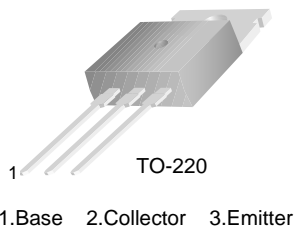


# FJP13007

## High Voltage Fast-Switching NPN Power Transistor

### High Voltage High Speed Power Switch Application

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



### Absolute Maximum Ratings T<sub>C</sub> = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CBO</sub>	Collector-Base Voltage	700	V
V <sub>CEO</sub>	Collector-Emitter Voltage	400	V
V <sub>EBO</sub>	Emitter-Base Voltage	9	V
I <sub>C</sub>	Collector Current (DC)	8	A
I <sub>CP</sub>	Collector Current (Pulse)	16	A
I <sub>B</sub>	Base Current	4	A
P <sub>C</sub>	Collector Dissipation (T <sub>C</sub> = 25°C)	80	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	-65 ~ 150	°C

**Electrical Characteristics**  $T_C = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}, I_B = 0$	400			V
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 9\text{V}, I_C = 0$			1	mA
$h_{FE1}$ $h_{FE2}$	DC Current Gain *	$V_{CE} = 5\text{V}, I_C = 2\text{A}$ $V_{CE} = 5\text{V}, I_C = 5\text{A}$	8 5		60 30	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 2\text{A}, I_B = 0.4\text{A}$ $I_C = 5\text{A}, I_B = 1\text{A}$ $I_C = 8\text{A}, I_B = 2\text{A}$			1.0 2.0 3.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 2\text{A}, I_B = 0.4\text{A}$ $I_C = 5\text{A}, I_B = 1\text{A}$			1.2 1.6	V V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}$	4			MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, f = 0.1\text{MHz}$		110		pF
$t_{ON}$	Turn On Time	$V_{CC} = 125\text{V}, I_C = 5\text{A}$			1.6	$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = 1\text{A}$ $R_L = 25\Omega$			3.0	$\mu\text{s}$
$t_F$	Fall Time				0.7	$\mu\text{s}$

\* Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$  **$h_{FE}$  Classification**

