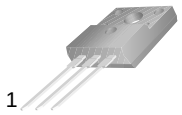
NPN Silicon Transistor

FJPF5027



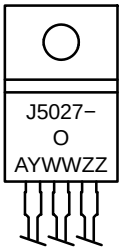
1. Base
2. Collector
3. Emitter

TO−220 Fullpack, 3−Lead
CASE 221AT

High Voltage and High Reliability

- High Speed Switching
- Wide SOA
- This is a Pb−Free Device

MARKING DIAGRAM



J5027− = Specific Device Code
O = h_{FE} Grade
A = Site Code
Y = Year
WW = Work Week
ZZ = Assembly Lot Code

MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector−Base Voltage	1100	V
V_{CEO}	Collector−Emitter Voltage	800	V
V_{EBO}	Emitter−Base Voltage	7	V
I_C	Collector Current (DC)	3	A
I_{CP}	Collector Current (Pulse)	10	A
I_B	Base Current	1.5	A
P_C	Collector Dissipation (T_C = 25°C)	40	W
T_J	Junction Temperature	150	°C
T_{STG}	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.

ORDERING INFORMATION

Device	Package	Shipping†
FJPF5027OTU	TO−220 Fullpack	1000 Units / Tube

h_{FE} CLASSIFICATION

Classification	N	R	O
h_{FE1}	10~20	15~30	20~40

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_{CBO}	Collector−Base Breakdown Voltage	I_C = 1 mA, I_E = 0	1100	−	−	V
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 5 mA, I_B = 0	800	−	−	V
BV_{EBO}	Emitter−Base Breakdown Voltage	I_E = 1 mA, I_C = 0	7	−	−	V
V_{CEX}(sus)	Collector−Emitter Sustaining Voltage	I_C = 1.5 A, I_{B1} = −I_{B2} = 0.3 A L = 2 mH, Clamped	800	−	−	V
I_{CBO}	Collector Cut−off Current	V_{CB} = 800 V, I_E = 0	−	−	10	μA
I_{EBO}	Emitter Cut−off Current	V_{EB} = 5 V, I_C = 0	−	−	10	μA
h_{FE1} h_{FE2}	DC Current Gain	V_{CE} = 5 V, I_C = 0.2 A V_{CE} = 5 V, I_C = 1 A	10 8	− −	40 −	
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 1.5 A, I_B = 0.3 A	−	−	2	V
V_{BE}(sat)	Base−Emitter Saturation Voltage	I_C = 1.5 A, I_B = 0.3 A	−	−	1.5	V
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz	−	60	−	pF
f_T	Current Gain Bandwidth Product	V_{CE} = 10 V, I_C = 0.2 A	−	15	−	MHz
t_{ON}	Turn On Time	V_{CC} = 400 V, I_C = 5 I_{B1} = −2.5 I_{B2} = 2 A, R_L = 200 Ω	−	−	0.5	μs
t_{STG}	Storage Time		−	−	3	μs
t_F	Fall Time		−	−	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.

