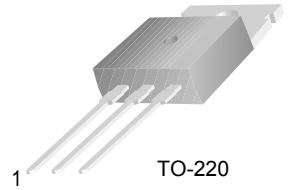
FAIRCHILD SEMICONDUCTOR®

FJP3307D

High Voltage Fast Switching NPN Power Transistor

Features

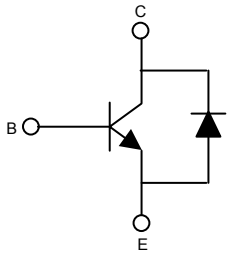
- Built-in Diode between Collector and Emitter
- Suitable for Electronic Ballast and Switch Mode Power Supplies



TO-220

1.Base 2.Collector 3.Emitter

Internal Schematic Diagram



Absolute Maximum Ratings

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 (DC)	4	A
P_C	Collector Dissipation (T_C = 25°C)	80	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

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

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 500μA, I_E = 0	700			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5mA, I_B = 0	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 500μA, I_C = 0	9			V
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			1	mA
h_{FE1} h_{FE2}	DC Current Gain	V_{CE} = 5V, I_C = 2A V_{CE} = 5V, I_C = 5A	8 5		40 30	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A			1	V
		I_C = 5A, I_B = 1A			2	V
		I_C = 8A, I_B = 2A			3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A			1.2	V
		I_C = 5A, I_B = 1A			1.6	V

Electrical Characteristics T_C = 25°C unless otherwise noted (Continued)

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
V_F	Diode Forward Voltage	I_C = 3A			2.5	V
C_{ob}	Output Capatitance	V_{CB} = 10V, I_E = 0, f = 1MHz		60		pF
t_{STG}	Storage Time	V_{CC} = 125V, I_C = 5A I_{B1} = -I_{B2} = 1A, R_L = 50Ω			3	μs
t_F	Fall Time				0.7	μs
t_{STG}	Storage Time	V_{CC} = 30V, I_C = 5A, L=200μH I_{B1}=1A, R_{BB} = 0Ω, $V_{BE(OFF)}$= -5V V_{CLAMP} = 250V			2.3	μs
t_F	Fall Time				150	ns

* Pulse test: PW=300μs, Duty cycle=2%

h_{FE} Classification

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

Typical Performance Characteristics

Figure 1. Static Characterstic

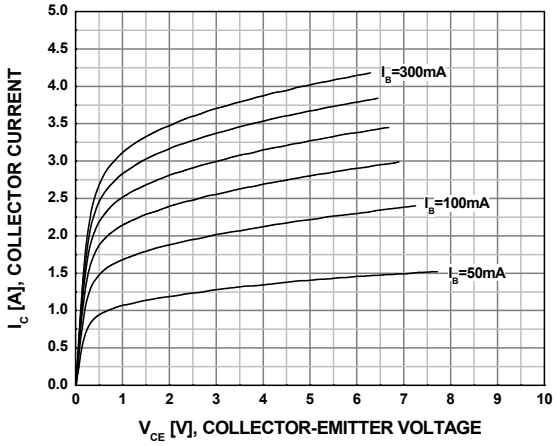


Figure 2. DC Current Gain (H1 Grade)

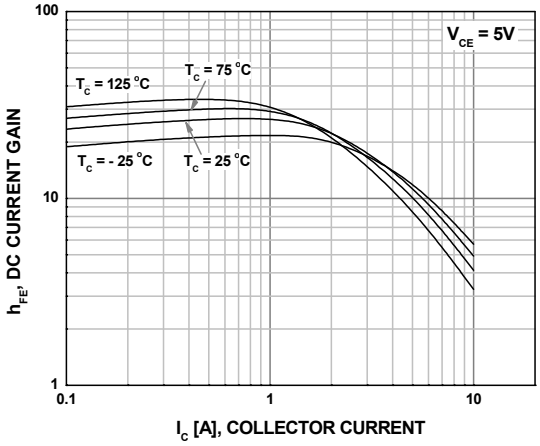


Figure 3. DC Current Gain (H2 Grade)

