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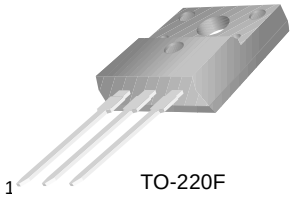
www.onsemi.com

Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FJPF13007
High Voltage Fast-Switching NPN Power Transistor

- High Voltage Capability
- High Switching Speed
- Suitable for Electronic Ballast and Switching Mode Power Supply



TO-220F

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	9	V
I_C	Collector Current (DC)	8	A
I_{CP}	Collector Current (Pulse)	16	A
I_B	Base Current	4	A
P_C	Collector Dissipation (T_C = 25°C)	40	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 ~ 150	°C

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10mA, I_B = 0	400			V
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 = 2A V_{CE} = 5V, I_C = 5A	8 5		60 30	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A I_C = 5A, I_B = 1A I_C = 8A, I_B = 2A			1.0 2.0 3.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A I_C = 5A, I_B = 1A			1.2 1.6	V V
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.5A	4			MHz
C_{ob}	Output Capacitance	V_{CB} = 10V, f = 0.1MHz		110		pF
t_{ON}	Turn On Time	V_{CC} = 125V, I_C = 5A I_{B1} = -I_{B2} = 1A R_L = 25Ω			1.6	µs
t_{STG}	Storge Time				3.0	µs
t_F	Fall Time				0.7	µs

