

# **NPN Silicon Transistor FJPF5021**

### High Voltage and High Reliability

- High Speed Switching:  $t_F = 0.1 \mu s$  (Typ.)
- Wide SOA
- This is a Pb-Free Device

### ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub> = 25°C, unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	800	٧
V <sub>CEO</sub>	CEO Collector-Emitter Voltage		٧
V <sub>EBO</sub>	Emitter-Base Voltage	7	V
Ic	Collector Current (DC)	5	Α
I <sub>CP</sub>	Collector Current (Pulse)	10	Α
Ι <sub>Β</sub>	Base Current	2	Α
PC	Collector Dissipation (T <sub>C</sub> = 25°C)	40	W
TJ	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	-55 ~ 150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



- 1. Base
- 2. Collector
- 3. Emitter

TO-220 Fullpack, 3-Lead / TO-220F-3SG CASE 221AT

### **MARKING DIAGRAM**

J5021-0 **AYWWZZ** 

J5021-= Specific Device Code

0 = h<sub>FE</sub> Grade Α

= Assembly Site

= Date Code (Year & Week) YWW = Assembly Lot Code ZΖ

#### **ORDERING INFORMATION**

Device	Package	Shipping
FJPF5021OTU	TO-220 Fullpack,	1000 Units /
	3-Lead	Tube

### **FJPF5021**

# **ELECTRICAL CHARACTERISTICS** ( $T_C = 25$ °C unless otherwise noted)

Symbol	Parameter	Test Condition	Min	Тур	Max	Unit
BV <sub>CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 1 mA, I <sub>E</sub> = 0	800	-	-	V
BV <sub>CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 5 mA, I <sub>B</sub> = 0	500	-	-	V
BV <sub>EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 1 mA, I <sub>C</sub> = 0	7	-	-	V
V <sub>CEX</sub> (sus)	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 2.5 A, I <sub>B1</sub> = -I <sub>B2</sub> = 1 A L = 1 mH, Clamped	500	-	-	V
I <sub>CBO</sub>	Collector Cut-off Current	V <sub>CB</sub> = 500 V, I <sub>E</sub> = 0	-	-	10	μΑ
I <sub>EBO</sub>	Emitter Cut-off Current	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0	-	-	10	μΑ
h <sub>FE1</sub>	DC Current Gain	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 0.6 A	15	-	50	
h <sub>FE2</sub>		V <sub>CE</sub> = 5 V, I <sub>C</sub> = 3 A	8	-	-	
V <sub>CE</sub> (sat)	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3 A, I <sub>B</sub> = 0.6 A	-	-	1	V
V <sub>BE</sub> (sat)	Base-Emitter Saturation Voltage	I <sub>C</sub> = 3 A, I <sub>B</sub> = 0.6 A	-	-	1.5	V
C <sub>ob</sub>	Output Capacitance	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz	-	80	-	pF
f <sub>T</sub>	Current Gain Bandwidth Product	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 0.6 A	-	15	-	MHz
t <sub>ON</sub>	Turn On Time	V <sub>CC</sub> = 200 V	-	-	0.5	μs
t <sub>STG</sub>	Storage Time	$I_C = 5 I_{B1} = -2.5 I_{B2} = 4 A,$ $R_L = 50 \Omega$	-	-	3	μs
t <sub>F</sub>	Fall Time	1	-	0.1	0.3	μs

