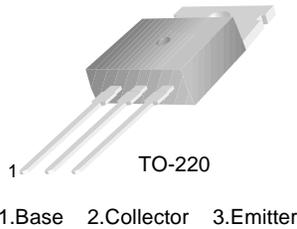


FJP3305

High Voltage Fast-Switching NPN Power Transistor

- High Voltage Capability
- High Switching Speed
- Suitable for Electronic Ballast and Switching Regulator



Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	700	V
V _{CEO}	Collector-Emitter Voltage	400	V
V _{EBO}	Emitter-Base Voltage	9	V
I _C	Collector Current (DC)	4	A
I _{CP}	Collector Current (Pulse)	8	A
I _B	Base Current	2	A
P _C	Collector Dissipation (T _C = 25°C)	75	W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-65 ~ 150	°C

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

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 500\mu\text{A}, I_E = 0$	700			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_B = 0$	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 500\mu\text{A}, I_C = 0$	9			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 700\text{V}, I_E = 0$			1	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 9\text{V}, I_C = 0$			1	μA
h_{FE1} h_{FE2}	DC Current Gain *	$V_{CE} = 5\text{V}, I_C = 1\text{A}$ $V_{CE} = 5\text{V}, I_C = 2\text{A}$	19 8		35 40	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 0.2\text{A}$ $I_C = 2\text{A}, I_B = 0.5\text{A}$ $I_C = 4\text{A}, I_B = 1\text{A}$			0.5 0.6 1.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 0.2\text{A}$ $I_C = 2\text{A}, I_B = 0.5\text{A}$			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	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		65		pF
t_{ON}	Turn On Time	$V_{CC} = 125\text{V}, I_C = 2\text{A}$			0.8	μs
t_{STG}	Storage Time	$I_{B1} = -I_{B2} = 0.4\text{A}$ $R_L = 62.5\Omega$			4.0	μs
t_F	Fall Time				0.9	μs

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

h_{FE} Classification

Classification	H1	H2
h_{FE1}	19 ~ 28	26 ~ 35

Typical Performance Characteristics

Figure 1. Static Characteristic

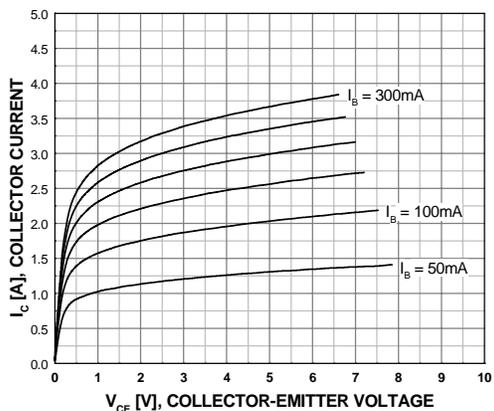


Figure 2. DC Current Gain (R-Grade)

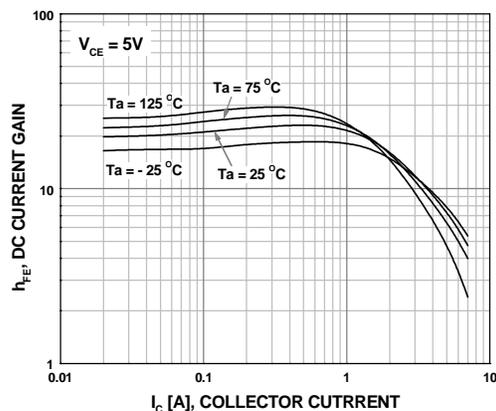


Figure 3. DC Current Gain (O-Grade)

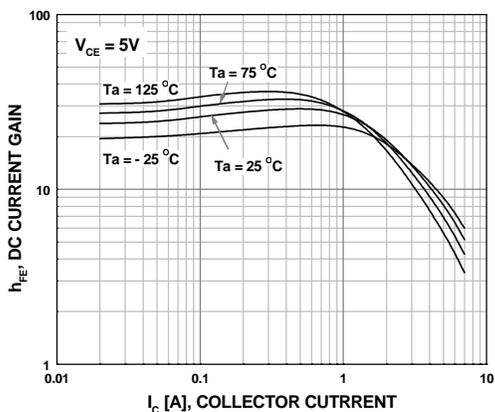


Figure 4. Saturation Voltage (R-Grade)