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

## Typical Characteristics

Figure 1. DC Current Gain

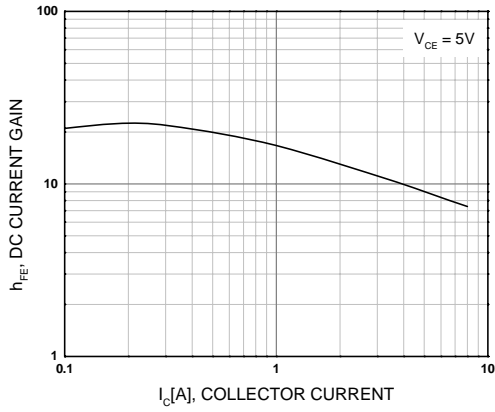


Figure 2. Saturation Voltage

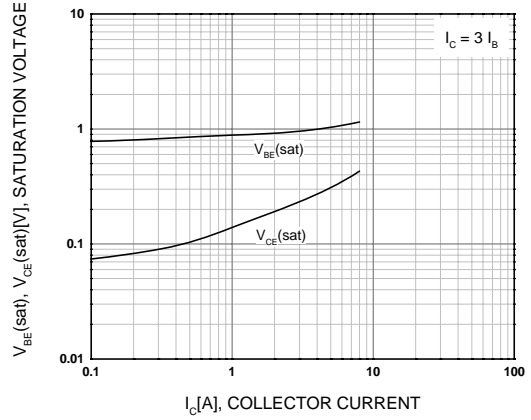


Figure 3. Collector Output Capacitance

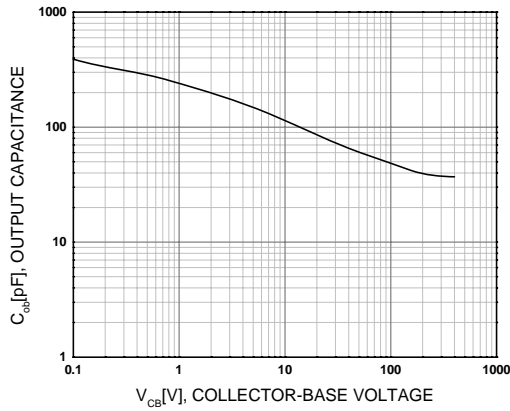


Figure 4. Turn On Time

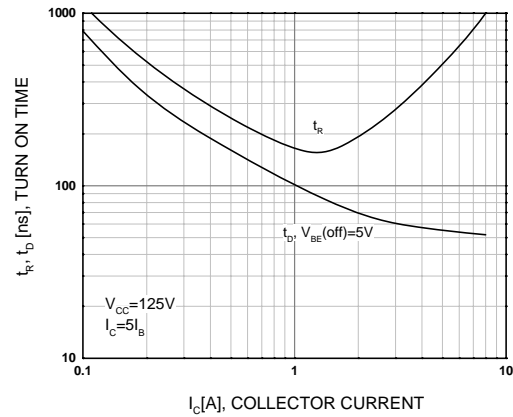


Figure 5. Turn Off Time

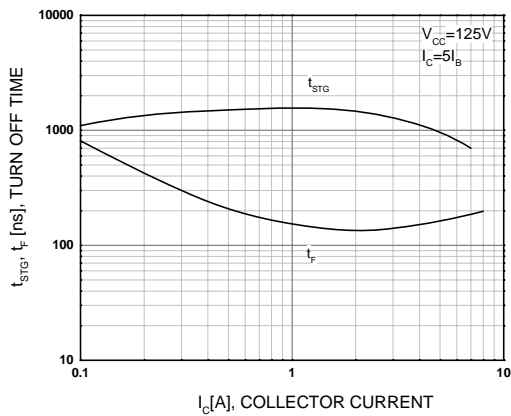
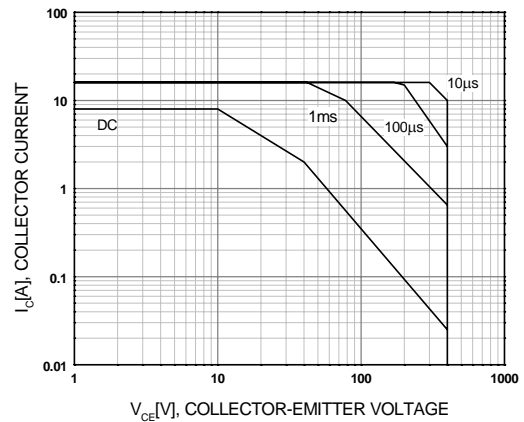
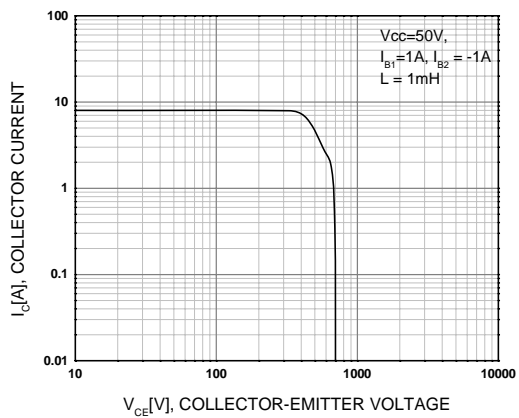