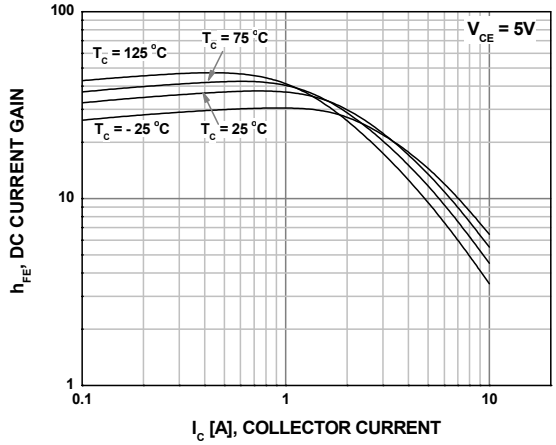


Figure 4. Collector-Emitter Saturation Voltage

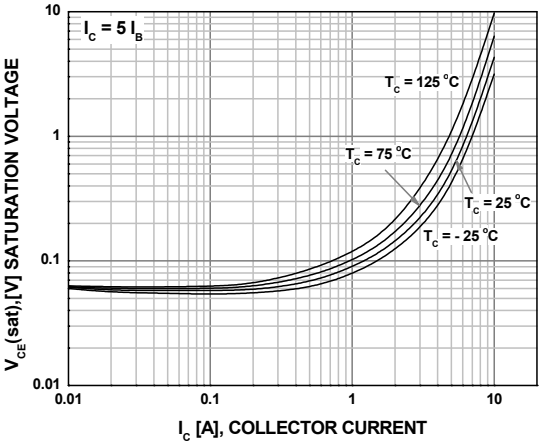


Figure 5. Base-Emitter Saturation Voltage

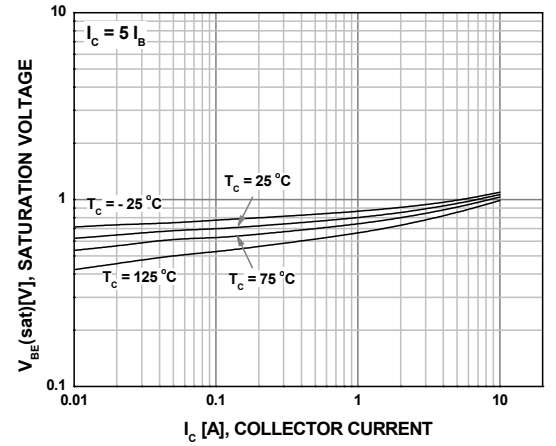
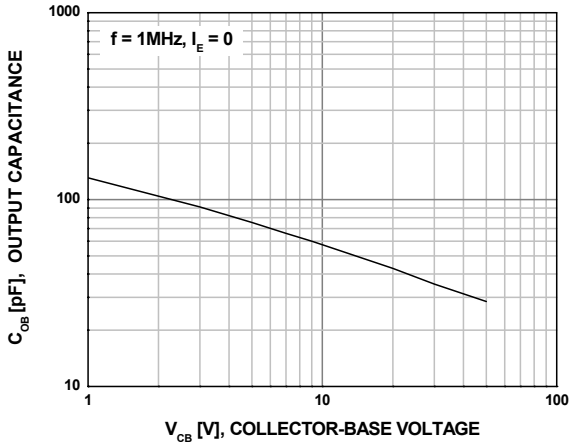


Figure 6. Output Capacitance



Typical Performance Characteristics (Continued)

