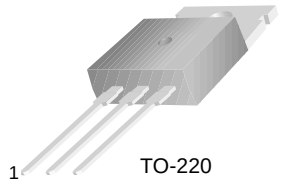
FAIRCHILD SEMICONDUCTOR™

KSC5039

High Voltage Power Switch Switching Application



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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	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)	70	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

Typical Characteristics

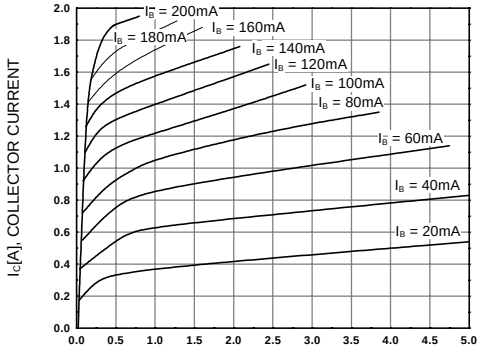

Figure 1. Static Characteristic

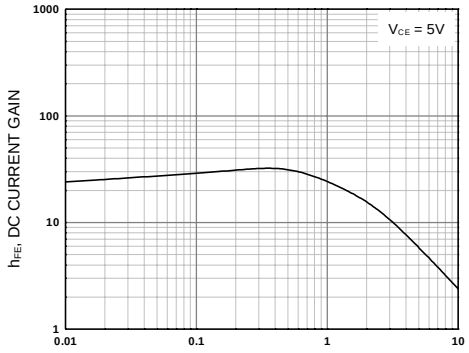

Figure 2. DC current Gain

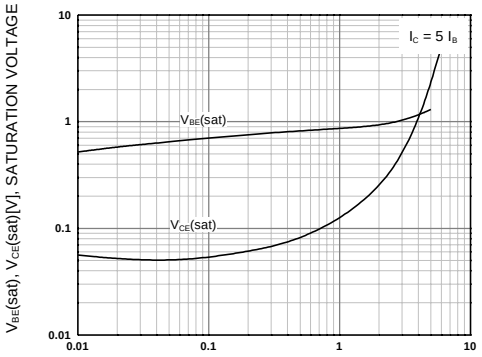

Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

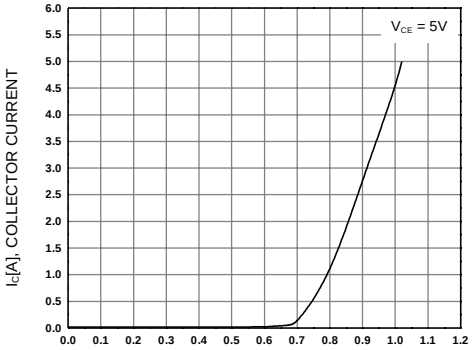

Figure 4. Base-Emitte On Voltage

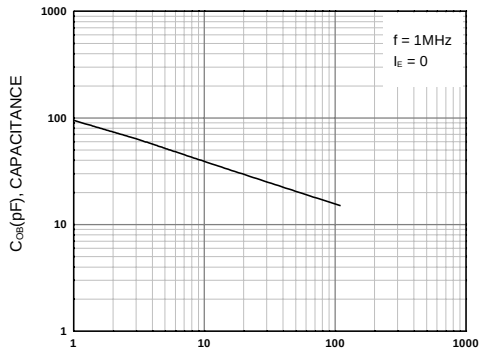

Figure 5. Collector Output Capacitance

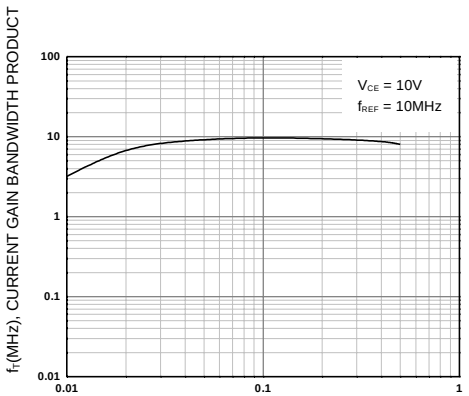

Figure 6. Current Gain Bandwidth Product

Typical Characteristics (Continued)