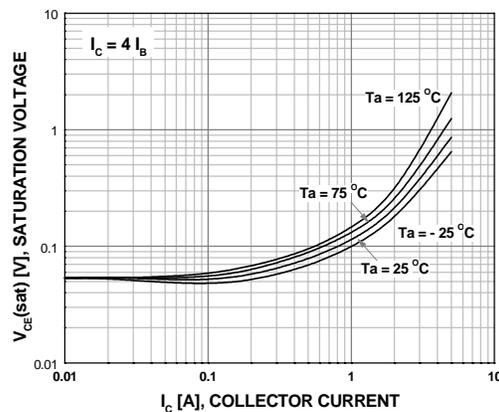


Figure 5. Saturatin Voltage (O-Grade)

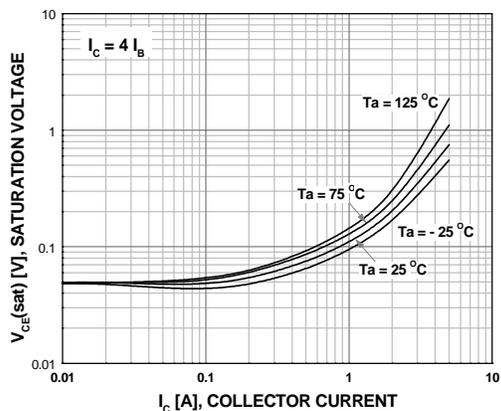
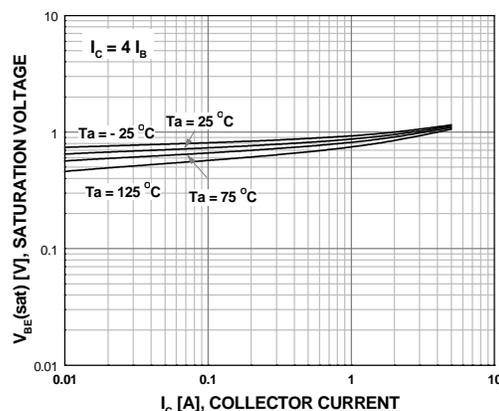


Figure 6. Saturation Voltage (R-Grade)



Typical Performance Characteristics (Continued)

Figure 7. Saturation Voltage (O-Grade)