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

h_{FE} Classification

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

Typical Performance Characteristics

Figure 1. DC Current Gain

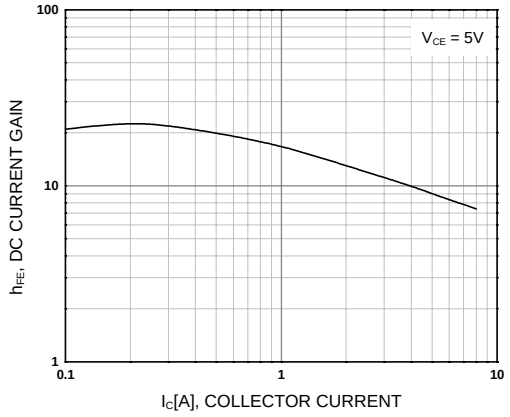


Figure 2. Saturation Voltage

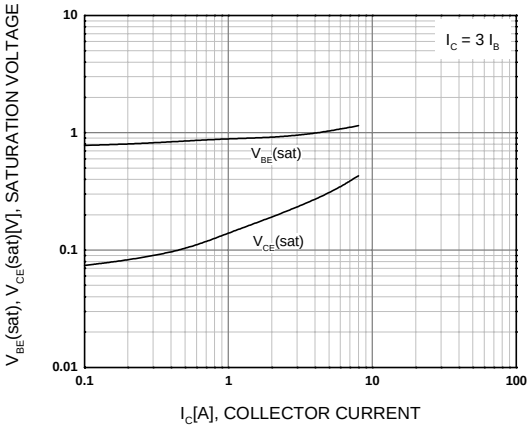


Figure 3. Collector Output Capacitance

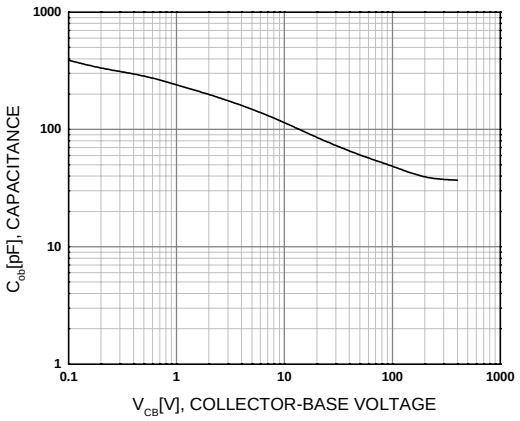


Figure 4. Turn On Time

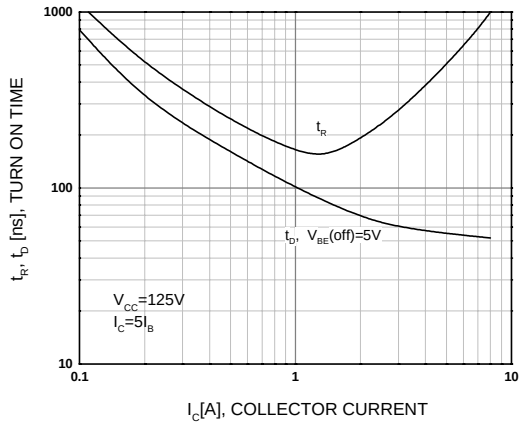


Figure 5. Turn Off Time

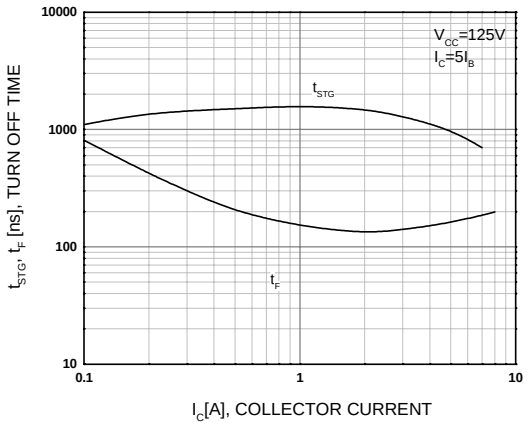
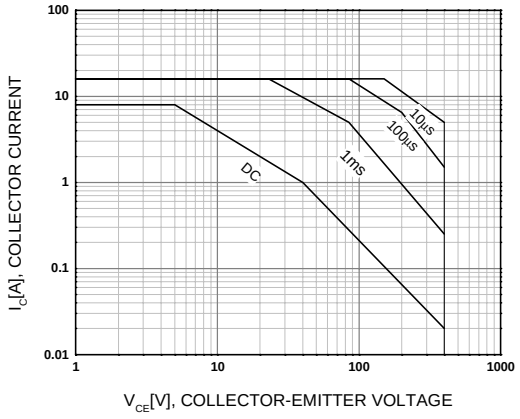


Figure 6. Forward Biased Safe Operating Area



Typical Performance Characteristics (Continued)