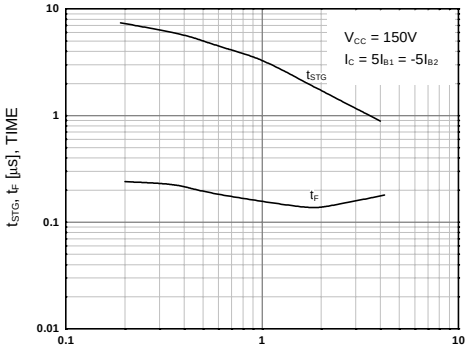

Figure 7. Switching Time

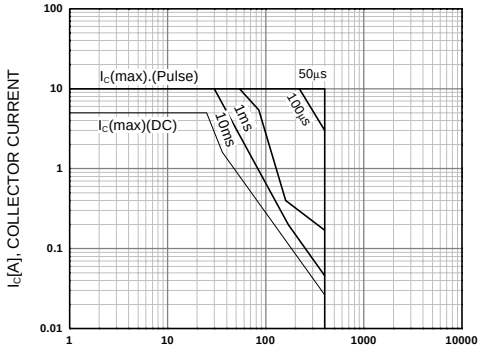

Figure 8. Safe Operating Area

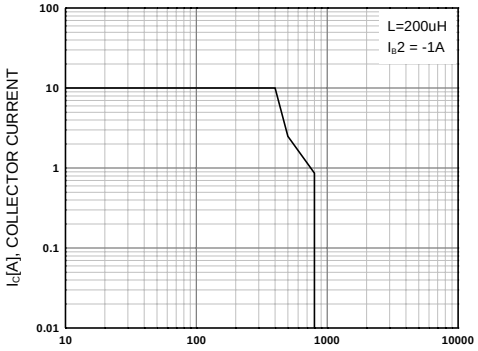

Figure 9. Reverse Bias Safe Operaing Area

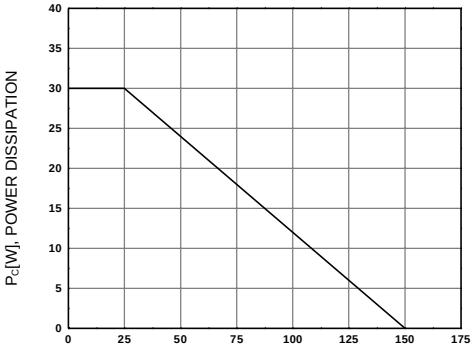

Figure 10. Power Derating

Package Demensions

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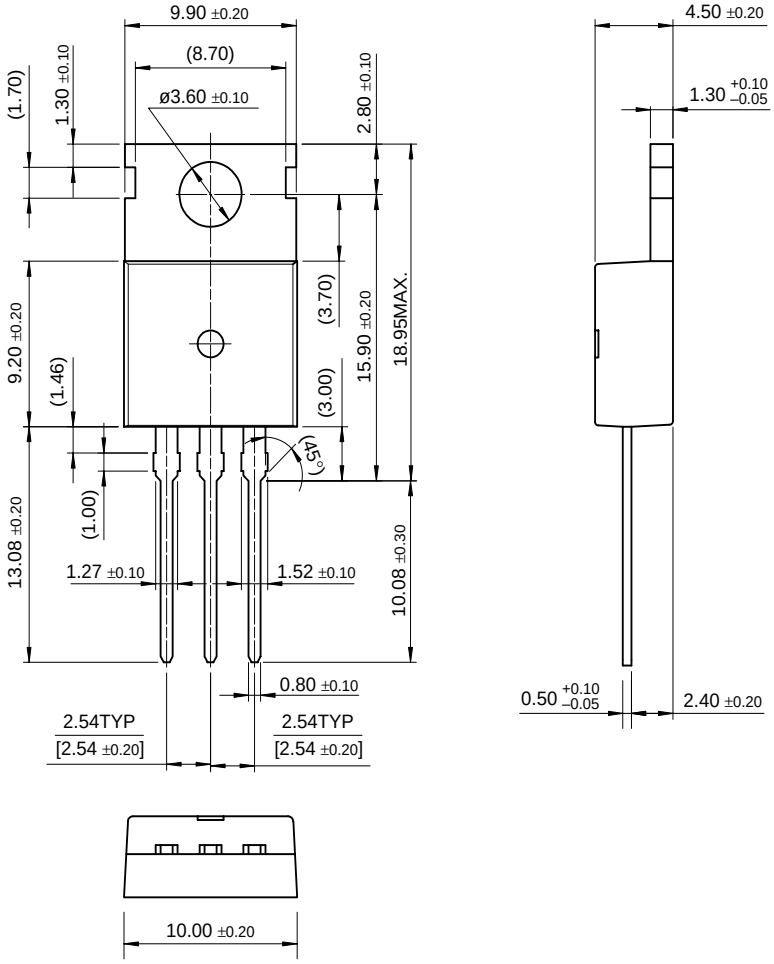

Dimensions in Millimeters

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