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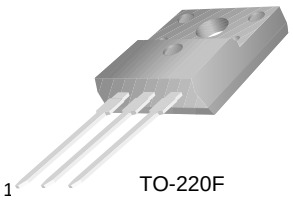
May 2007

FJPF3305

High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Electronic Ballast and Switching Regulator



TO-220F

1.Base 2.Collector 3.Emitter

Absolute Maximum Ratings * T_a = 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	9	V
I_C	Collector Current (DC)	4	A
I_{CP}	Collector Current (Pulse)	8	A
I_B	Base Current	2	A
P_C	Collector Dissipation (T_a = 25°C)	30	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Electrical Characteristics * T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdwon Voltage	I_C = 500μA, 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 = 500μA, I_C = 0	9			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 700V, I_E = 0			1	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			1	μA
h_{FE1} h_{FE2}	DC Current Gain *	V_{CE} = 5V, I_C = 1A V_{CE} = 5V, I_C = 2A	19 8		35 40	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 0.2A I_C = 2A, I_B = 0.5A I_C = 4A, I_B = 1A			0.5 0.6 1.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1A, I_B = 0.2A I_C = 2A, I_B = 0.5A			1.2 1.6	V V
f_T	Current Gain Bandwidth Product	V_{CE} = 5V, I_C = 1A	4			MHz
C_{ob}	Output Capacitance	V_{CB} = 10V, f = 1MHz		65		pF
t_{ON}	Turn On Time	V_{CC} = 125V I_C = 2A = $5I_{B1}$ = $-5I_{B2}$ R_L = 62.5Ω			0.8	μs
t_{STG}	Storge Time				4.0	μs
t_F	Fall Time				0.9	μs

* Pulse Test: PW ≤ 300μs, Duty Cycle ≤ 2%

h_{FE} Classification

Classification	H1	H2
h_{FE2}	19 ~ 28	26 ~ 35

Typical Performance Characteristics

Figure 1. Static Characteristic

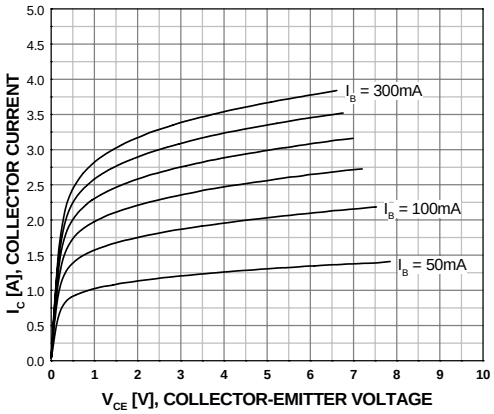


Figure 2. DC Current Gain (R-Grade)

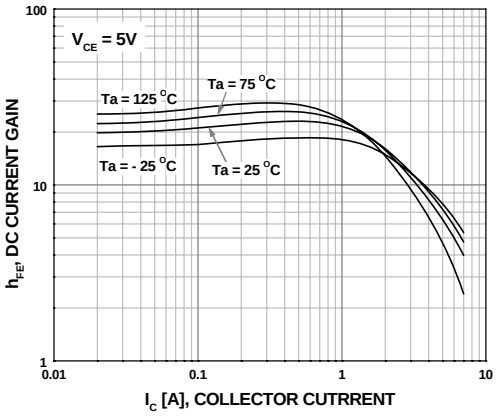


Figure 3. DC Current Gain (O-Grade)

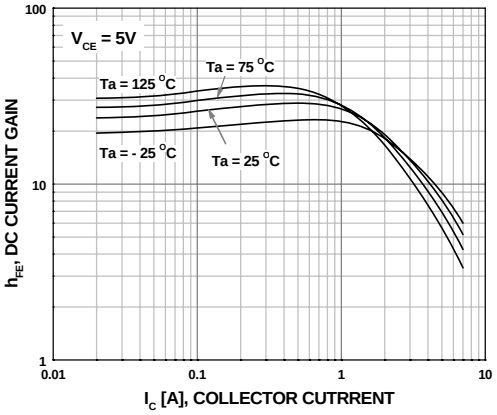


Figure 4. Saturation Voltage (R-Grade)

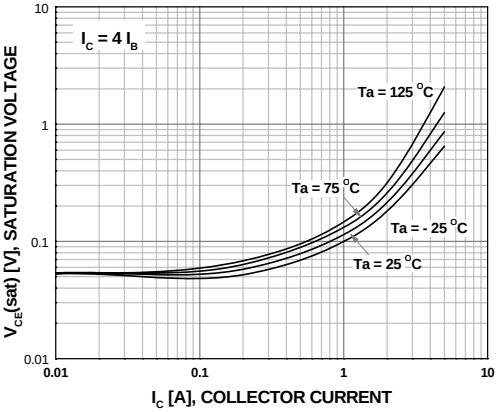


Figure 5. Saturatin Voltage (O-Grade)

