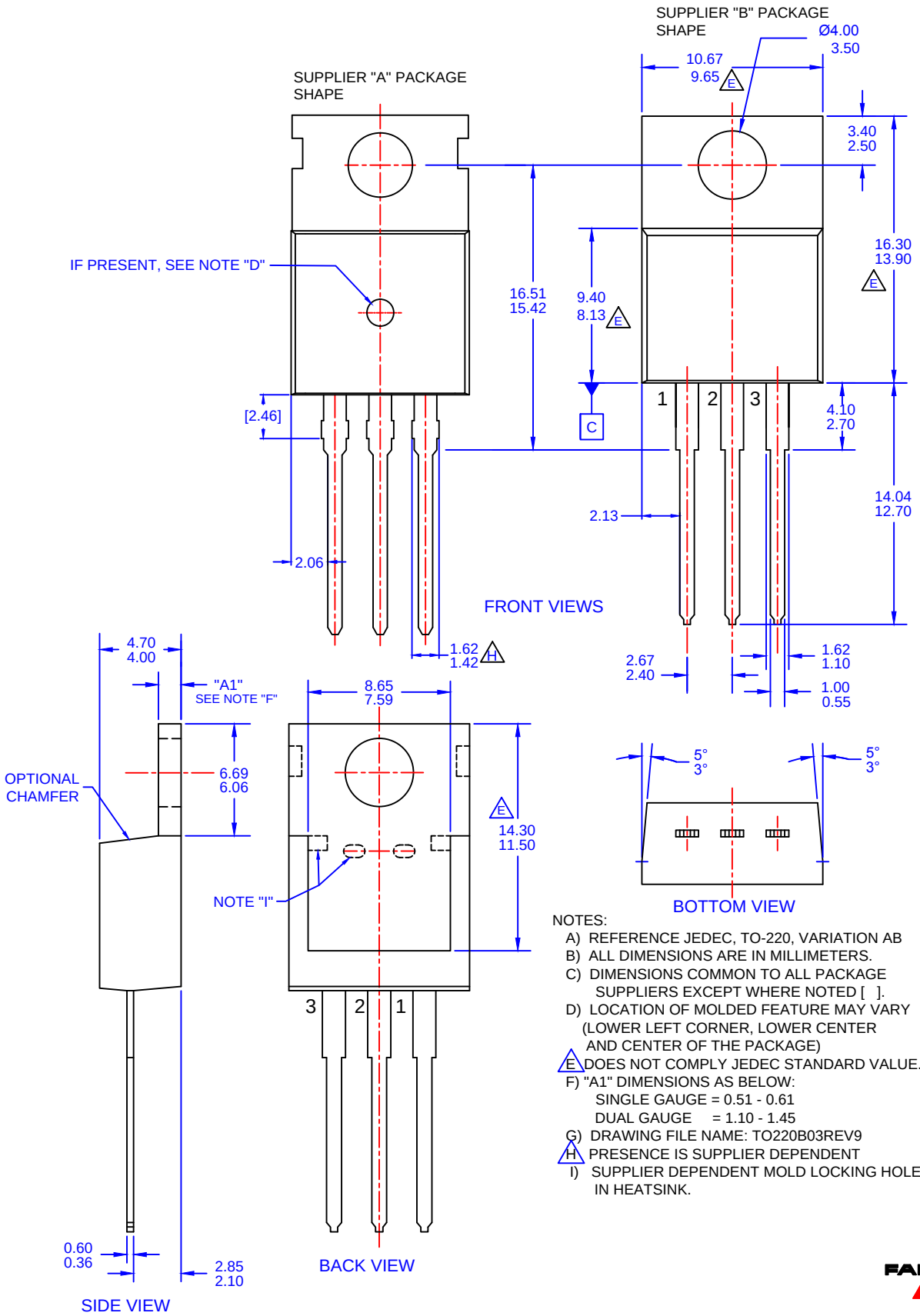


Figure 3. Power Derating

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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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