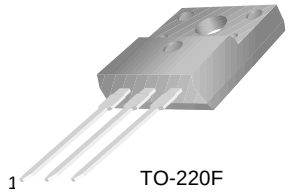
FAIRCHILD SEMICONDUCTOR™

KSC5039F

High Voltage Power Switch Switching Application



1

TO-220F

1.Base 2.Collector 3.Emitter

NPN Planar Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	800	V
V_{CEO}	Collector-Emitter Voltage	400	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	3	A
P_C	Collector Dissipation (T_C=25°C)	30	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 1mA, I_E = 0	800			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5mA, I_B = 0	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_C = 1mA, I_C = 0	7			
I_{CBO}	Collector Cut-off Current	V_{CB} = 500V, I_E = 0			10	µA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 7V, I_C = 0			10	µA
h_{FE}	*DC Current Gain	V_{CE} = 5V, I_C = 0.3A	10			
V_{CE}(sat)	*Collector-Emitter Saturation Voltage	I_C = 2.5A, I_B = 0.5A			1.5	V
V_{BE}(sat)	*Base-Emitter Saturation Voltage	I_C = 2.5A, I_B = 0.5A			2.0	V
f_T	Current Gain Bandwidth Product	V_{CE} = 5V, I_C = 0.1A		10		MHz
C_{ob}	Output Capacitance	V_{CB} = 10V , f = 1MHz		40		pF
t_{ON}	Turn ON Time	V_{CC}=150V , I_C = 2.5A, I_{B1} = -I_{B2} = 0.5A R_L = 60Ω			1	µs
t_{STG}	Storage Time				3	µs
t_F	Fall Time				0.8	µs

* Plus test: PW=300µs, Duty Cycle=2% Pulsed

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Typical Characteristics

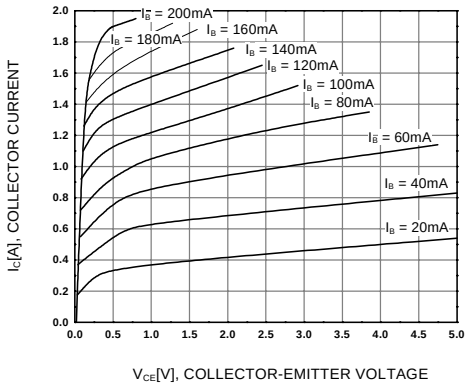


Figure 1. Static Characteristic

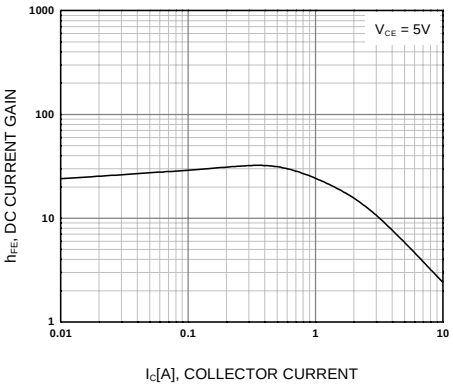


Figure 2. DC current Gain

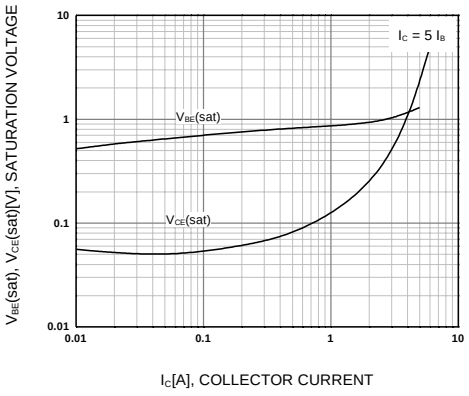


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

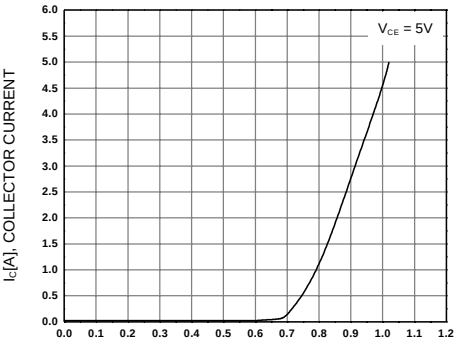


Figure 4. Base-Emitte On Voltage

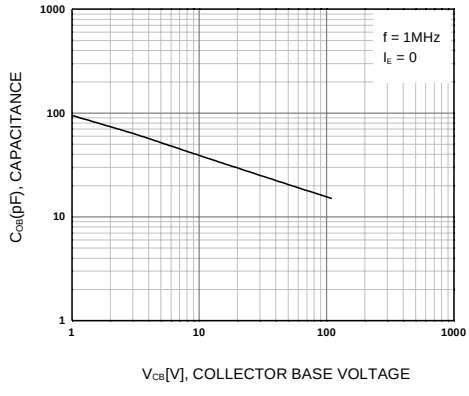


Figure 5. Collector Output Capacitance

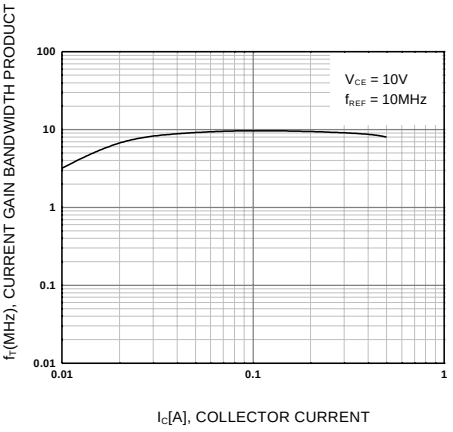


Figure 6. Current Gain Bandwidth Product

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Typical Characteristics (Continued)

