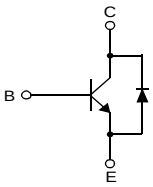
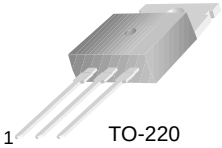
KSC5305D

High Voltage High Speed Power Switch Application

- Built-in Free-wheeling Diode makes efficient anti saturation operation
- Suitable for half bridge light ballast Applications
- No need to interest an hFE value because of low variable storage-time spread even though corner spirit product
- Low base drive requirement

Equivalent Circuit





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	12	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	Power Dissipation(T_C=25°C)	75	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

Thermal Characteristics T_C=25°C unless otherwise noted

Symbol	Characteristics		Rating	Unit
$R_{\theta jc}$	Thermal Resistance	Junction to Case	1.65	°C/W
$R_{\theta ja}$		Junction to Ambient	62.5	

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 Cut-off Current	I_E=1mA, I_C=0	12	-	-	V
I_{CBO}	Collector Cut-off Current	V_{CB}=500V, I_E=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}=1V, I_C=0.8A V_{CE}=1V,I_C=2A	22 8	- -	- -	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C=0.8A, I_B=0.08A I_C=2A, I_B=0.4A	- -	- -	0.4 0.5	V V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C=0.8A, I_B=0.08A I_C=2A, I_B=0.4A	- -	- -	1.0 1.0	V V
C_{ob}	Output Capacitance	VCB = 10V, f=1MHz	-	-	75	pF
t_{ON}	Turn ON Time	V_{CC}=300V, I_C =2A I_{B1} = 0.4A, I_{B2}=-1A R_L = 150Ω	-	-	150	ns
t_{STG}	Storage Time		-	-	2	µs
t_F	Fall Time		-	-	0.2	µs
t_{STG}	Storage Time	V_{CC}=15V,V_Z=300V I_C = 2A,I_{B1} = 0.4A I_{B2} = -0.4A, L_C=200µH	-	-	2.25	µs
t_F	Fall Time		-	-	150	ns
V_F	Diode Forward Voltage	I_F = 1A I_F = 2A	- -	- -	1.5 1.6	V V
t_{rr}	* Reverse recovery time (di/dt = 10A/µs)	I_F = 0.4A I_F = 1A I_F = 2A	- - -	800 1.4 1.9	- - -	ns µs µs

*Pulse Test : Pulse Width=5mS, Duty cycles ≤ 10%

Typical Characteristics

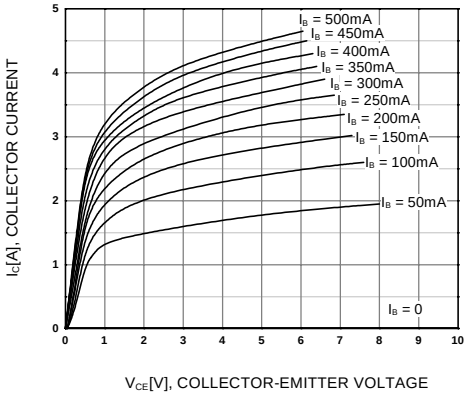


Figure 1. Static Characteristic

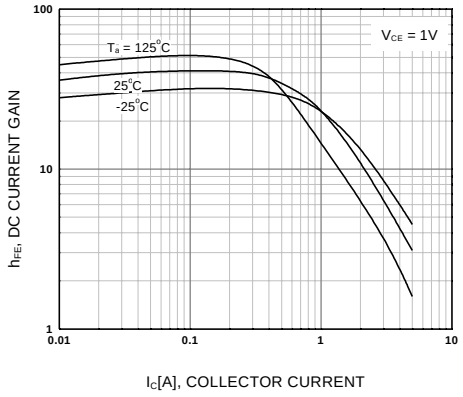


Figure 2. DC current Gain

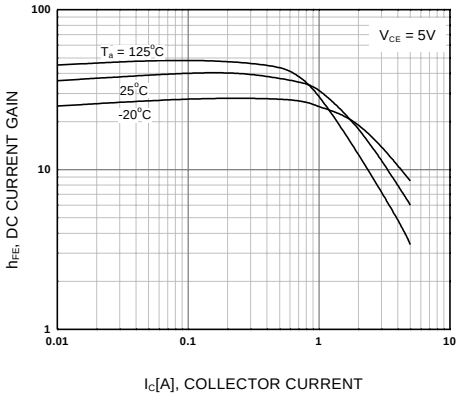


Figure 3. DC current Gain

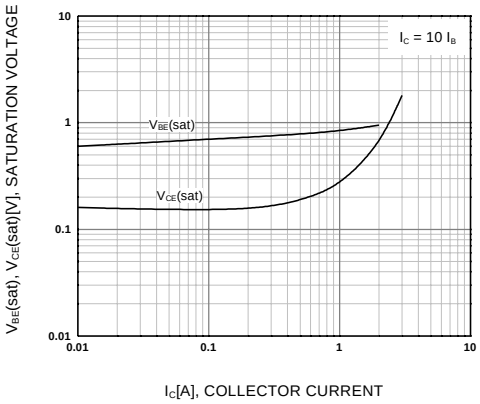


Figure 4. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

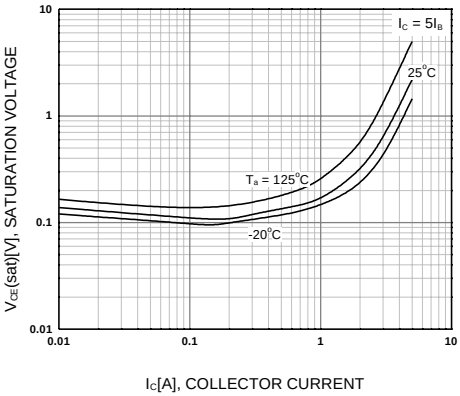


Figure 5. Collector-Emitter Saturation Voltage

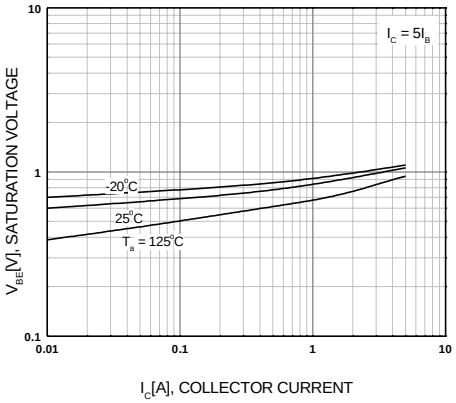


Figure 6. Base-Emitter Saturation Voltage