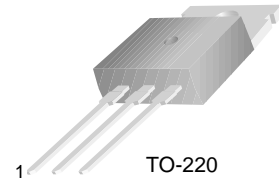


# FJP5321

## High Voltage and High Reliability

- High speed Switching
- Wide Safe Operating Area



1.Base 2.Collector 3.Emitter

## NPN Triple Diffused Planar Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ 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 (DC)	2	A
$I_{BP}$	*Base Current (Pulse)	4	A
$P_C$	Power Dissipation( $T_C=25^\circ\text{C}$ )	100	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

\* Pulse Test: Pulse Width = 5ms, Duty Cycle $\leq$ 10%

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CBO}$	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	$I_C = 1\text{mA}, I_C = 0$	7	-	-	V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 800\text{V}, I_E = 0$	-	-	100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 7\text{V}, I_C = 0$	-	-	10	$\mu\text{A}$
$h_{FE1}$ $h_{FE2}$	DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.6\text{A}$ $V_{CE} = 5\text{V}, I_C = 3\text{A}$	15 8	- -	40 -	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 0.6\text{A}$	-	-	1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 0.6\text{A}$	-	-	1.5	V
$f_T$	Current Gain bandwidth Product	$V_{CE} = 10\text{V}, I_C = 0.6\text{A}$	-	14	-	MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	65	100	pF
$C_{ib}$	Input Capacitance	$V_{EB} = 7\text{V}, I_C = 0, f = 1\text{MHz}$	-	1400	2000	pF
$t_{ON}$	Turn On Time	$V_{CC} = 125\text{V}, I_C = 1\text{A}$ $I_{B1} = -I_{B2} = 0.2\text{A}$ $R_L = 125\Omega$	-	-	0.5	$\mu\text{s}$
$t_{STG}$	Storage Time		-	-	6.5	$\mu\text{s}$
$t_F$	Fall Time		-	-	0.3	$\mu\text{s}$
$t_{ON}$	Turn On Time	$V_{CC} = 250\text{V}, I_C = 4\text{A}$ $I_{B1} = 0.8\text{A}, I_{B2} = -1.6\text{A}$ $R_L = 62.5\Omega$	-	-	0.5	$\mu\text{s}$
$t_{STG}$	Storage Time		-	-	3.0	$\mu\text{s}$
$t_F$	Fall Time		-	-	0.3	$\mu\text{s}$

**Thermal Characteristics**  $T_C=25^\circ\text{C}$  unless otherwise noted

Symbol	Characteristics		Rating	Unit
$R_{\theta jc}$	Thermal Resistance	Junction to Case	1.25	$^\circ\text{C}/\text{W}$
$R_{\theta ja}$		Junction to Ambient	62.5	

