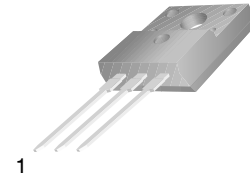


NPN Silicon Transistor

FJPF5021

High Voltage and High Reliability

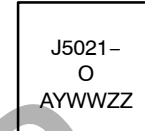
- High Speed Switching: $t_F = 0.1 \mu s$ (Typ.)
- Wide SOA
- This is a Pb-Free Device



1. Base
2. Collector
3. Emitter

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

MARKING DIAGRAM



J5021- = Specific Device Code
O = h_{FE} Grade
A = Assembly Site
YWW = Date Code (Year & Week)
ZZ = Assembly Lot Code

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$, unless otherwise noted)

Symbol	Parameter	Value	Unit
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 ($T_C = 25^\circ C$)	40	W
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ C$

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.

ORDERING INFORMATION

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

FJPF5021

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

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

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

TYPICAL CHARACTERISTICS

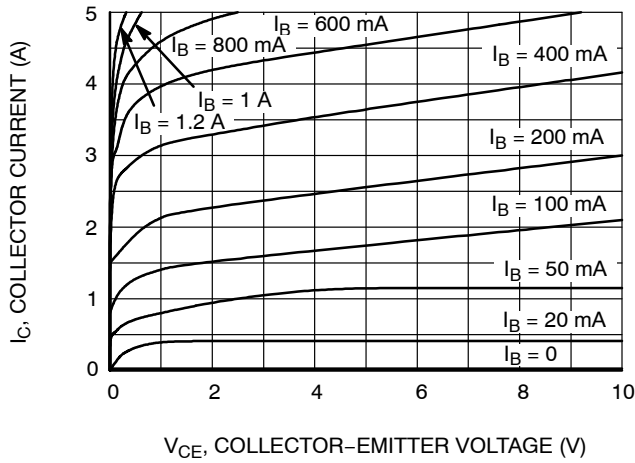


Figure 1. Static Characteristic

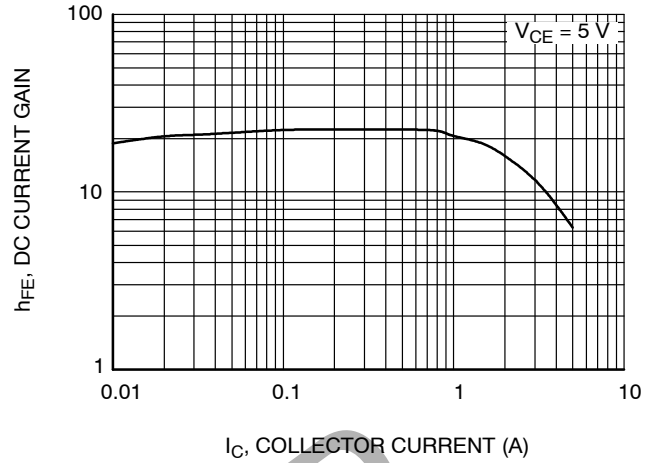


Figure 2. DC Current Gain

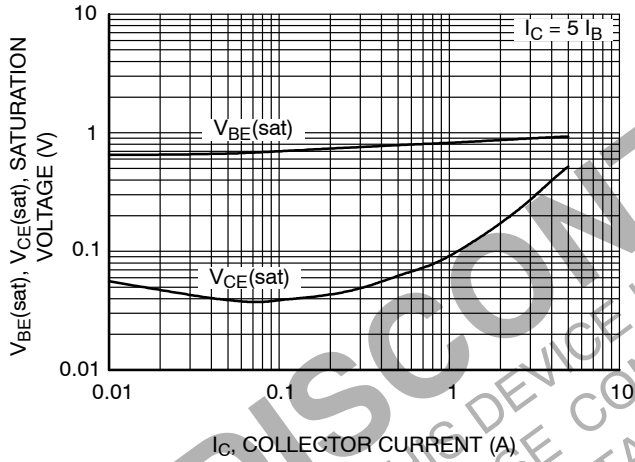
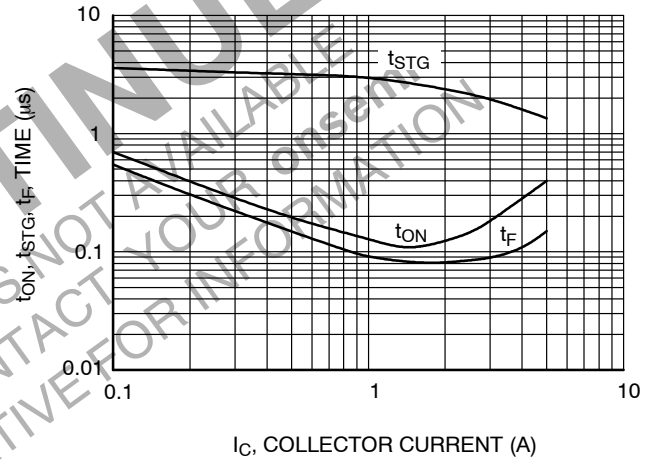
Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