Figure 7. Power Derating

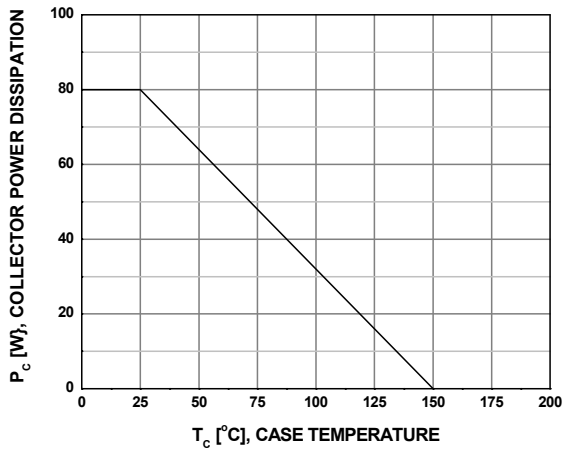


Figure 8. Reverse Biased Safe Operating Area

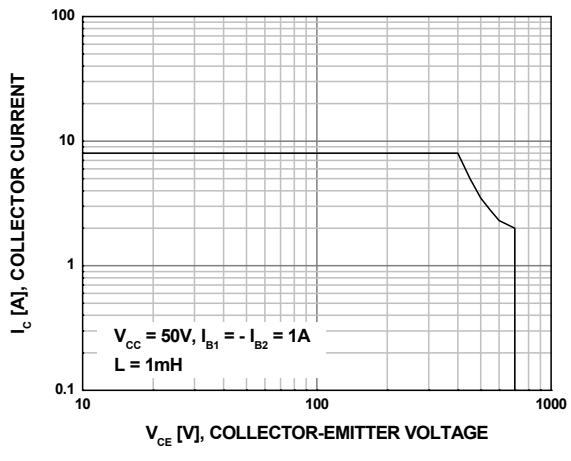
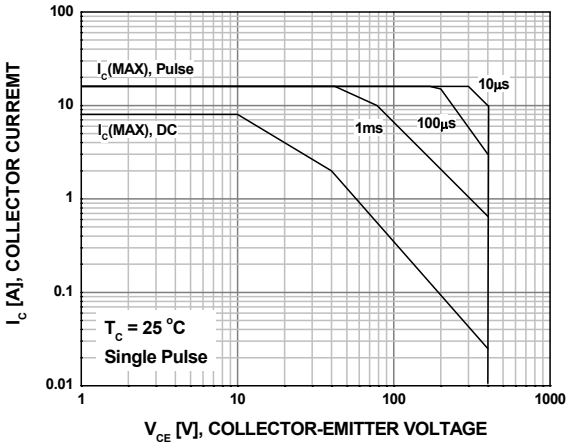
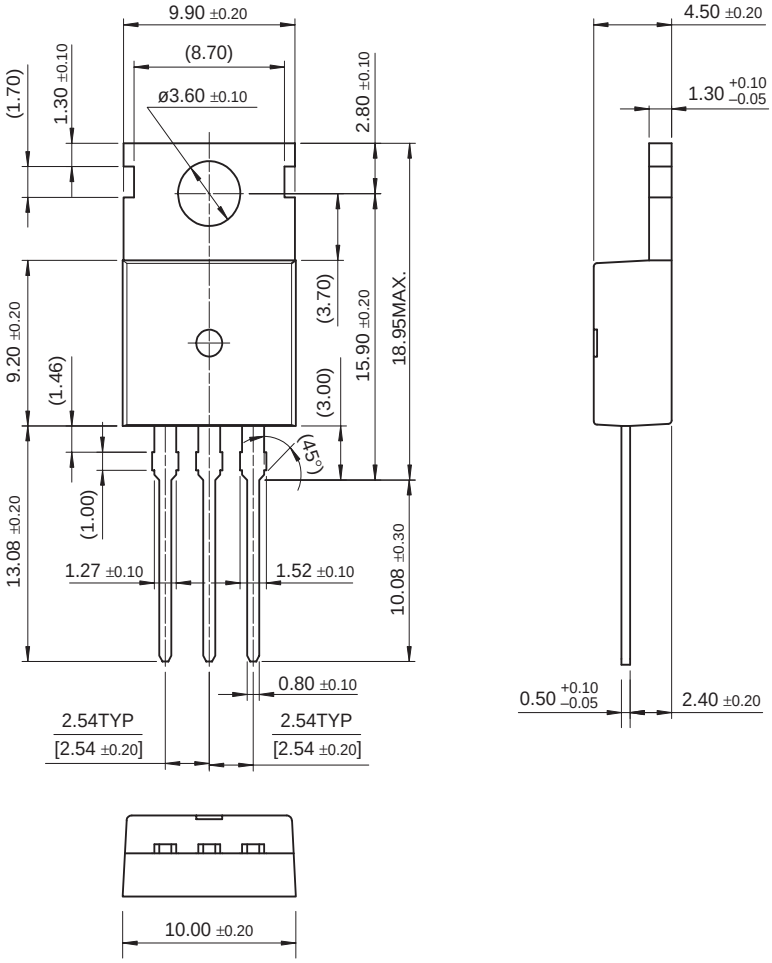


Figure 9. Forward Biased Safe Operating Area



Mechanical Dimensions

TO-220



Dimensions in Millimeters

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Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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Product status/pricing/packaging BUY

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
FJP3307D	Full Production	Full Production	$0.56	TO-220	3	BULK	Line 1: **$Y** (Fairchild logo) **&Z** (Asm. Plant Code) **&3** (3-Digit Date Code) **&T** (Die Trace Code) Line 2: FJP Line 3: 3307D
FJP3307DH1	Full Production	Full Production	$0.53	TO-220	3	RAIL	Line 1: **$Y** (Fairchild logo) Line 2: &3 Line 3: J3307D-1
FJP3307DH1TU	Full Production	Full Production	$0.56	TO-220	3	BULK	Line 1: **$Y** (Fairchild logo) Line 2: &3 Line 3: J3307D-1
							Line 1: **$Y** (Fairchild logo) **&Z** (Asm. Plant Code)

FJP3307DH2	Full Production	Full Production	$0.56	TO-220	3	BULK	&**3** (3-Digit Date Code) &**T** (Die Trace Code) Line 2: FJP Line 3: 3307D-2
FJP3307DH2TU	Full Production	Full Production	$0.56	TO-220	3	RAIL	Line 1: **$Y** (Fairchild logo) &**Z** (Asm. Plant Code) &**3** (3-Digit Date Code) &**T** (Die Trace Code) Line 2: FJP Line 3: 3307D-2
FJP3307DTU	Full Production	Full Production	$0.56	TO-220	3	RAIL	Line 1: **$Y** (Fairchild logo) &**Z** (Asm. Plant Code) &E&**3** (3-Digit Date Code) Line 2: FJP Line 3: 3307D

* 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.

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