Figure 6. Forward Biased Safe Operating Area

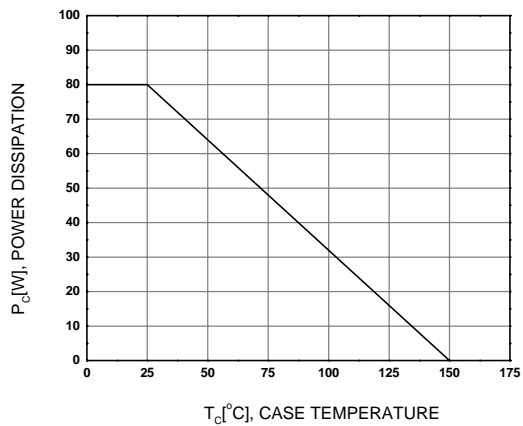


## Typical Characteristics (Continued)

**Figure 7. Reverse Biased Safe Operating Area**

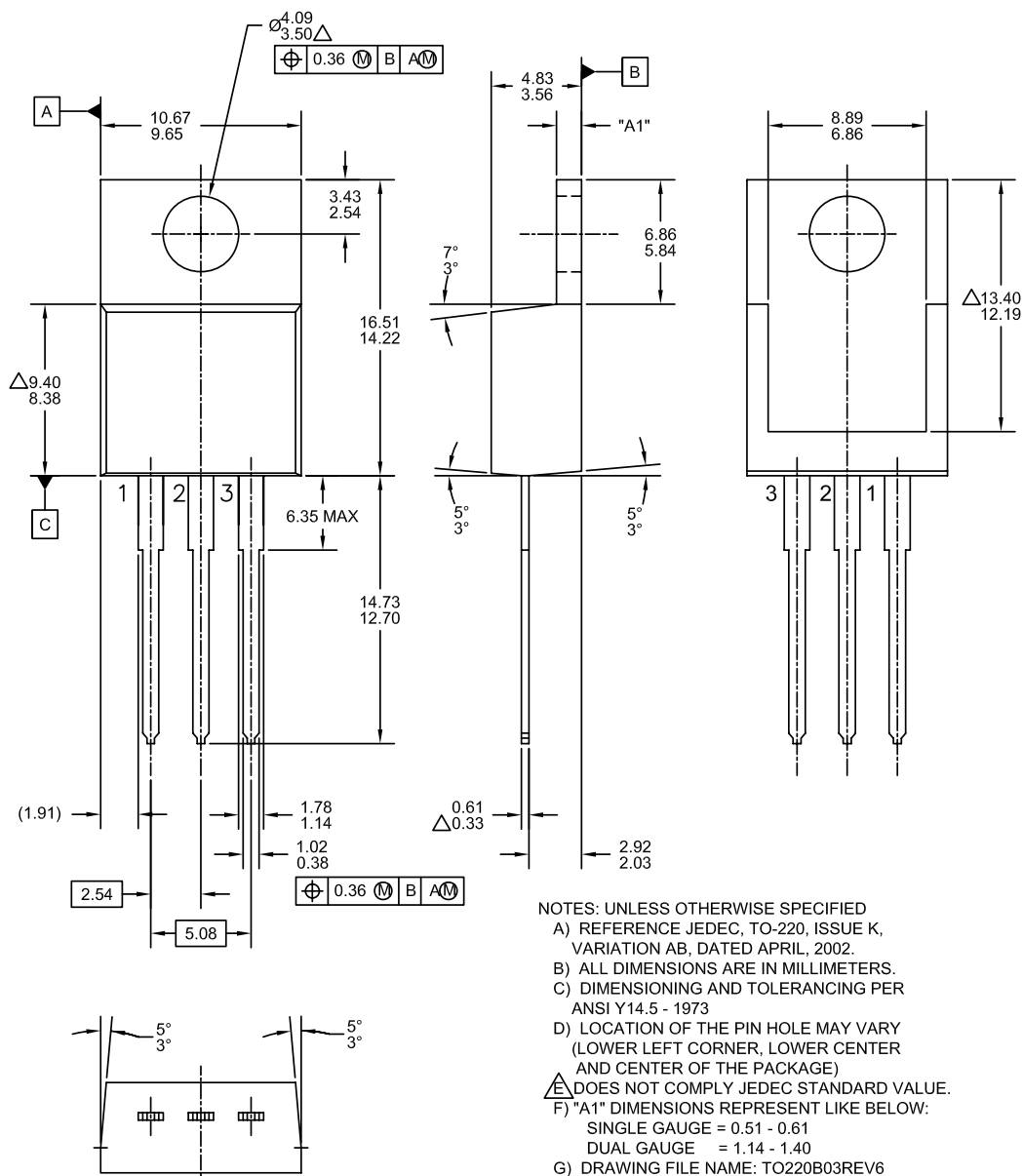


**Figure 8. Power Derating**



# Mechanical Dimensions

## TO220





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| FastvCore™  | OPTOLOGIC®                          | SuperSOT™.8   |   |
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|   |                                     | SyncFET™  |   |
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Rev. 135

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Тел: +7 (812) 336 43 04 (многоканальный)  
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