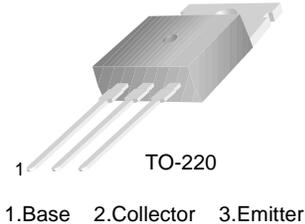


KSC5039

High Voltage Power Switch Switching Application



NPN 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	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 ($T_C=25^\circ\text{C}$)	70	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 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	$I_C = 1\text{mA}, I_E = 0$	800			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_B = 0$	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_C = 1\text{mA}, I_C = 0$	7			
I_{CBO}	Collector Cut-off Current	$V_{CB} = 500\text{V}, I_E = 0$			10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 7\text{V}, I_C = 0$			10	μA
h_{FE}	* DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.3\text{A}$	10			
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 2.5\text{A}, I_B = 0.5\text{A}$			1.5	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 2.5\text{A}, I_B = 0.5\text{A}$			2.0	V
f_T	Current Gain Bandwidth Product	$V_{CE} = 5\text{V}, I_C = 0.1\text{A}$		10		MHz
C_{ob}	Output Capacitance	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		40		pF
t_{ON}	Turn ON Time	$V_{CC} = 150\text{V}, I_C = 2.5\text{A}$			1	μs
t_{STG}	Storage Time	$I_{B1} = -I_{B2} = 0.5\text{A}$			3	μs
t_F	Fall Time	$R_L = 60\Omega$			0.8	μs

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

Typical Characteristics

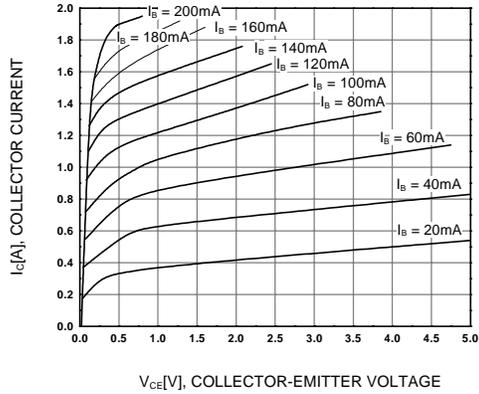


Figure 1. Static Characteristic

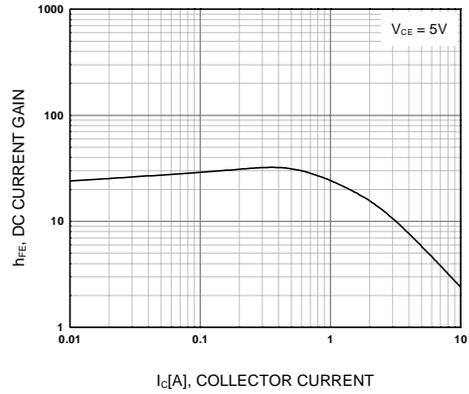


Figure 2. DC current Gain

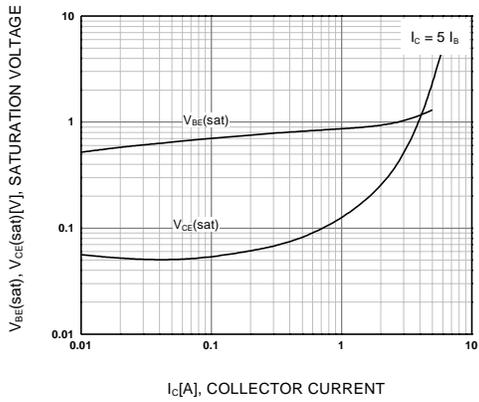


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

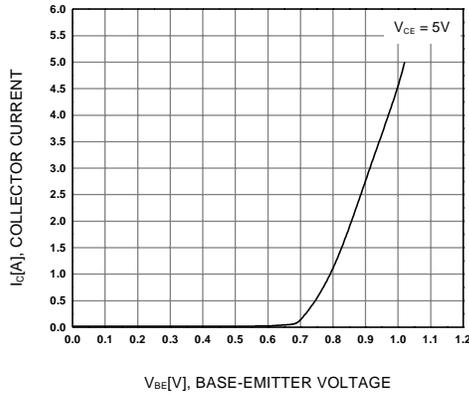


Figure 4. Base-Emitter On Voltage

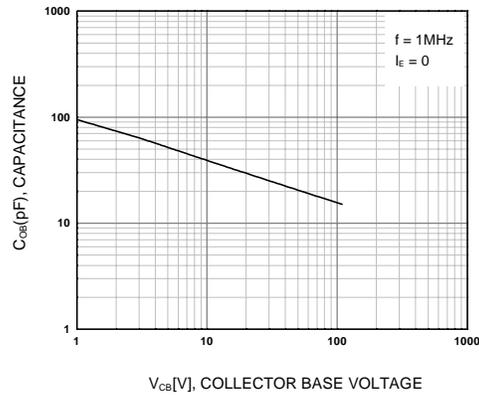


Figure 5. Collector Output Capacitance

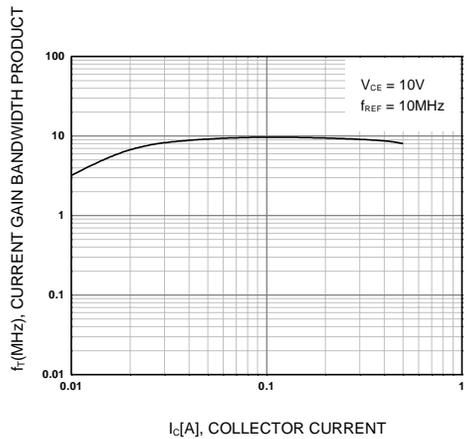


Figure 6. Current Gain Bandwidth Product