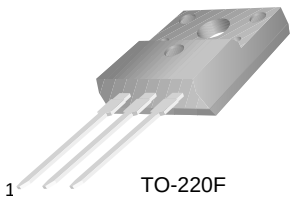
FAIRCHILD SEMICONDUCTOR®

December 2007

FJPF13009
NPN Silicon Transistor

High Voltage Switch Mode Application

- High Voltage Capability
- High Switching Speed
- Suitable for Motor Control and Switching Mode Power Supply



TO-220F

1.Base 2.Collector 3.Emitter

Absolute Maximum Ratings* T_C = 25°C unless otherwise noted **(notes_1)**

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)	12	A
I_{CP}	Collector Current (Pulse)	24	A
I_B	Base Current	6	A
P_C	Collector Dissipation (T_C = 25°C)	50	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-65 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.
NOTES_1:
1) These ratings are based on a maximum junction temperature of 150°C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

h_{FE} Classification

Classification	H1	H2
h_{FE1}	8 ~ 17	15 ~ 28

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Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
V_{CEO}(sus)	Collector-Emitter Sustaining 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 = 5A (h_{FE1}) V_{CE} = 5V, I_C = 8A	8 6		40 30	
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 5A, I_B = 1A I_C = 8A, I_B = 1.6A I_C = 12A, I_B = 3A			1 1.5 3	V V V
V_{BE} (sat)	* Base-Emitter Saturation Voltage	I_C = 5A, I_B = 1A I_C = 8A, I_B = 1.6A			1.2 1.6	V V
C_{ob}	Output Capacitance	V_{CB} = 10V, f = 0.1MHz		180		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 = 8A I_{B1} = - I_{B2} = 1.6A, R_L = 15,6Ω			1.1	μs
t_{STG}	Storage Time				3	μs
t_F	Fall Time				0.7	μs

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

Package Marking and Ordering Information

Device Item (notes_2)	Device Marking	Package	Packing Method	Remarks
FJPF13009TU	J13009	TO-220F	TUBE	
FJPF13009TTU	J13009	TO-220F	TUBE	Potting Type
FJPF13009H2TU	J130092	TO-220F	TUBE	

Notes_2 :

1) The Affix “-H2” means the hFE classification.

2) The Affix “-T” means the TO220F Potting type package option.

3) The Suffix “-TU” means the Tube packing method, which can be on fairchildsemi website at http://www.fairchildsemi.com/packaging.

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Typical Performance Characteristics