Figure 4. Switching Time

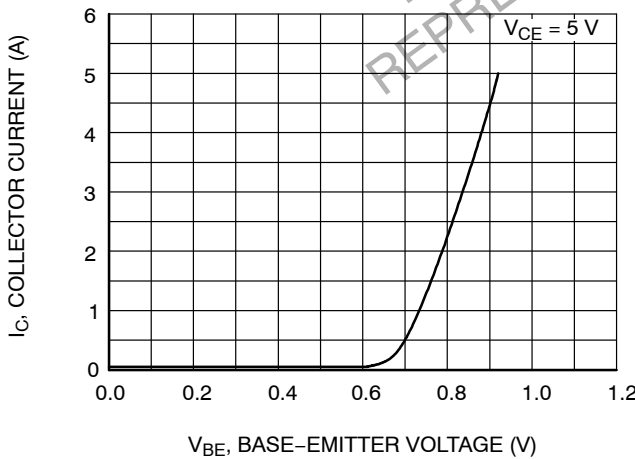


Figure 5. Base-Emitter On Voltage

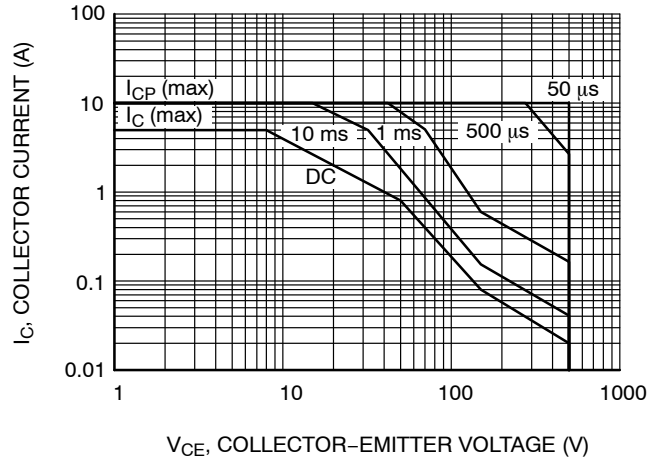


Figure 6. Forward Bias Safe Operating Area

TYPICAL CHARACTERISTICS (continued)

