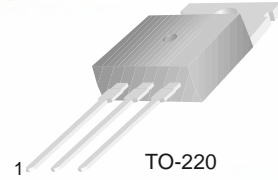


**FAIRCHILD**  
SEMICONDUCTOR®

## FJP5027

### High Voltage and High Reliability

- High Speed Switching
- Wide SOA



1.Base 2.Collector 3.Emitter

### NPN Silicon Transistor

#### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	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 ( $T_C=25^\circ\text{C}$ )	50	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

#### 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	$I_C = 1\text{mA}, I_E = 0$	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	$I_C = 1.5\text{A}, I_{B1} = -I_{B2} = 0.3\text{A}$ $L = 2\text{mH}, \text{Clamped}$	800			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 800\text{V}, I_E = 0$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			10	$\mu\text{A}$
$h_{FE1}$ $h_{FE2}$	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	$\mu\text{s}$
$t_{STG}$	Storage Time				3	$\mu\text{s}$
$t_F$	Fall Time				0.3	$\mu\text{s}$

### $h_{FE}$ Classification

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



## Typical Characteristics

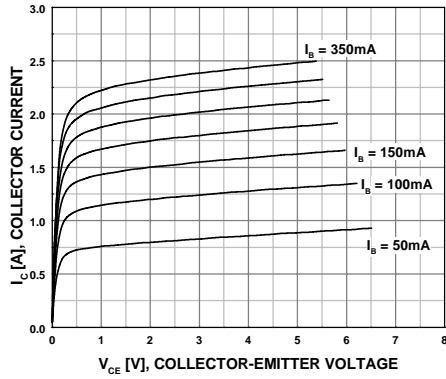


Figure 1. Static Characteristic

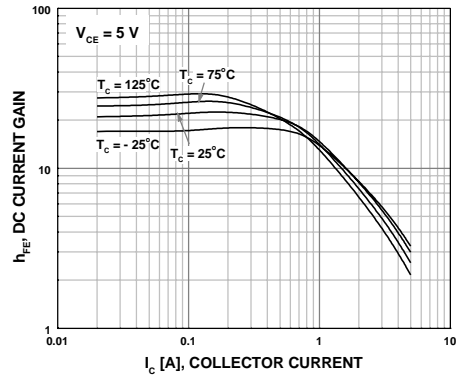


Figure 2. DC current Gain