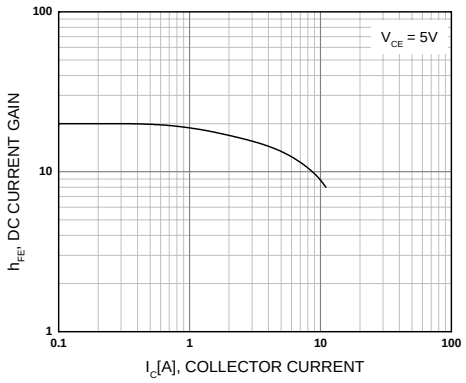


Figure 1. DC current Gain

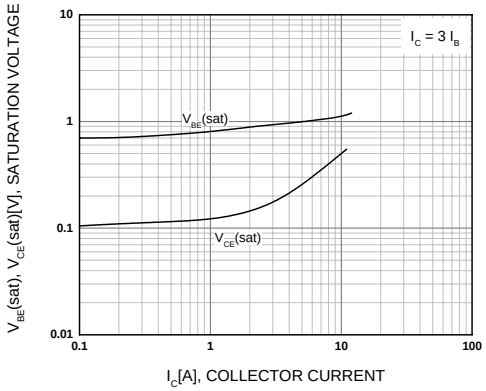


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

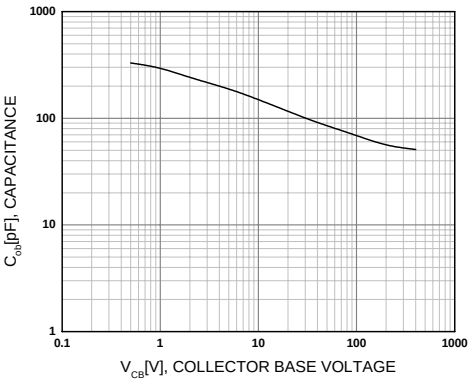


Figure 3. Collector Output Capacitance

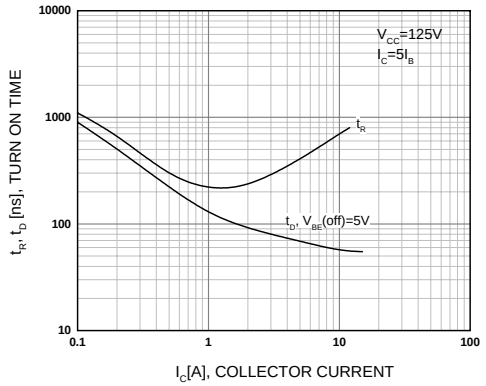


Figure 4. Turn On Time

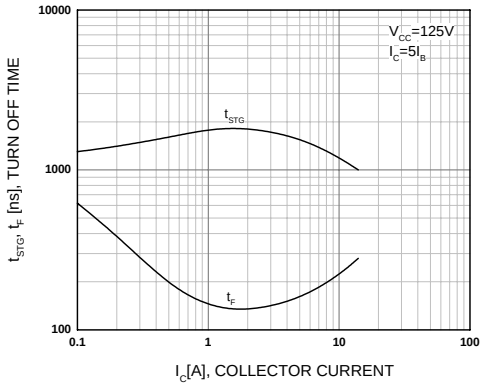


Figure 5. Turn Off Time

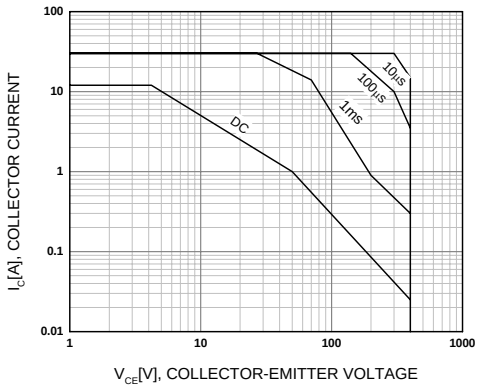


Figure 6. Forward Bias Safe Operating Area

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Typical Performance Characteristics (Continued)

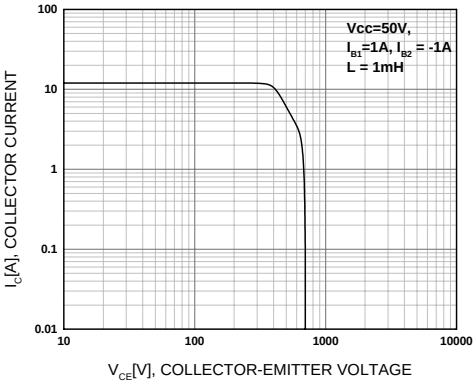


Figure 7. Reverse Bias Safe Operating Area

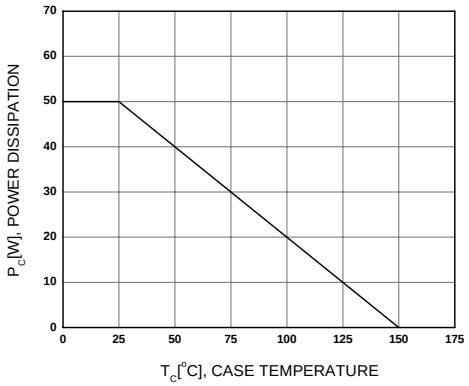


Figure 8. Power Derating

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