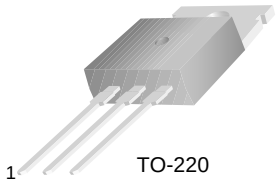
FAIRCHILD SEMICONDUCTOR®

March 2007

FJP13009
High Voltage Fast-Switching NPN Power Transistor

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



TO-220

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)	100	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.

Package Marking and Ordering Information

Device Item **(notes_2)**	Device Marking	Package	Packing Method	Qty(pcs)
FJP13009	J13009	TO-220	Bulk	1,200
FJP13009H2TU	J130092	TO-220	TUBE	1,000
FJP13009TU	J13009	TO-220	TUBE	1,000

Notes_2 :

1) The Affix "-H2" means the hFE classification.

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

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%

h_{FE} Classification

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

Typical Performance Characteristics

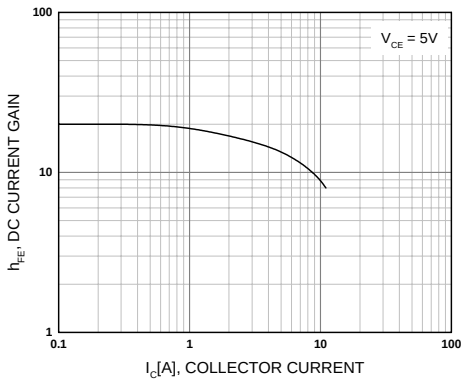


Figure 1. DC current Gain

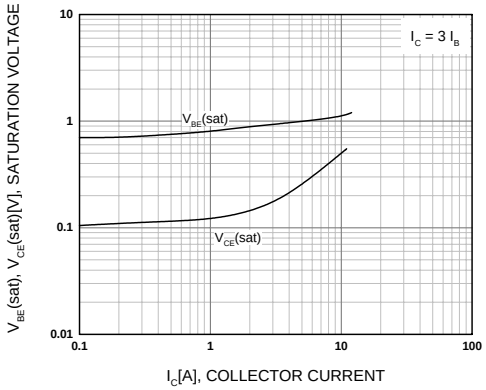


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

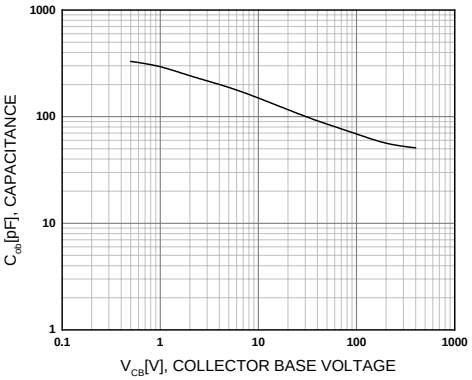


Figure 3. Collector Output Capacitance

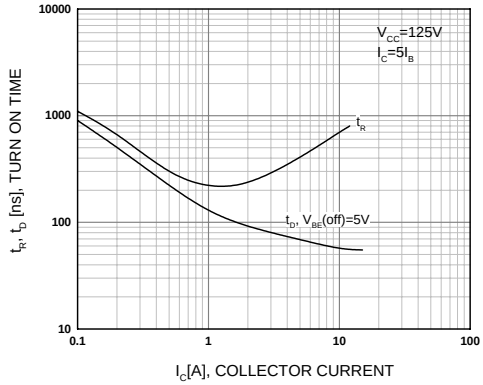


Figure 4. Turn On Time

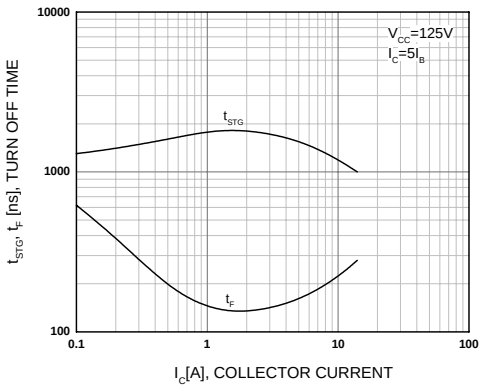


Figure 5. Turn Off Time

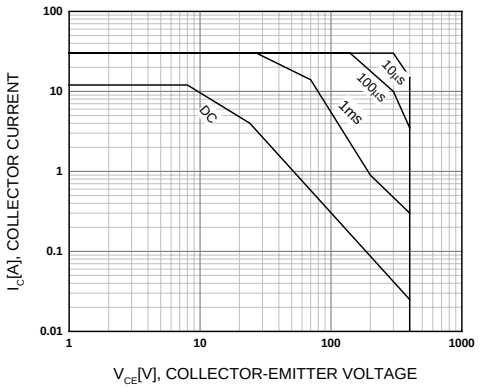


Figure 6. Forward Bias Safe Operating Area

Typical Performance Characteristics (Continued)