# Typical Characteristics

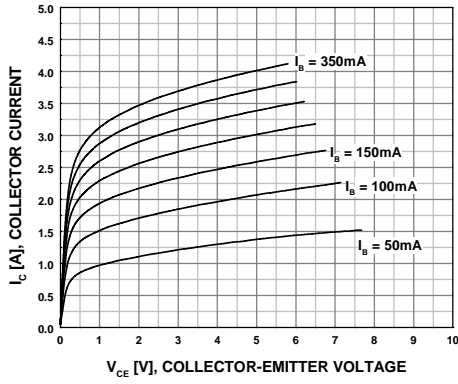


Figure 1. Static Characteristic

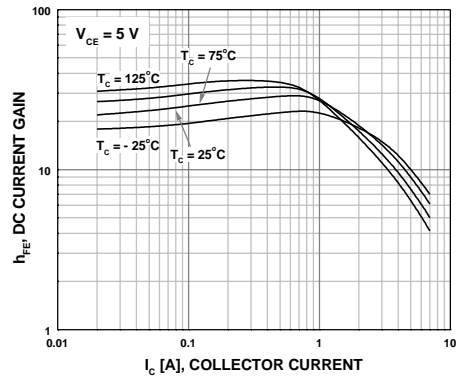


Figure 2. DC current Gain

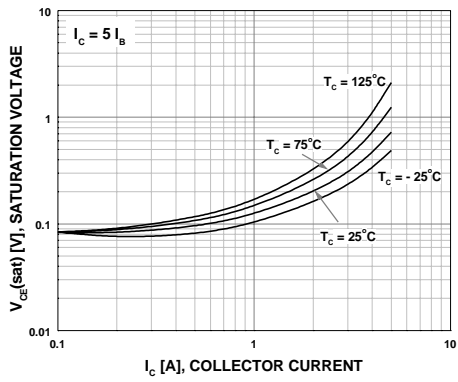


Figure 3. Saturation Voltage

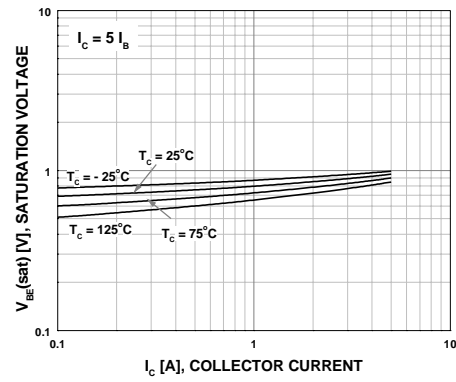


Figure 4. Saturation Voltage

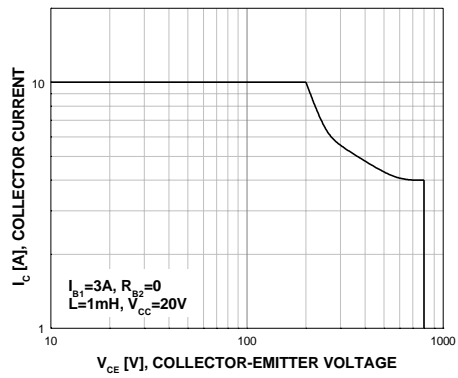


Figure 5. Reverse Bias Safe Operating Area

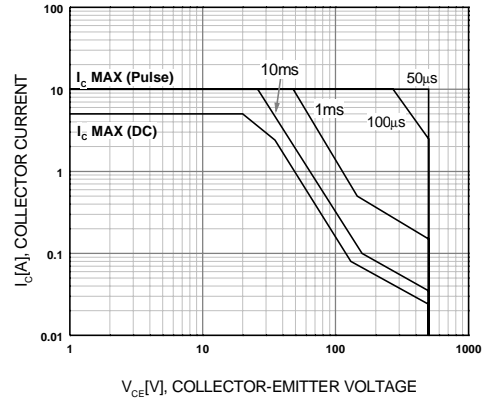


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics (Continued)

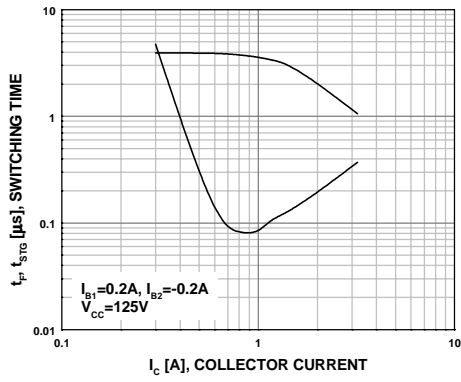


Figure 7. Resistive Load Switching Time

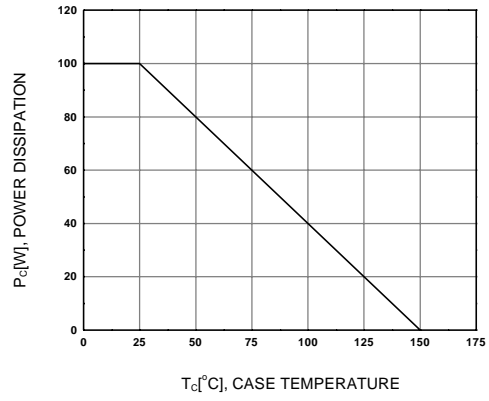
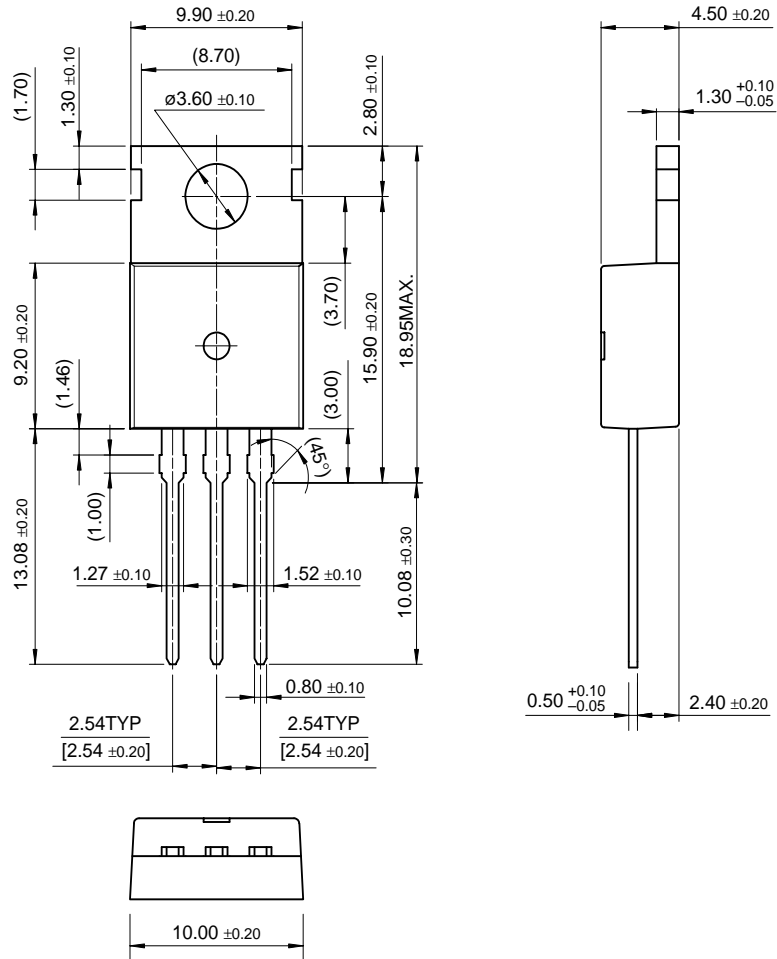


Figure 8. Power Derating

# Package Dimensions

## TO-220



Dimensions in Millimeters

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