TYPICAL CHARACTERISTICS

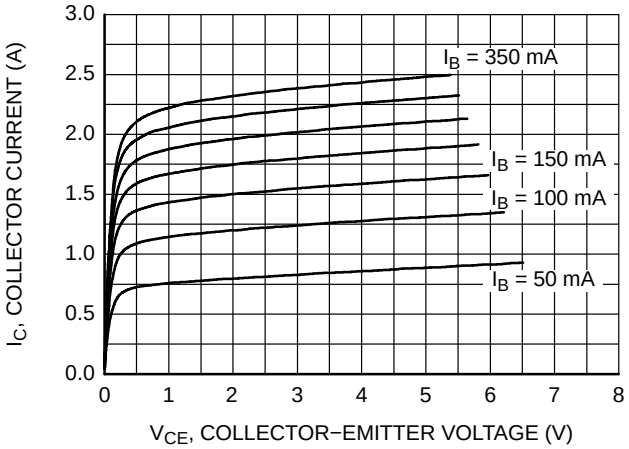


Figure 1. Static Characteristic

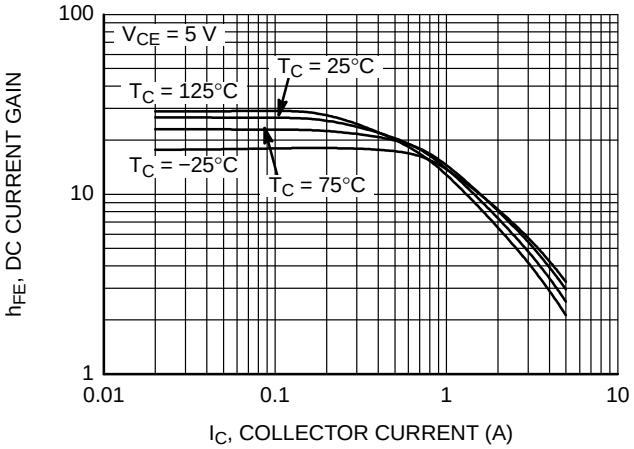


Figure 2. DC Current Gain

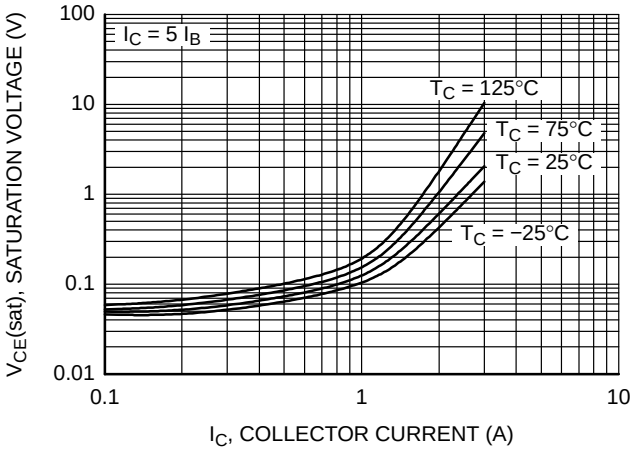


Figure 3. Saturation Voltage

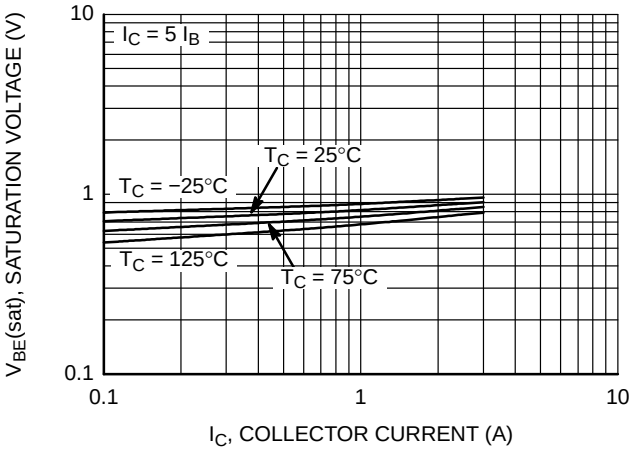


Figure 4. Saturation Voltage

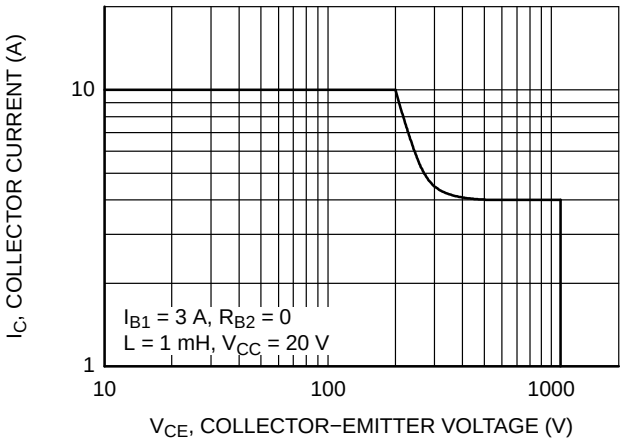


Figure 5. Reverse Bias Safe Operating Area

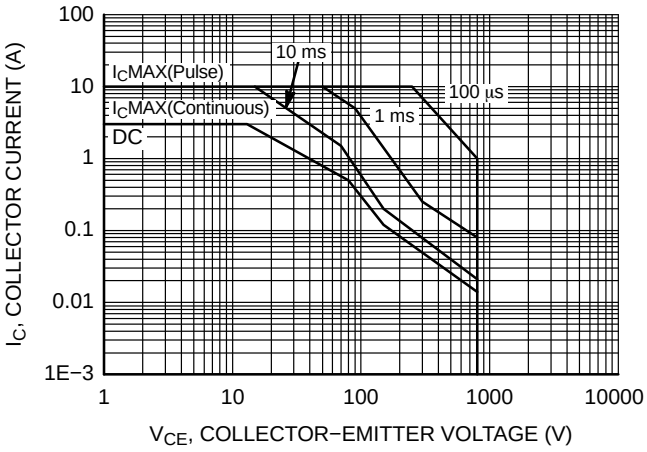


Figure 6. Forward Bias Safe Operating Area

TYPICAL CHARACTERISTICS (CONTINUED)