Figure 7. Reverse Biased Safe Operating Area

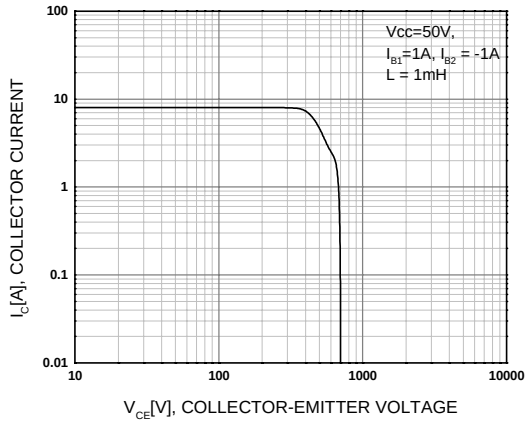
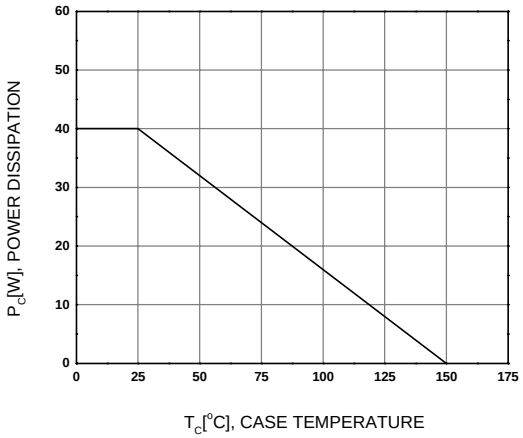
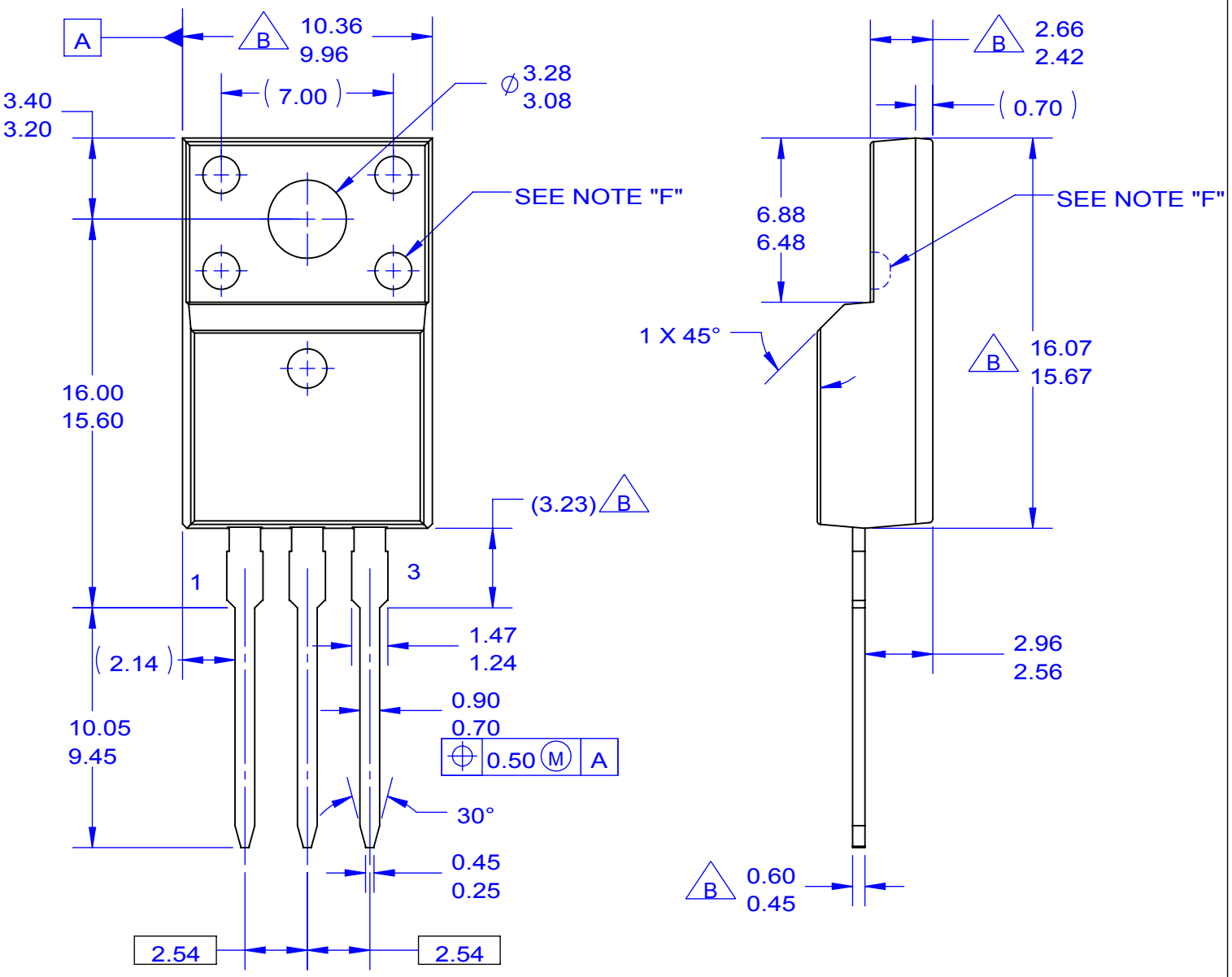
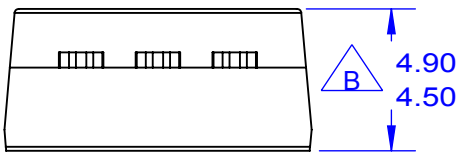


Figure 8. Power Derating







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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: TO220M03REV5

PUBLICATION ORDERING INFORMATION

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