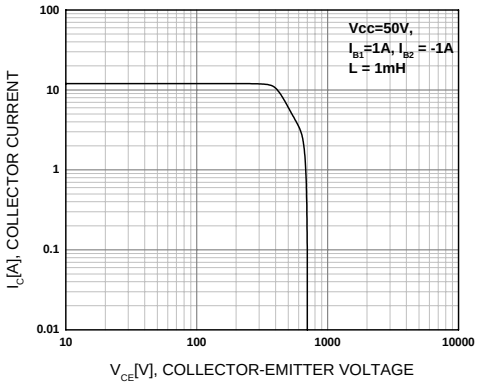


Figure 7. Reverse Bias Safe Operating Area

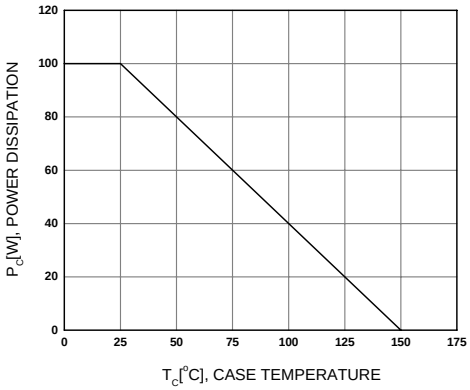
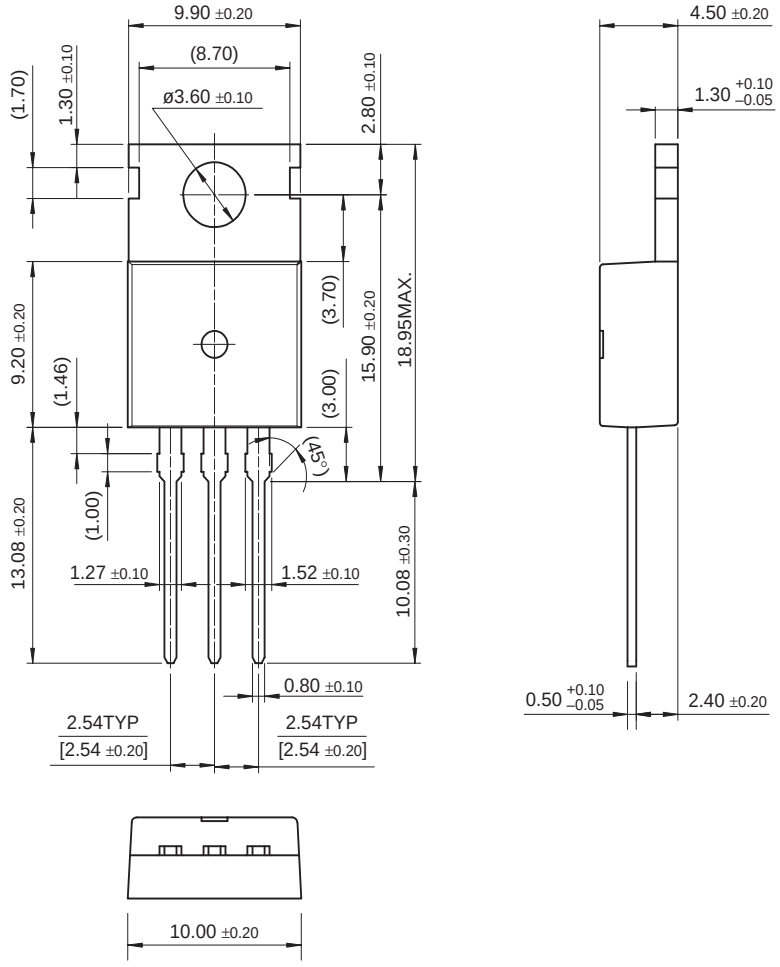


Figure 8. Power Derating

Mechanical Dimensions

TO-220



Dimensions in Millimeters

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Rev. I24

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