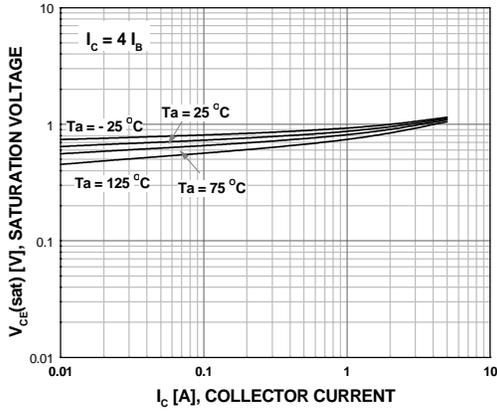


Figure 8. Switching Time

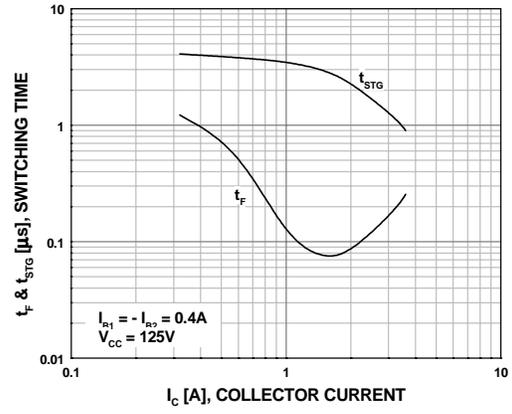


Figure 9. Reverse Biased Safe Operating Area

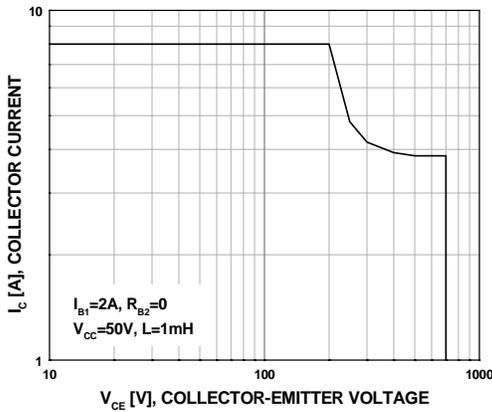


Figure 10. Forward Biased Safe Operating Area

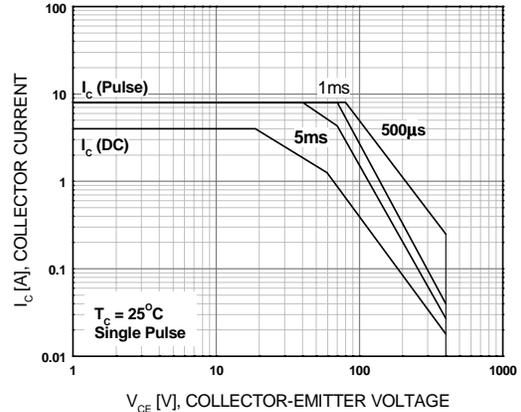
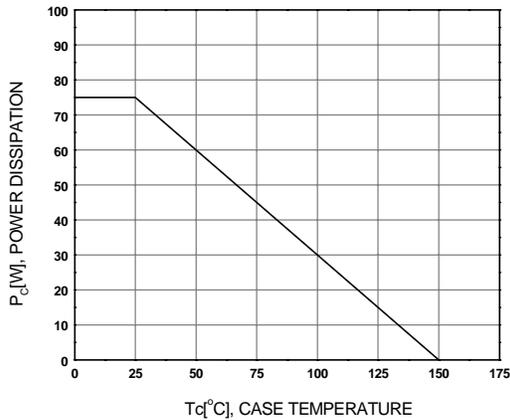
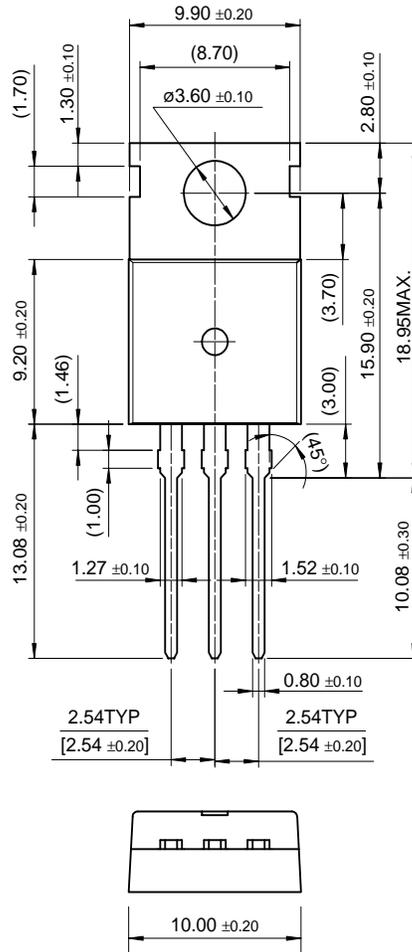


Figure 11. Power Derating



Mechanical Dimensions

TO-220



Dimensions in Millimeters

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Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

Rev. I15

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FJP3305

NPN Silicon Transistor

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Features

- High Voltage Capability
- High Speed Switching
- Suitable for Electronic Ballast and Switching Regulator

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Product status/pricing/packageing

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Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
FJP3305	Full Production	Full Production	\$0.418	TO-220	3	BULK	Line 1: \$Y (Fairchild logo) Line 2: &3 Line 3: J3305
FJP3305H1TU	Full Production	Full Production	\$0.418	TO-220	3	RAIL	Line 1: \$Y (Fairchild logo) Line 2: &3 Line 3: J3305-1
FJP3305H2TU	Full Production	Full Production	\$0.418	TO-220	3	RAIL	Line 1: \$Y (Fairchild logo) Line 2: &3 Line 3: J3305-2
FJP3305TU	Full Production		\$0.426	TO-220	3	RAIL	Line 1: \$Y (Fairchild logo)

							Line 2: &3 Line 3: J3305
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* Fairchild 1,000 piece Budgetary Pricing

** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

Package marking information for product FJP3305 is available. [Click here for more information](#).

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Models

Package & leads	Condition	Temperature range	Vcc range	Software version	Revision date
PSPICE					
TO-220-3	Electrical	-65°C to 150°C	0V to 8V	OrCAD 10.3	May 11, 2007

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Qualification Support

Click on a product for detailed qualification data

Product
FJP3305
FJP3305H1TU
FJP3305H2TU
FJP3305TU

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