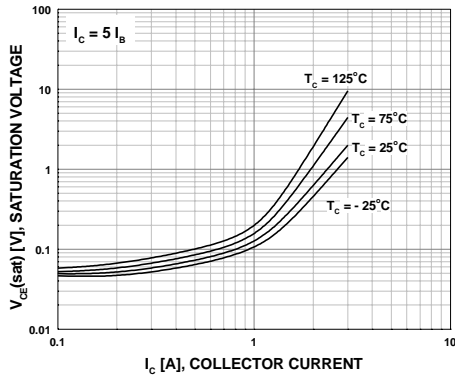


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

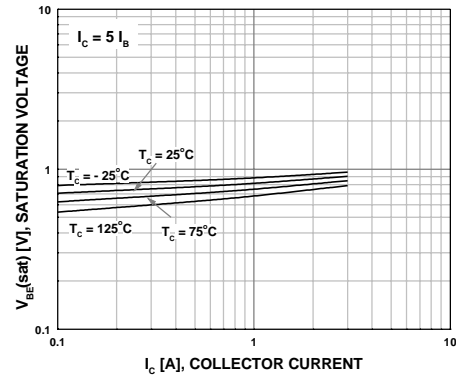


Figure 4. Base-Emitter On Voltage

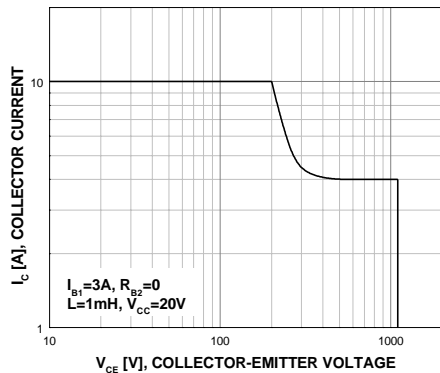


Figure 5. Switching Time

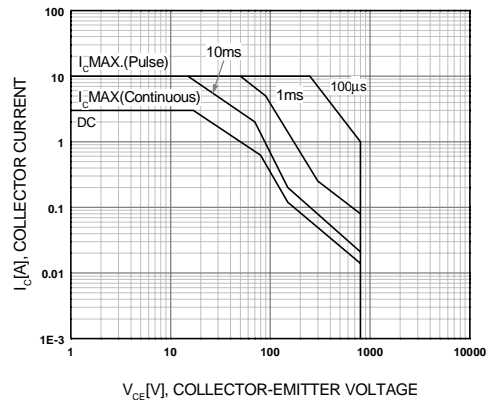


Figure 6. Safe Operating Area

### Typical Characteristics (Continued)

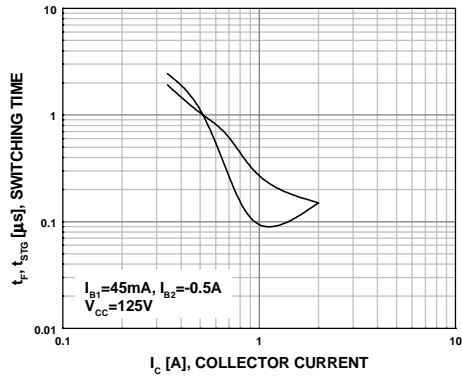


Figure 7. Resistive Load Switching Characteristics

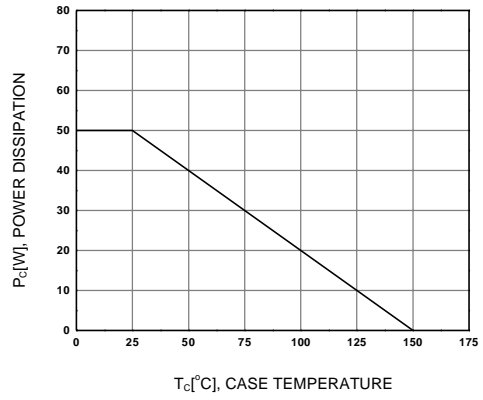
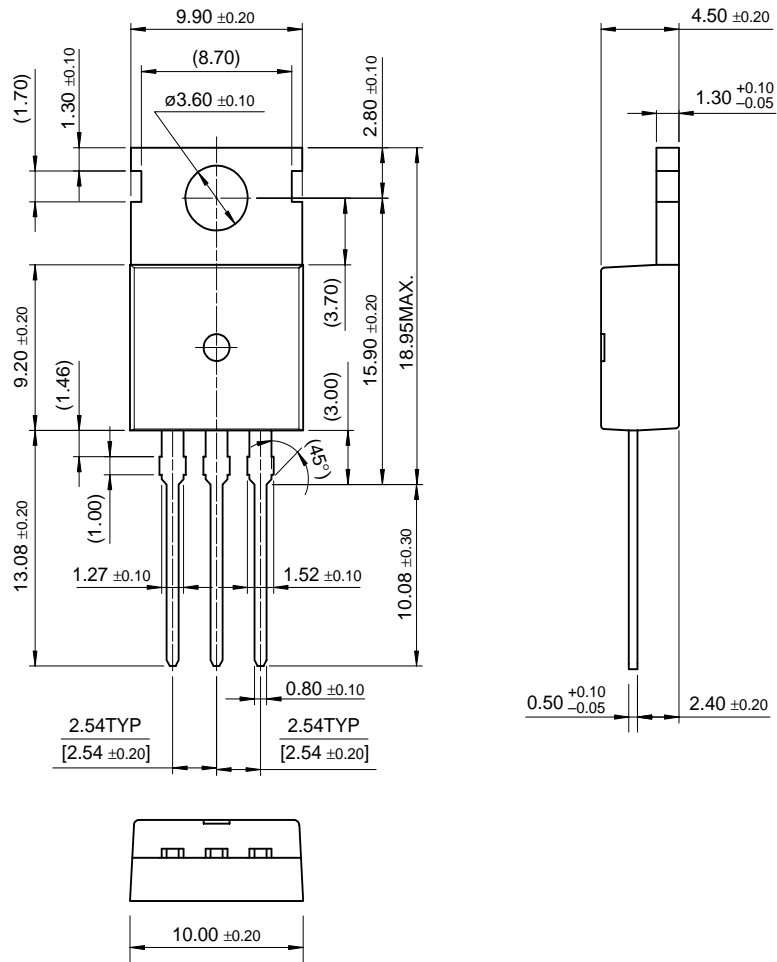


Figure 8. Power Derating

# Package Dimensions

## TO-220



Dimensions in Millimeters

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CoolFET™	FRFET™	MicroPak™	QS™	SyncFET™
CROSSVOLT™	GlobalOptoisolator™	MICROWIRE™	QT Optoelectronics™	TinyLogic®
DOMET™	GTO™	MSX™	Quiet Series™	TINYOPTO™
EcoSPARK™	HiSeC™	MSXPro™	RapidConfigure™	TruTranslation™
E <sup>2</sup> CMOS™	I <sup>2</sup> C™	OCX™	RapidConnect™	UHC™
EnSigna™	ImpliedDisconnect™	OCXPro™	SILENT SWITCHER®	UltraFET®
FACT™	ISOPLANAR™	OPTOLOGIC®	SMART START™	VCX™
Across the board. Around the world.™		OPTOPLANAR™	SPM™	
The Power Franchise™		PACMAN™	Stealth™	
Programmable Active Droop™		POP™	SuperFET™	

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