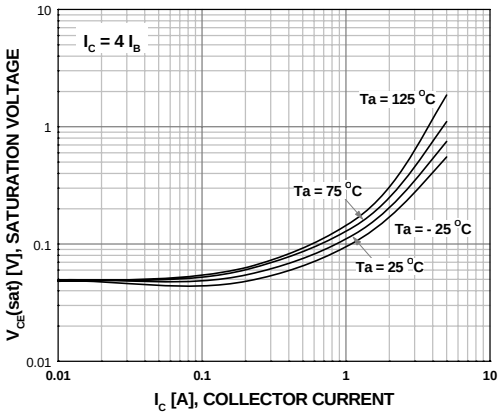
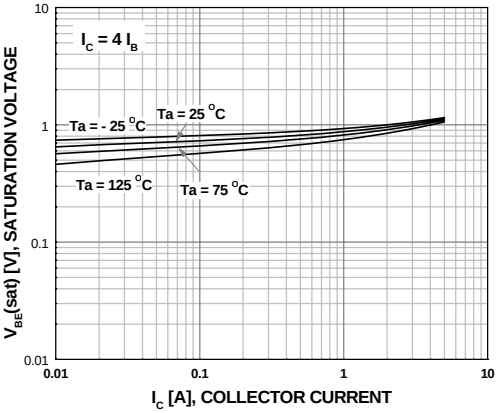


Figure 6. Saturation Voltage (R-Grade)



Typical Performance Characteristics (Continued)

Figure 7. Saturation Voltage (O-Grade)

