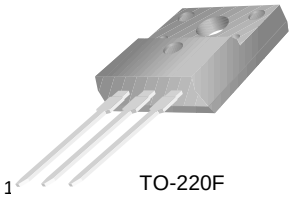
FAIRCHILD SEMICONDUCTOR™

KSC5338F

High Voltage Power Switch Switching Application

- High Speed Switching
- Wide SOA



1 TO-220F

1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	1000	V
V_{CEO}	Collector-Emitter Voltage	450	V
V_{EBO}	Emitter-Base Voltage	9	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	Collector Dissipation (T_C=25°C)	40	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	1000			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5mA, I_B =0	450			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_C=1mA, I_E=0	9			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 800V, V_{BE} = 0			10	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			10	μA
h_{FE1} h_{FE2}	* DC Current Gain	V_{CE} = 5V, I_C = 0.5A V_{CE} = 1V, I_C = 2A	15 6		30	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 0.1A I_C = 2A, I_B = 0.4A		0.55	0.8 0.5	V V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 1A, I_B = 0.1A I_C = 2A, I_B = 0.4A			1.1 1.25	V V
C_{ob}	Output Capacitance	V_{CB} = 10V, f =1MHz		70		pF
C_{ib}	Input Capacitance	V_{EB}=8V, I_C=0, f =1MHz		1000		pF
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.1A		14		MHz
t_{ON}	Turn ON Time	V_{CC} = 125V, I_C = 1A I_{B1} = 0.2A, I_{B2} = -0.2A R_L=125Ω			200	ns
t_{STG}	Storage Time				2	μs
t_F	Fall Time				500	ns