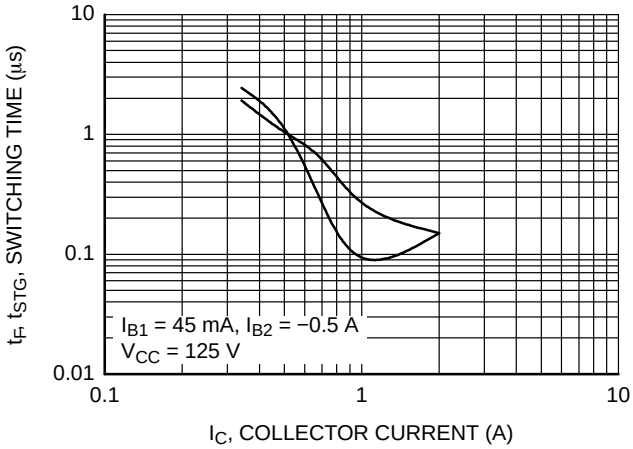


Figure 7. Resistive Load Switching Characteristics

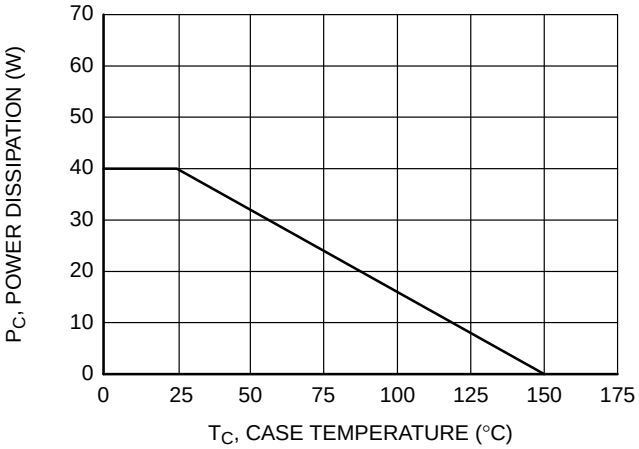
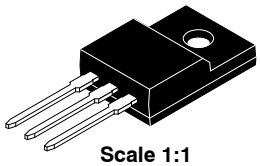


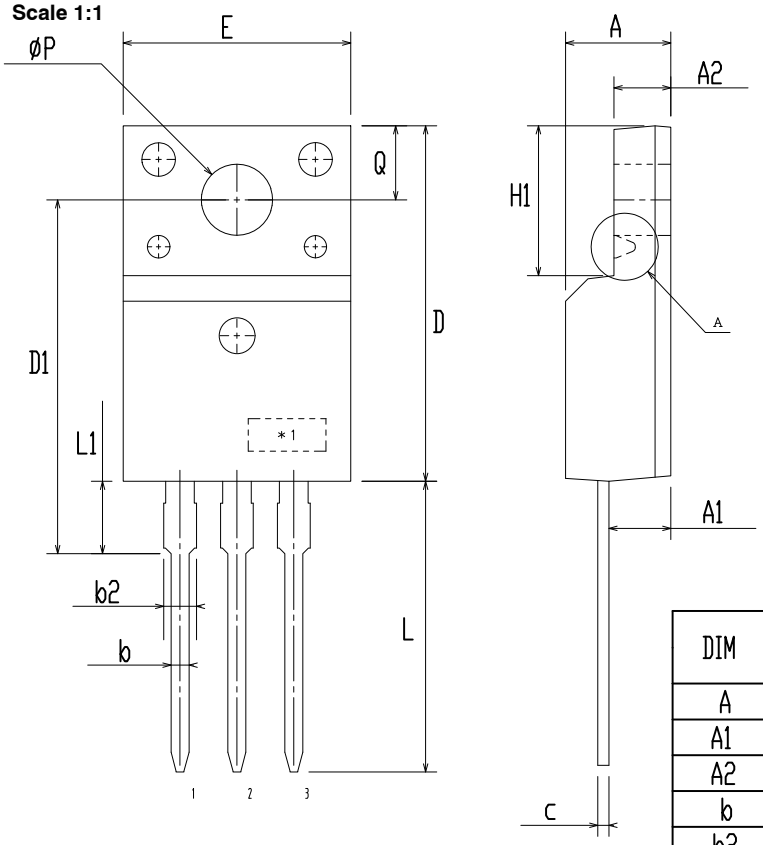
Figure 8. Power Derating

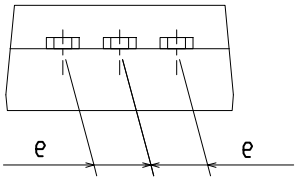
TO−220 Fullpack, 3−Lead / TO−220F−3SG
CASE 221AT
ISSUE B

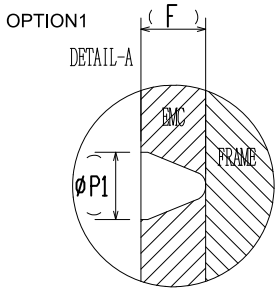
DATE 19 JAN 2021



Scale 1:1







DIM	MILLIMITERS		
	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 PROTRUCSIONS.
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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