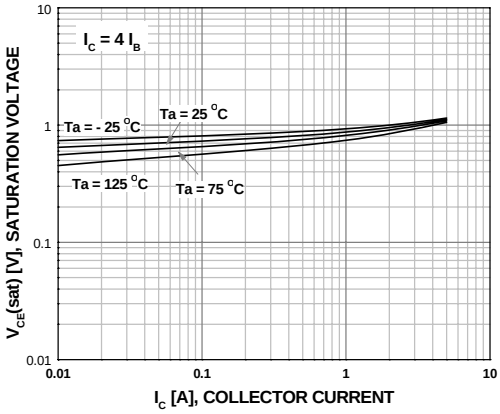


Figure 8. Switching Time

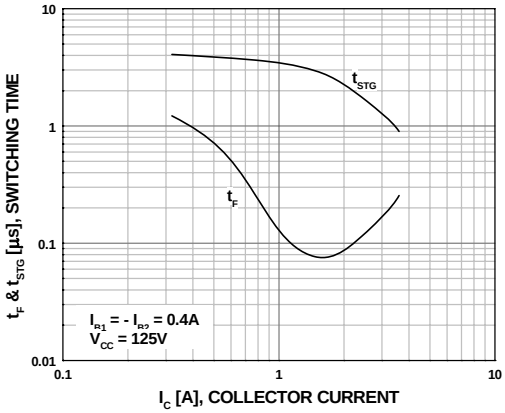


Figure 9. Reverse Biased Safe Operating Area

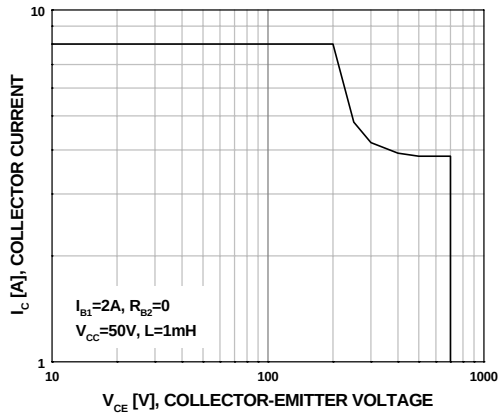


Figure 10. Forward Biased Safe Operating Area

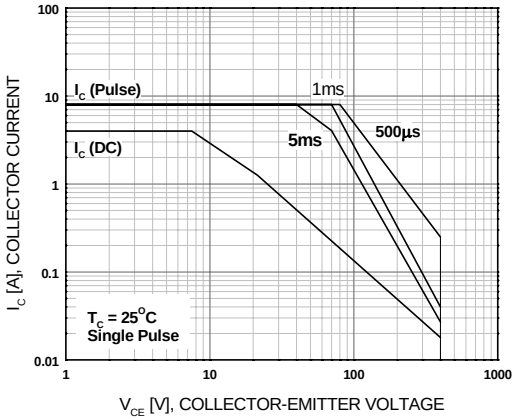
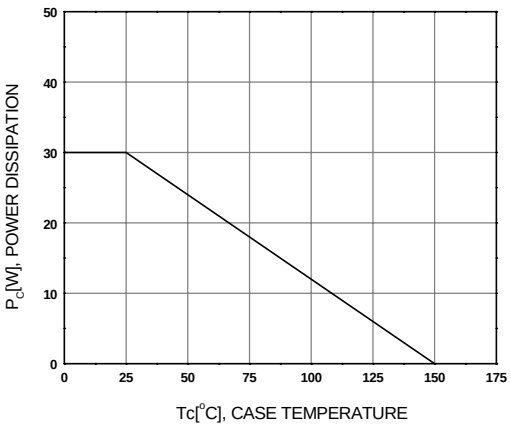
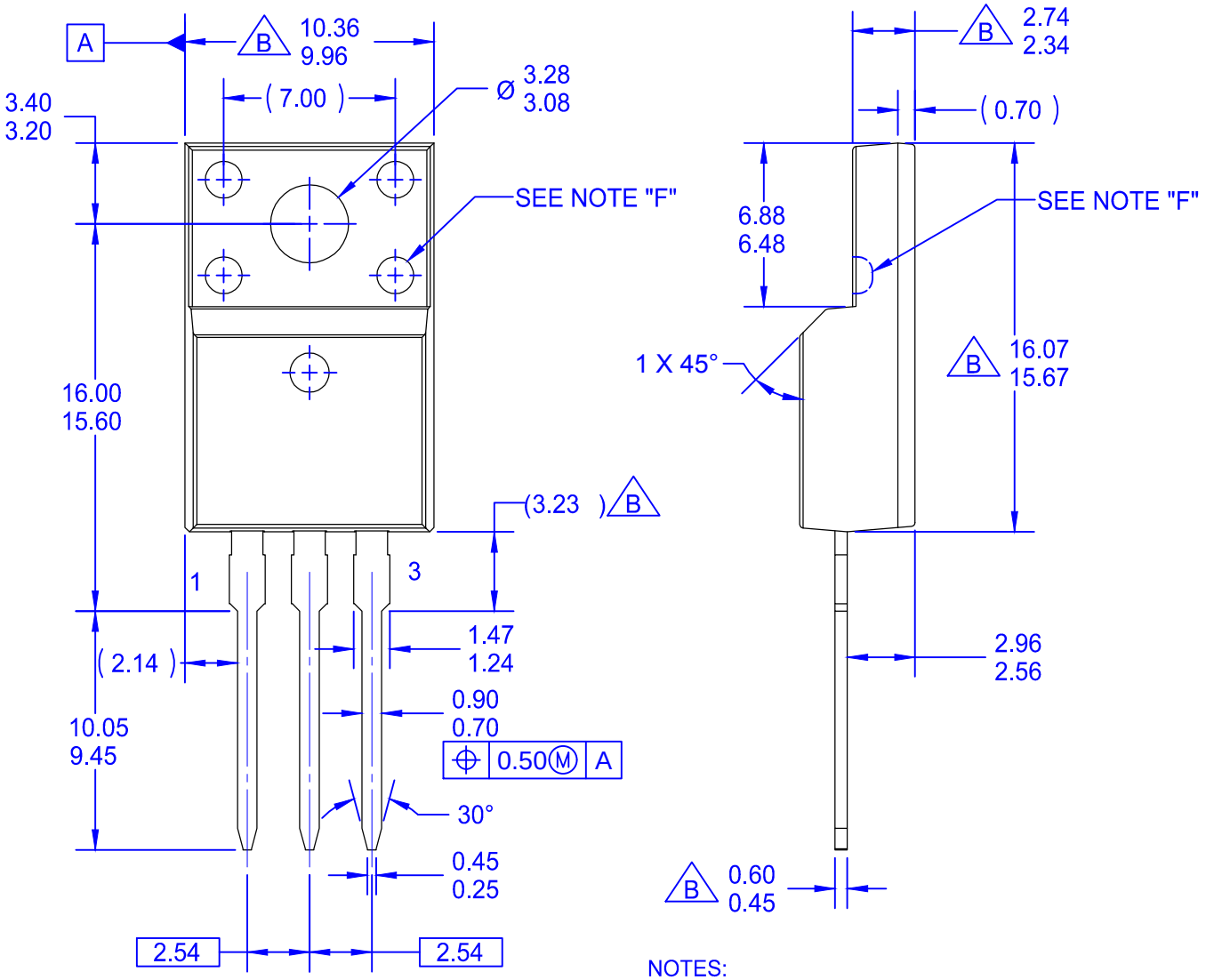


Figure 11. Power Derating





NOTES:

A. EXCEPT WHERE NOTED CONFORMS TO EIAJ SC91A.
B DOES NOT COMPLY EIAJ STD. VALUE.
C. ALL DIMENSIONS ARE IN MILLIMETERS.
D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
E. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
F. OPTION 1 - WITH SUPPORT PIN HOLE.
OPTION 2 - NO SUPPORT PIN HOLE.
G. DRAWING FILE NAME: TO220M03REV4

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