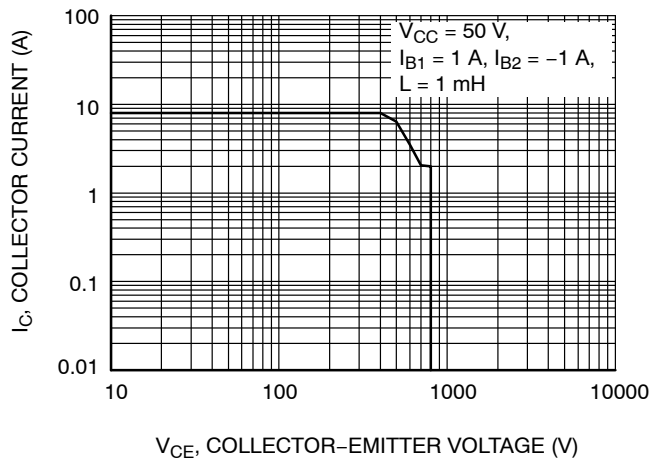


Figure 7. Reverse Bias Safe Operating Area

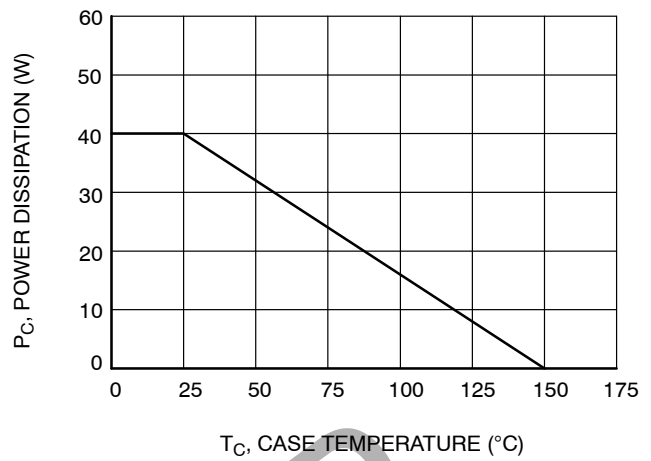


Figure 8. Power Derating

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REVISION HISTORY

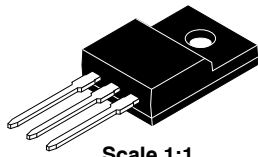
Revision	Description of Changes	Date
2	Document Discontinued.	1/15/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

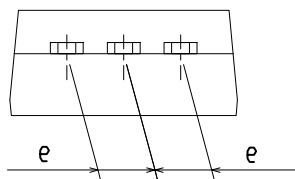
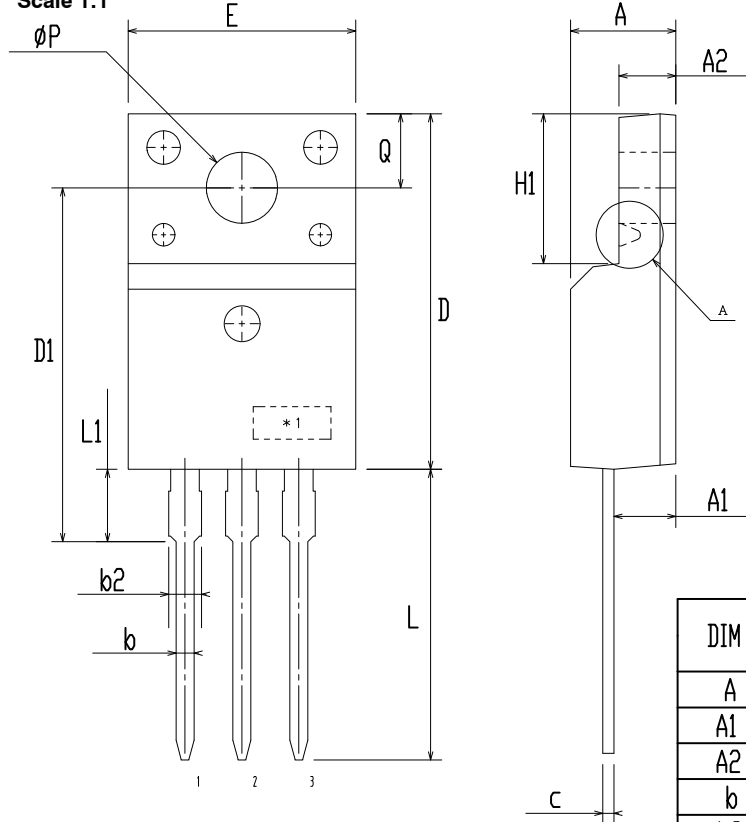
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TO-220 Fullpack, 3-Lead / TO-220F-3SG
CASE 221AT
ISSUE B

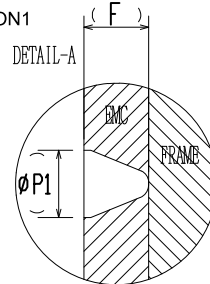
DATE 19 JAN 2021



Scale 1:1



OPTION1



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	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	~	~	1.47
c	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
e	2.34	2.54	2.74
F	~	0.84	~
H1	6.48	6.68	6.88
L	12.78	12.98	13.18
L1	3.03	3.23	3.43
Ø P	2.98	3.18	3.38
Ø P1	~	1.00	~
Q	3.20	3.30	3.40

NOTES:

A. DIMENSION AND TOLERANCE AS ASME Y14.5-2009

B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUCTIONS.

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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