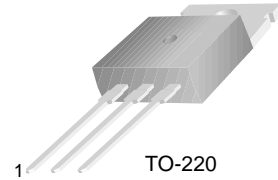# FAIRCHILD
SEMICONDUCTOR®

FJP5021

High Voltage and High Reliability

- High Speed Switching : $t_F = 0.1\mu s$ (Typ.)
- Wide SOA

TO-220

1.Base   2.Collector   3.Emitter

NPN Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	800	V
V_{CEO}	Collector-Emitter Voltage	500	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current (DC)	5	A
I_{CP}	Collector Current (Pulse)	10	A
I_B	Base Current	2	A
P_C	Collector Dissipation (T_C=25°C)	50	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 55 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 1mA, I_E = 0$	800			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5mA, I_B = 0$	500			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 1mA, I_C = 0$	7			V
V_{CEX}(sus)	Collector-Emitter Sustaining Voltage	$I_C = 2.5A, I_{B1} = -I_{B2} = 1A$ L = 1mH, Clamped	500			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 500V, I_E = 0$			10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$			10	μA
h_{FE1} h_{FE2}	DC Current Gain	$V_{CE} = 5V, I_C = 0.6A$ $V_{CE} = 5V, I_C = 3A$	15 8		50	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	$I_C = 3A, I_B = 0.6A$			1	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	$I_C = 3A, I_B = 0.6A$			1.5	V
C_{ob}	Output Capacitance	$V_{CB} = 10V, I_E = 0,\ f=1MHz$		80		pF
f_T	Current Gain Bandwidth Product	$V_{CE} = 10V, I_C = 0.6A$		18		MHz
t_{ON}	Turn On Time	$V_{CC} = 200V$			0.5	μs
t_{STG}	Storage Time	$I_C = 5I_{B1} = -2.5I_{B2} = 4A$			3	μs
t_F	Fall Time	$R_L = 50\Omega$		0.1	0.3	μs

h_{FE} Classification

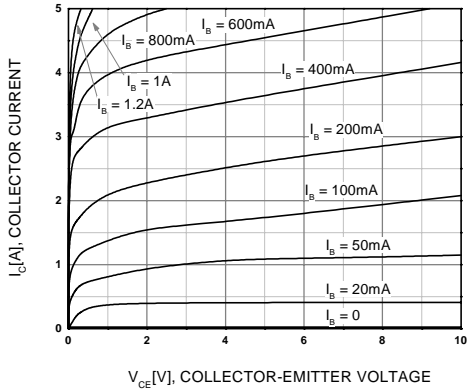| Classification	R	O	Y
h_{FE1}	15 ~ 30	20 ~ 40	30 ~ 50

Typical Characteristics

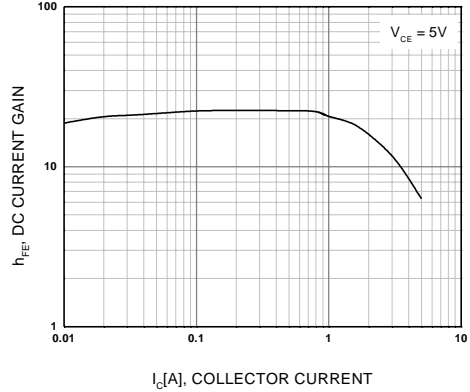**Figure 1. Static Characteristic**

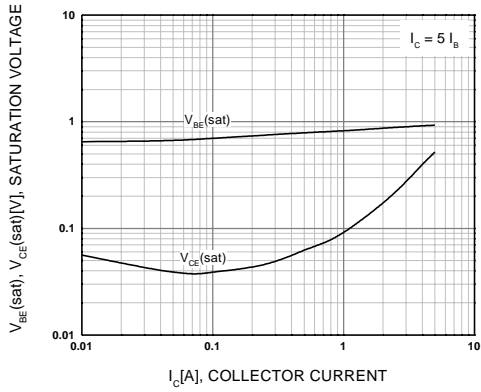**Figure 2. DC current Gain**

Figure 3. Base-Emitter Saturation Voltage
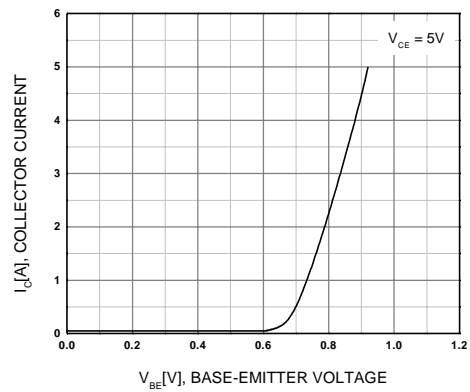**Collector-Emitter Saturation Voltage**

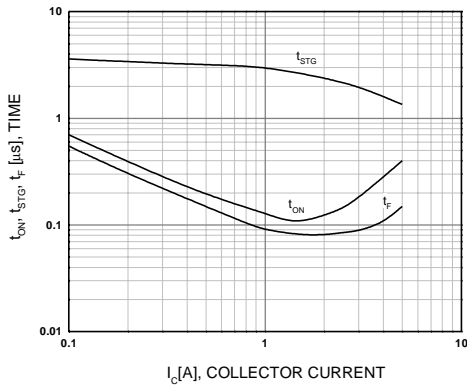**Figure 4. Base-Emitter On Voltage**
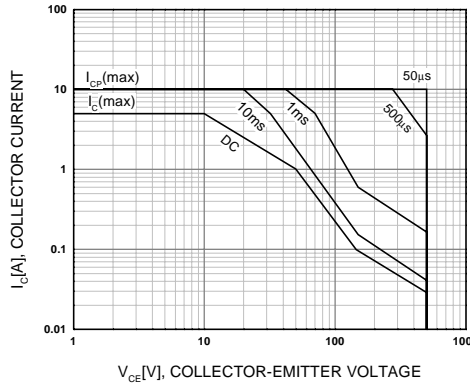

