

NPN Silicon Transistor

FJPF5027



High Voltage and High Reliability

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

MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ 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 ($T_C = 25^\circ\text{C}$)	40	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55~150	$^\circ\text{C}$

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.

h_{FE} CLASSIFICATION

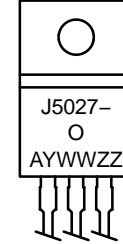
Classification	N	R	O
h_{FE1}	10~20	15~30	20~40

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

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

MARKING DIAGRAM



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

ORDERING INFORMATION

Device	Package	Shipping [†]
FJPF5027OTU	TO-220 Fullpack	1000 Units / Tube

TYPICAL CHARACTERISTICS

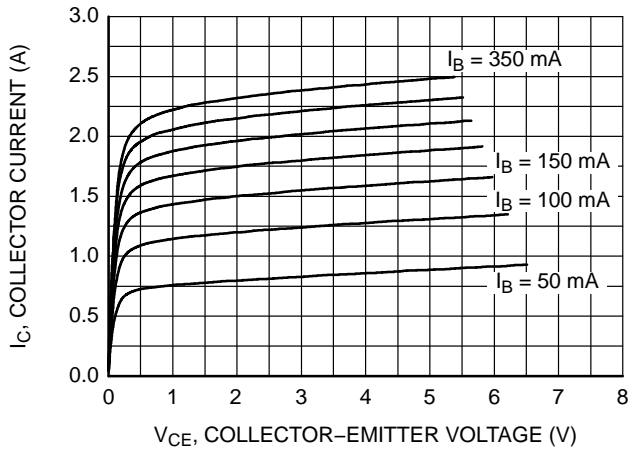


Figure 1. Static Characteristic

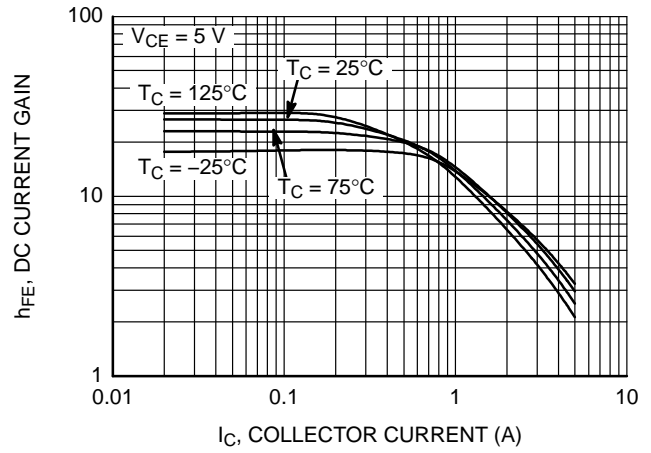


Figure 2. DC Current Gain

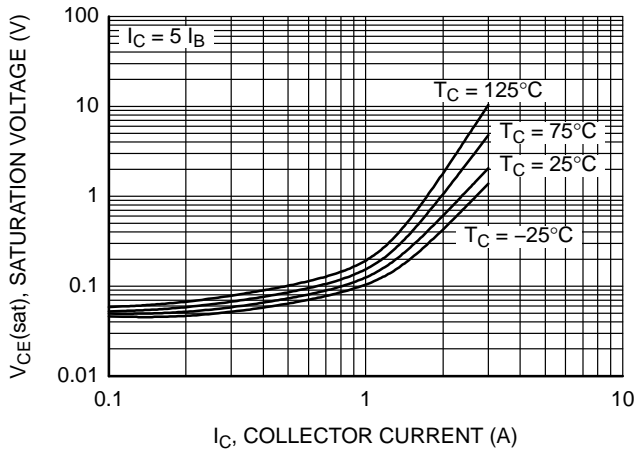


Figure 3. Saturation Voltage

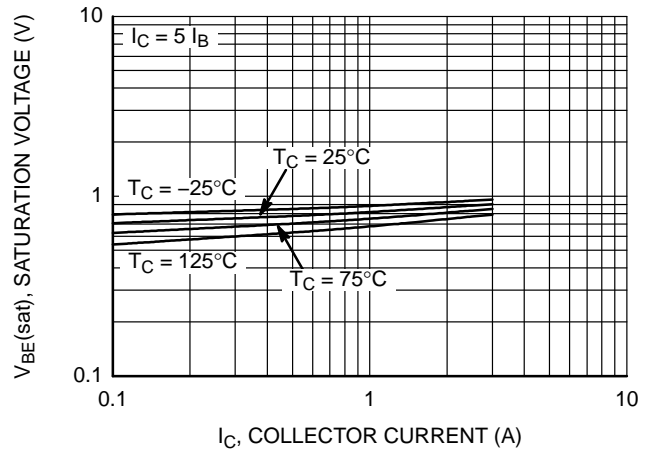


Figure 4. Saturation Voltage

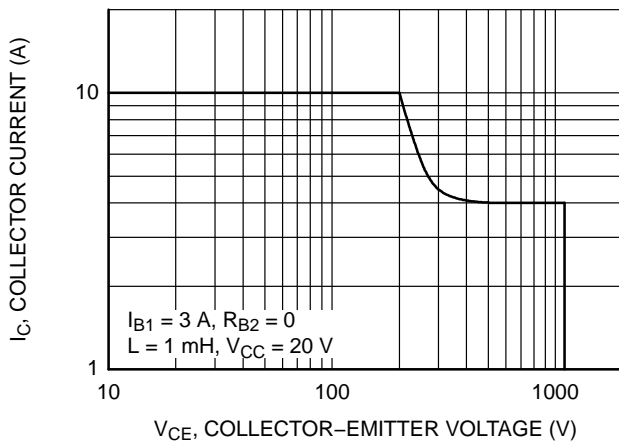


Figure 5. Reverse Bias Safe Operating Area

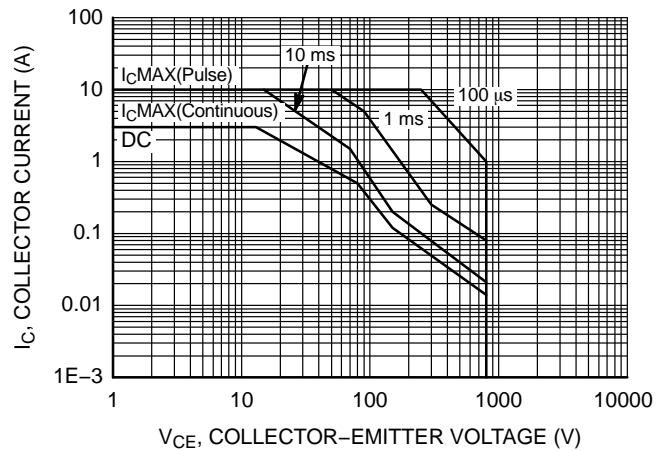


Figure 6. Forward Bias Safe Operating Area

TYPICAL CHARACTERISTICS (CONTINUED)