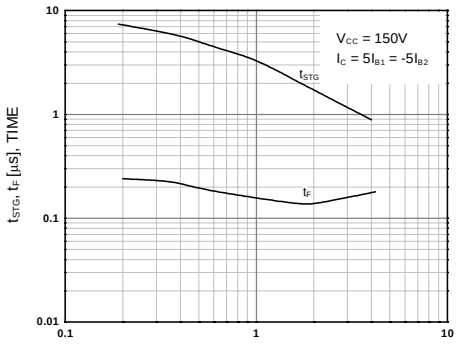


Figure 7. Switching Time

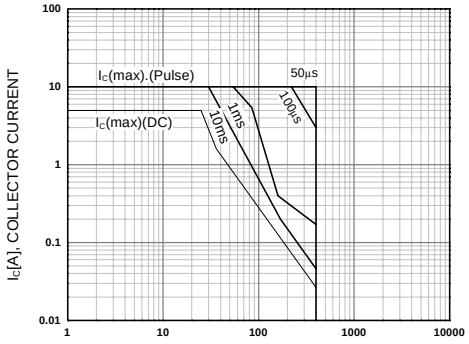


Figure 8. Safe Operating Area

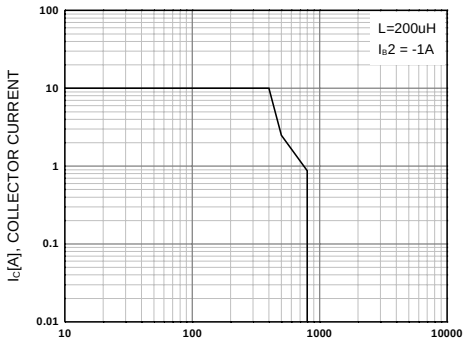


Figure 9. Reverse Bias Safe Operaing Area

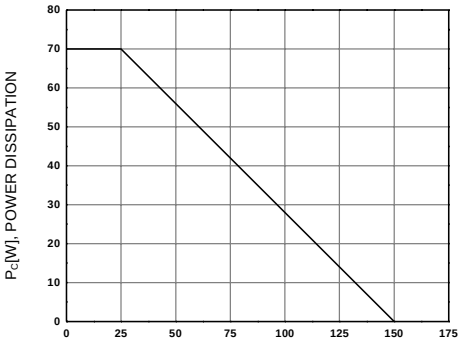
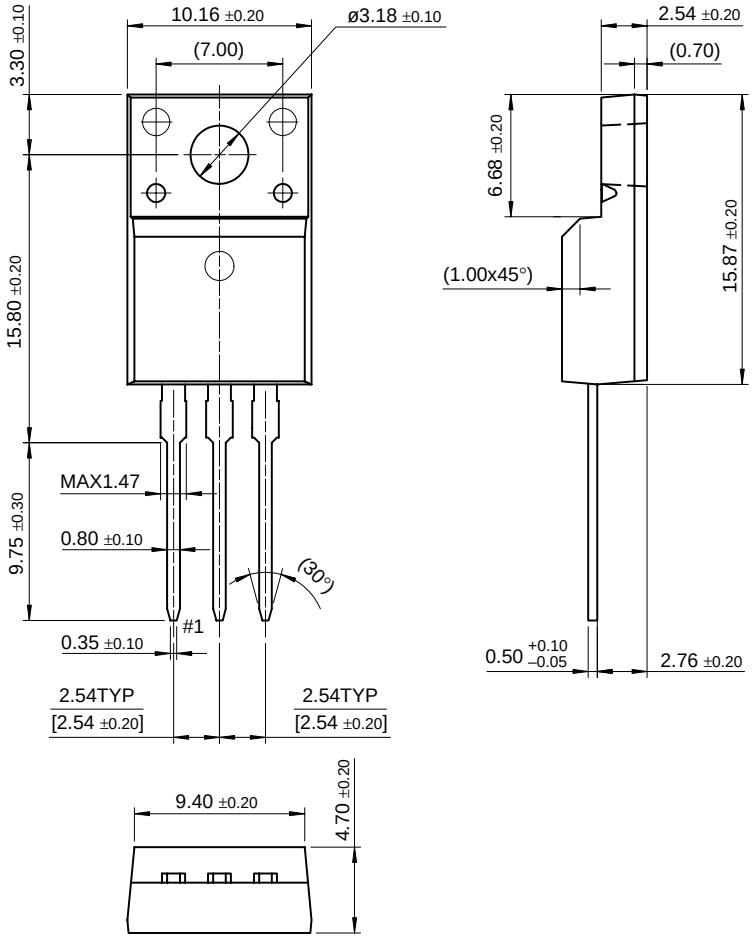


Figure 10. Power Derating

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Package Demensions

TO-220F



Dimensions in Millimeters

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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