* Pulse Test: Pulse Width=5ms, Duty Cycle≤10%

Typical Characteristics

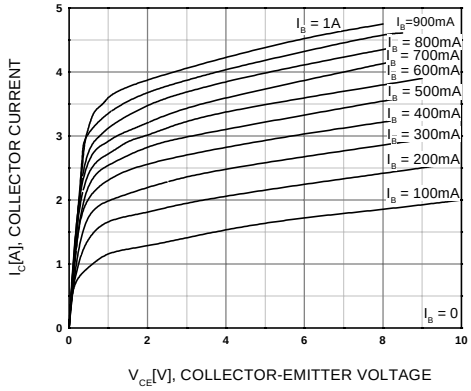


Figure 1. Static Characteristic

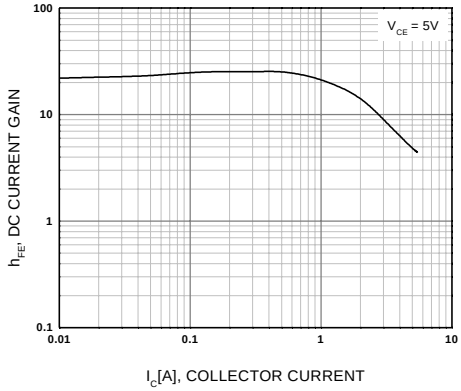


Figure 2. DC current Gain

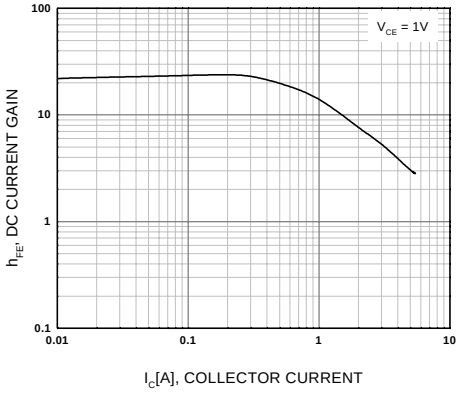


Figure 3. DC current Gain

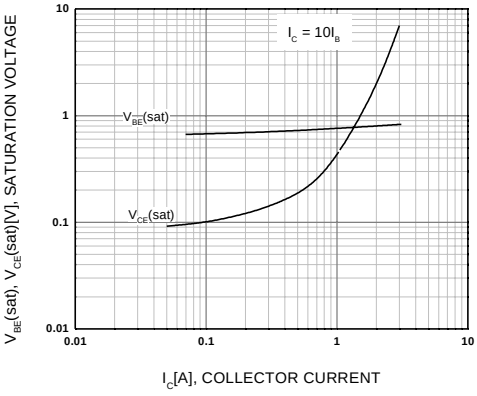


Figure 4. Base-Emitter Saturation Voltage Collect-Emitter Saturation Voltage

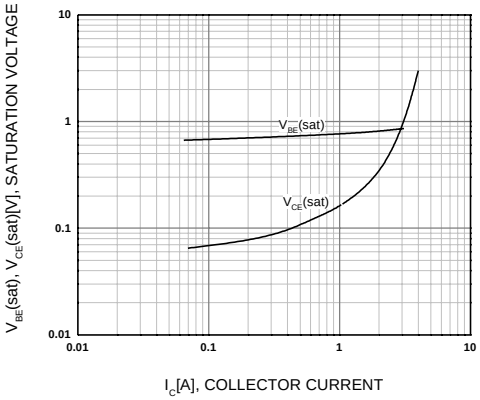


Figure 5. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

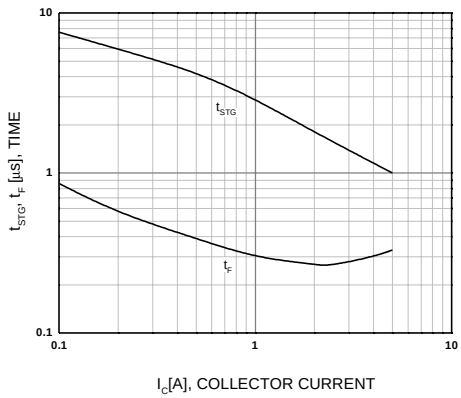


Figure 6. Switching Time

Typical Characteristics (Continued)

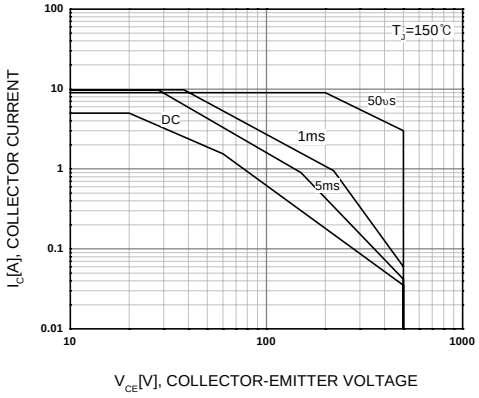


Figure 7. Safe Operating Area

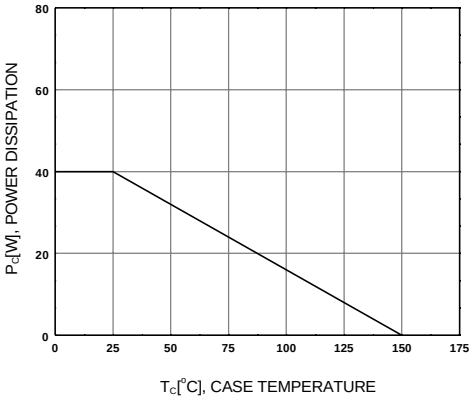
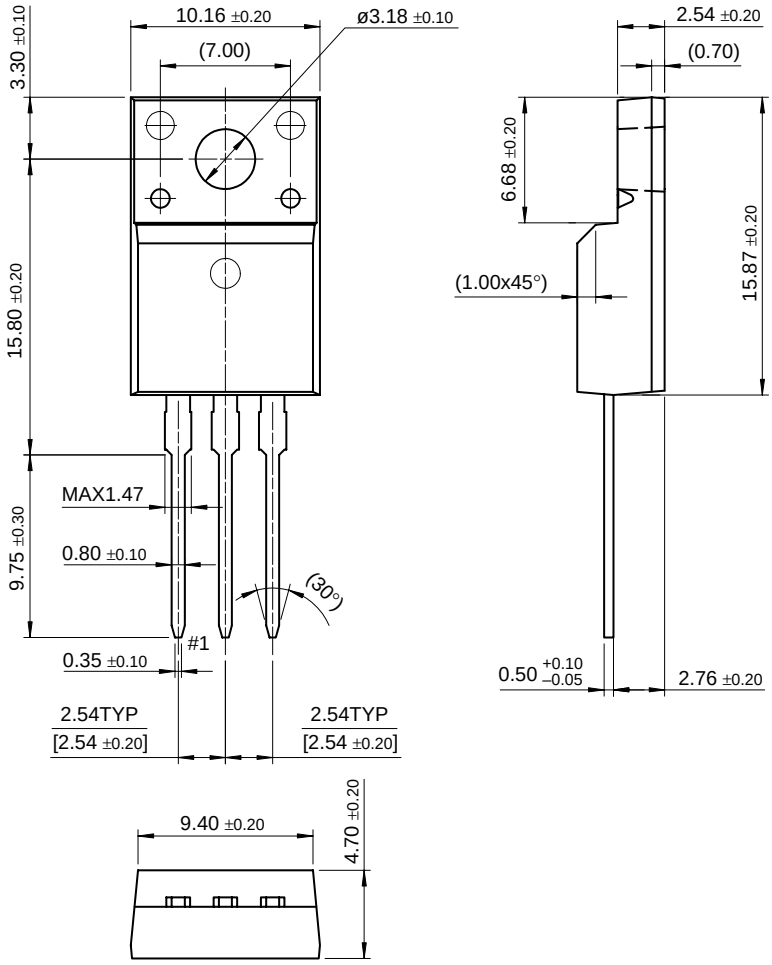


Figure 8. Power Derating

Package Demensions

TO-220F



Dimensions in Millimeters

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