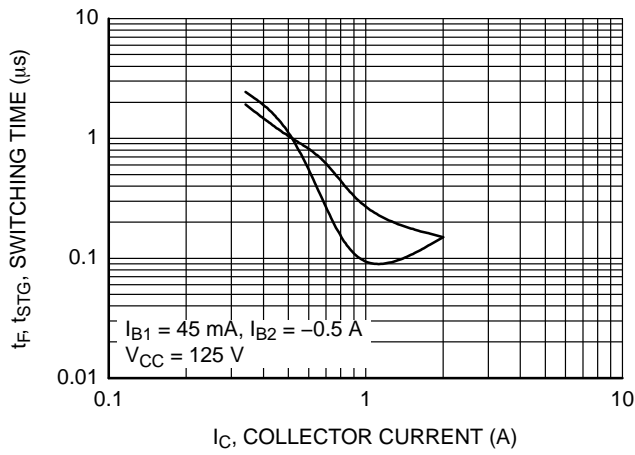


Figure 7. Resistive Load Switching Characteristics

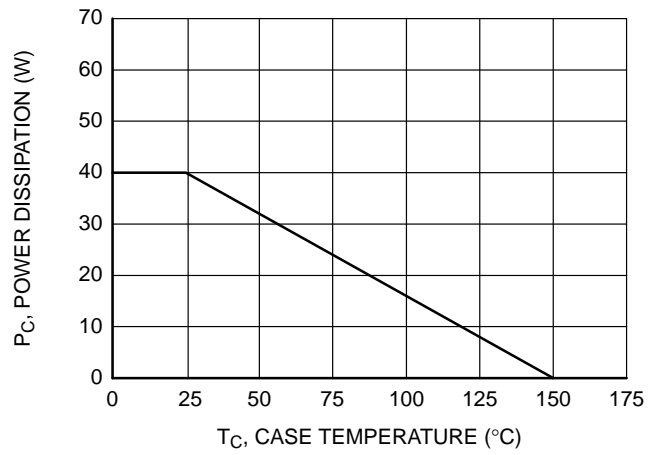
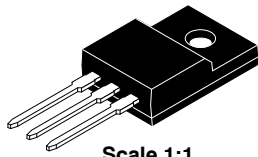


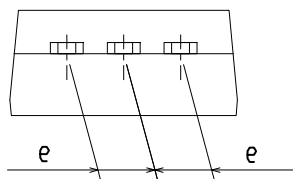
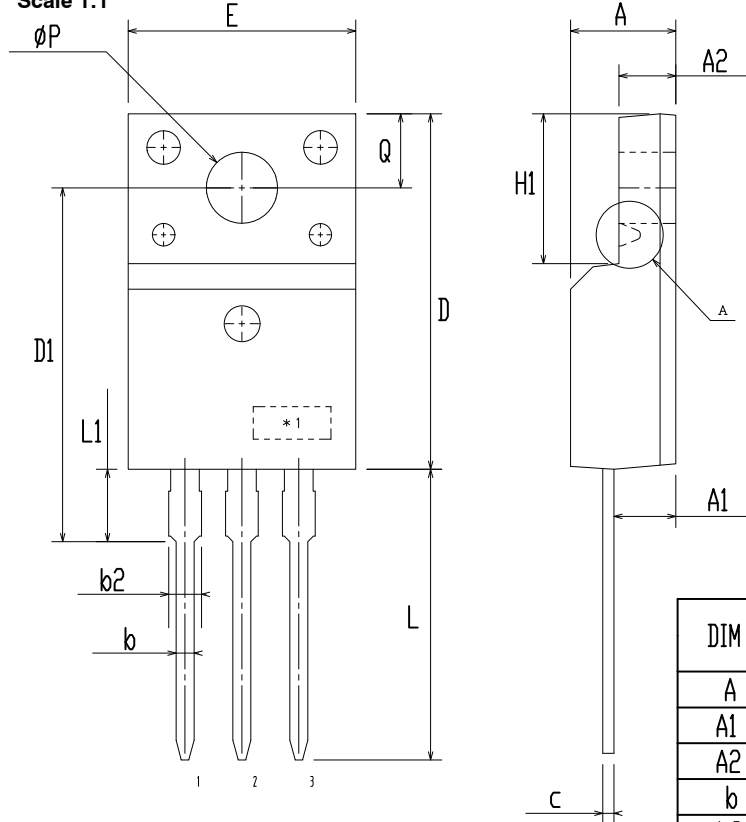
Figure 8. Power Derating

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

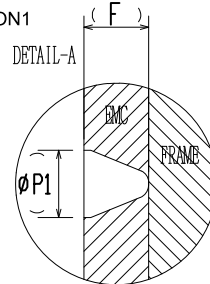
DATE 19 JAN 2021



Scale 1:1



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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