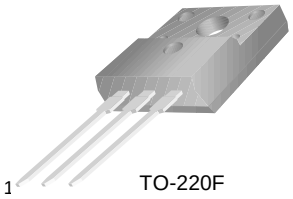
FAIRCHILD
SEMICONDUCTOR TM

MJE13007F

High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Switching Regulator and Motor Control



1 TO-220F

1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

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	Test Condition	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Base Breakdown Voltage	I_C = 10mA, I_B = 0	400			V
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			1	mA
h_{FE}	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 2 3	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
C_{ob}	Output Capacitance	V_{CB} = 10V , f = 0.1MHz		110		pF
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.5A	4			MHz
t_{ON}	Turn On Time	V_{CC} =125V, I_C = 5A I_{B1} = - I_{B2} = 1A R_L = 50Ω			1.6	µs
t_{STG}	Storage Time				3	µs
t_F	Fall Time				0.7	µs

* Pulse Test: PW≤300µs, Duty Cycle≤2%

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Typical Characteristics

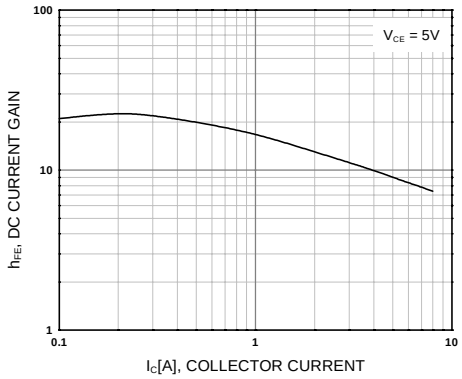


Figure 1. DC current Gain

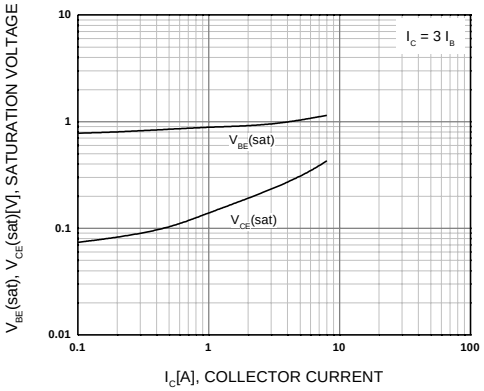


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

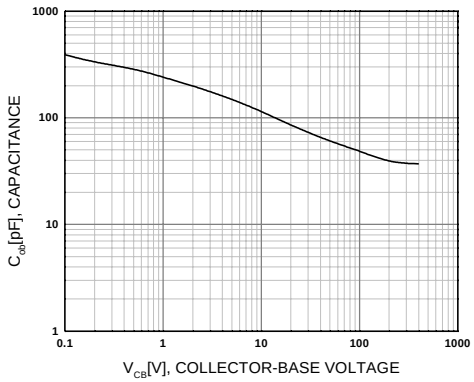


Figure 3. Collector Output Capacitance

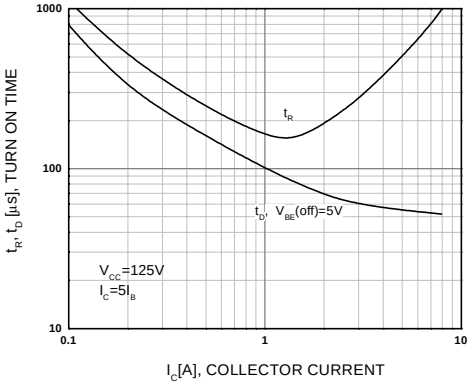


Figure 4. Turn On Time

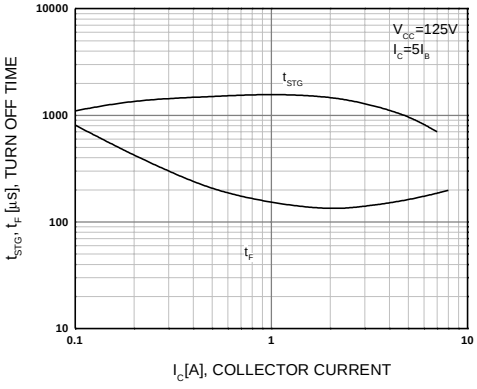


Figure 5. Turn Off Time

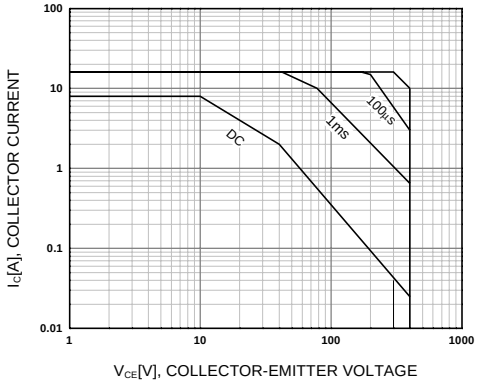


Figure 6. Safe Operating Area

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Typical Characteristics (Continued)

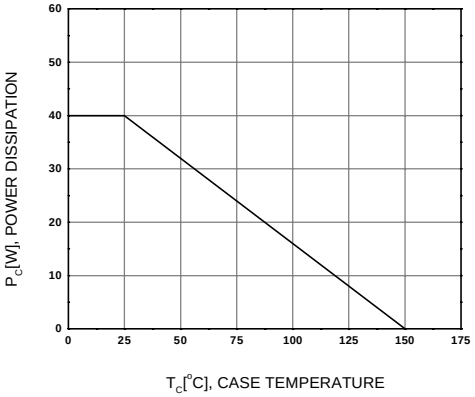
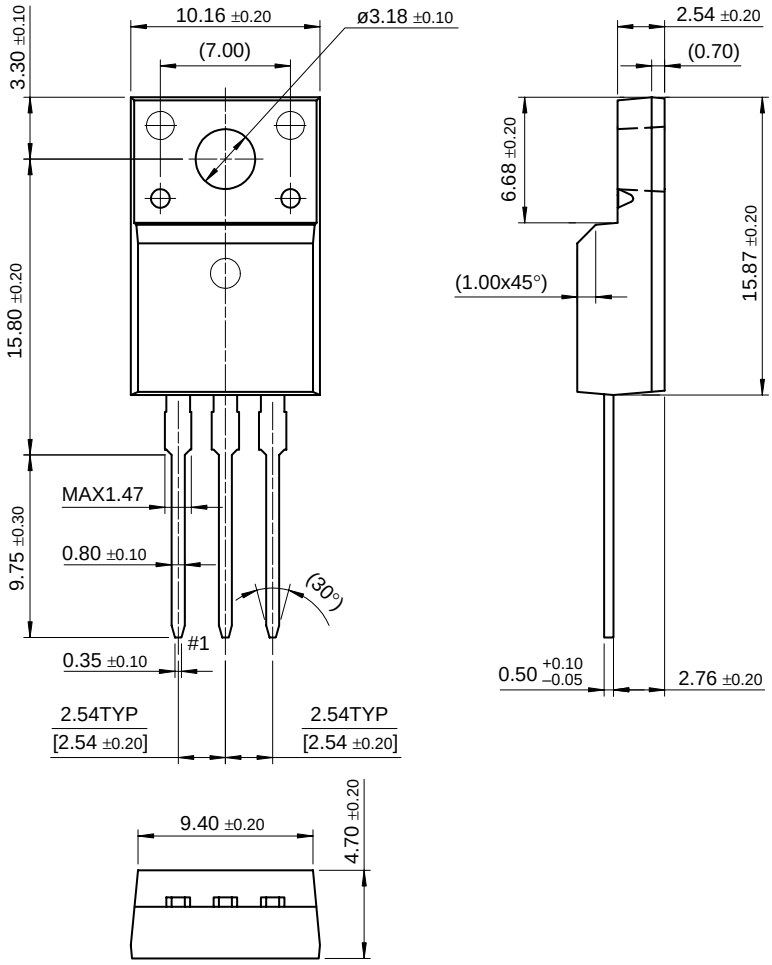


Figure 1. Power Derating

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Package Demensions

TO-220F



Dimensions in Millimeters

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