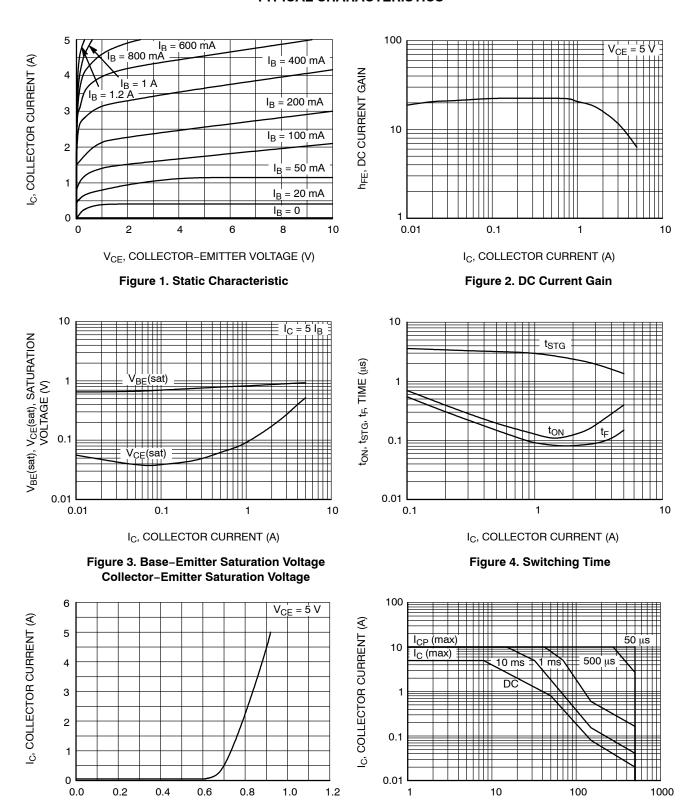
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

# $h_{\mbox{\scriptsize FE}}$ CLASSIFICATION

Classification	R	0	Υ
h <sub>FE1</sub>	15 ~ 30	20 ~ 40	30 ~ 50

### **FJPF5021**

### **TYPICAL CHARACTERISTICS**



 $V_{BE}$ , BASE-EMITTER VOLTAGE (V) Figure 5. Base-Emitter On Voltage

Figure 6. Forward Bias Safe Operating Area

V<sub>CE</sub>, COLLECTOR-EMITTER VOLTAGE (V)

### **FJPF5021**

## TYPICAL CHARACTERISTICS (continued)

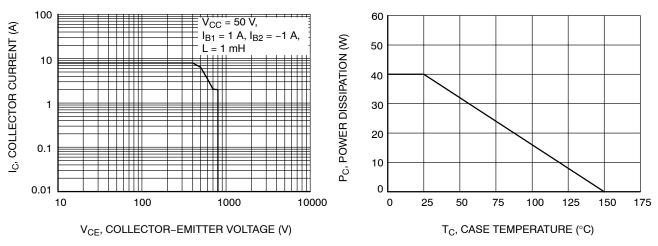
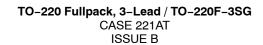


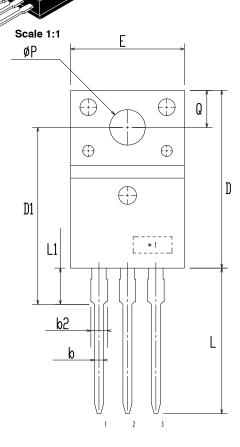
Figure 7. Reverse Bias Safe Operating Area

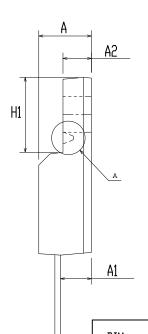
Figure 8. Power Derating

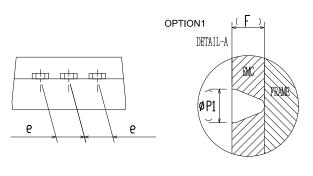




**DATE 19 JAN 2021** 







DIM	LITE	- LIUITI LLINO	
ויונע	MIN	NDM	MAX
Α	4.50	4.70	4.90
A1	2.56	2.76	2.96
A2	2.34	2.54	2.74
b	0.70	0.80	0.90
b2	~	2	1.47
С	0.45	0.50	0.60
D	15.67	15.87	16.07
D1	15.60	15.80	16.00
E	9.96	10.16	10.36
е	2.34	2.54	2.74
F	~	0.84	2
H1	6.48	6.68	6.88
L	12.78	12.98	13.18
L1	3.03	3.23	3.43
ØΡ	2.98	3.18	3.38
Ø P1	~	1.00	~
Q	3.20	3.30	3.40

MILL IMITERS

### NOTES:

- A. DIMENSION AND TOLERANCE AS ASME Y14.5-2009
- B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUCSIONS.

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C. OPTION 1 - WITH SUPPORT PIN HOLE OPTION 2 - NO SUPPORT PIN HOLE

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DESCRIPTION:	TO-220 FULLPACK, 3-LEAD / TO-220F-3SG		PAGE 1 OF 1	

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