Figure 5. Switching Time

Figure 6. Forward Bias Safe Operating Area
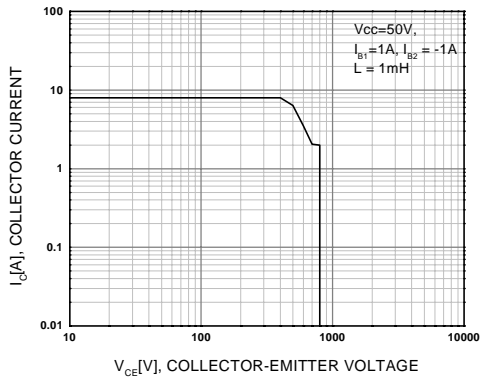
Typical Characteristics (Continued)

Figure 7. Reverse Bias Safe Operating Area
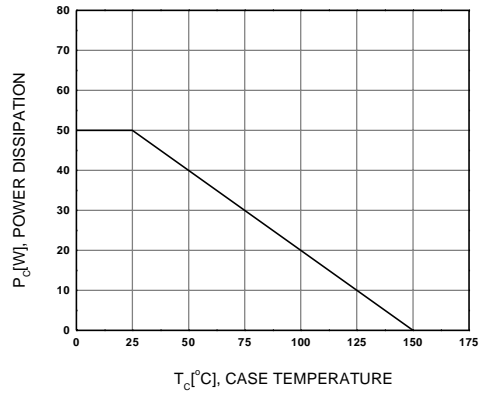
Figure 8. Power Derating

Package Dimensions

TO-220

9.90 ±0.20

(8.70)

(1.70)

1.30 ±0.10

ø3.60 ±0.10

2.80 ±0.10

9.20 ±0.20

(1.46)

(3.70)

(3.00)

15.90 ±0.20

18.95MAX.

(45°)

13.08 ±0.20

(1.00)

10.08 ±0.30

1.27 ±0.10

1.52 ±0.10

0.80 ±0.10

2.54TYP
[2.54 ±0.20]

2.54TYP
[2.54 ±0.20]

4.50 ±0.20

1.30 +0.10 −0.05

0.50 +0.10 −0.05

2.40 ±0.20

10.00 ±0.20
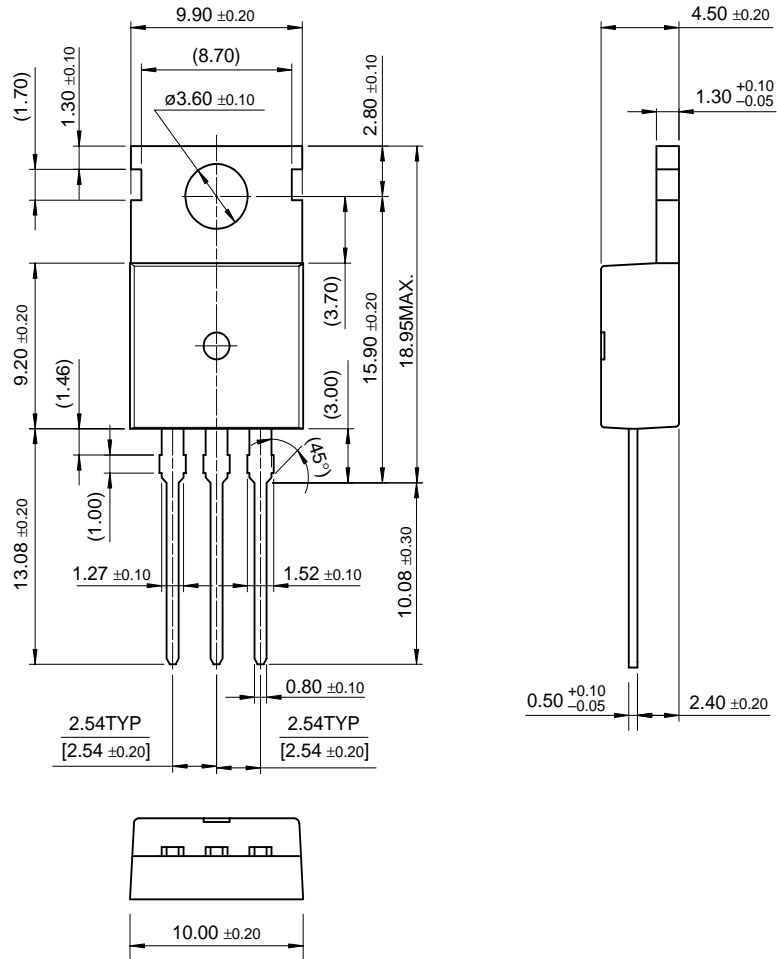
Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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E²CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I²C™	OCX™	RapidConfigure™	UHC™
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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Features

- High Voltage and High Reliability
- High Speed Switching : $t_F = 0.1$ µs (Typ.)
- Wide SOA

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Product status/pricing/packaging **BUY**

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
FJP5021OTU	Full Production	Full Production	$0.55	[TO-220](#)	3	RAIL	Line 1: **$Y** (Fairchild logo) Line 2: &3 Line 3: J5021-O

* 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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