

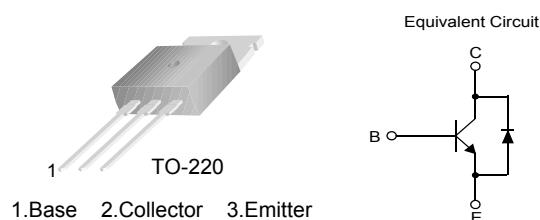


KSC5305D

NPN Silicon Transistor

Features

- 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 h_{FE} value because of low variable storage-time spread even though corner spirit product
- Low base drive requirement



Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ 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	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 ($T_C=25^\circ\text{C}$)	75	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 to 150	$^\circ\text{C}$

* Pulse Test : Pulse Width = 5mS, Duty cycles $\leq 10\%$

Thermal Characteristics

Symbol	Parameter	Rating	Units
$R_{\theta jc}$	Thermal Resistance	1.65	$^\circ\text{C}/\text{W}$
$R_{\theta ja}$		62.5	$^\circ\text{C}/\text{W}$

Electrical Characteristics $T_a=25^\circ\text{C}$ 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	$I_E=1\text{mA}, I_C=0$	12	-	-	V
I_{CBO}	Collector Cut-off Current	$V_{\text{CB}}=500\text{V}, I_E=0$	-	-	10	μA
I_{EBO}	Emitter Cut-off Current	$V_{\text{EB}}=9\text{V}, I_C=0$	-	-	10	μA
$\text{h}_{\text{FE}1}$ $\text{h}_{\text{FE}2}$	DC Current Gain	$V_{\text{CE}}=1\text{V}, I_C=0.8\text{A}$ $V_{\text{CE}}=1\text{V}, I_C=2\text{A}$	22 8	-	-	
$V_{\text{CE}}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=0.8\text{A}, I_B=0.08\text{A}$ $I_C=2\text{A}, I_B=0.4\text{A}$	- -	-	0.4 0.5	V
$V_{\text{BE}}(\text{sat})$	Base-Emitter Saturation Voltage	$I_C=0.8\text{A}, I_B=0.08\text{A}$ $I_C=2\text{A}, I_B=0.4\text{A}$	- -	-	1.0 1.0	V
C_{ob}	Output Capacitance	$V_{\text{CB}}=10\text{V}, f=1\text{MHz}$	-	-	75	pF
t_{ON}	Turn On Time	$V_{\text{CC}}=300\text{V}, I_C=2\text{A},$ $I_{B1}=0.4\text{A}, I_{B2}=-1\text{A},$ $R_L=150\Omega$	-	-	150	ns
t_{STG}	Storage Time		-	-	2	μs
t_F	Fall Time		-	-	0.2	μs
t_{STG}	Storage Time	$V_{\text{CC}}=15\text{V}, V_Z=300\text{V},$ $I_C=2\text{A}, I_{B1}=0.4\text{A},$ $I_{B2}=-0.4\text{A}, L_C=200\mu\text{H}$	-	-	2.25	μs
t_F	Fall Time		-	-	150	ns
V_F	Diode Forward Voltage	$I_F=1\text{A}$ $I_F=2\text{A}$	- -	-	1.5 1.6	V
t_{rr}	* Reverse recovery time ($\text{d}i/\text{d}t = 10\text{A}/\mu\text{s}$)	$I_F=0.4\text{A}$ $I_F=1\text{A}$ $I_F=2\text{A}$	- - -	800 1.4 1.9	- - -	ns μs μs

* Pulse Test : Pulse Width = 5mS, Duty cycles $\leq 10\%$

Typical Characteristics

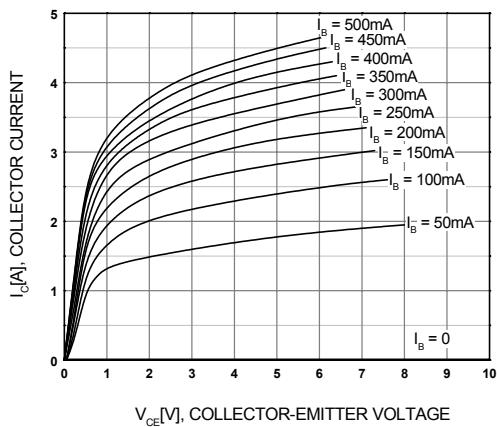


Figure 1. Static Characteristic

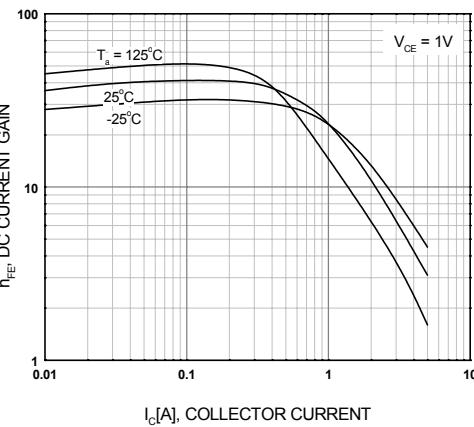


Figure 2. DC current Gain

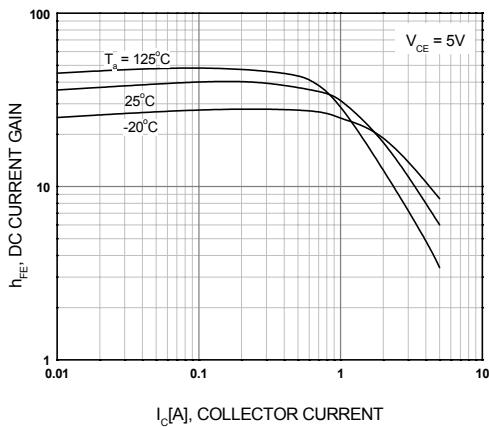
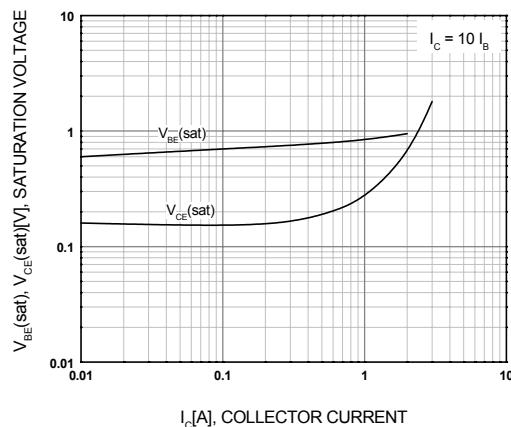


Figure 3. DC current Gain



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

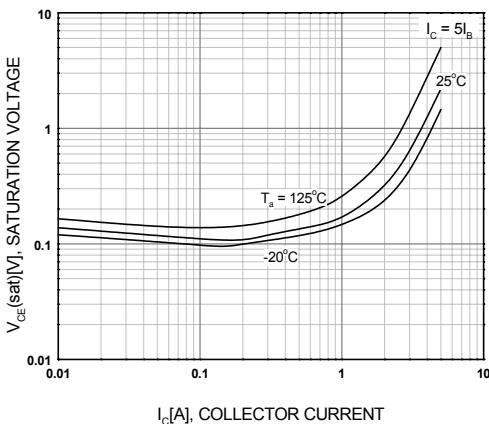


Figure 5. Collector-Emitter Saturation Voltage

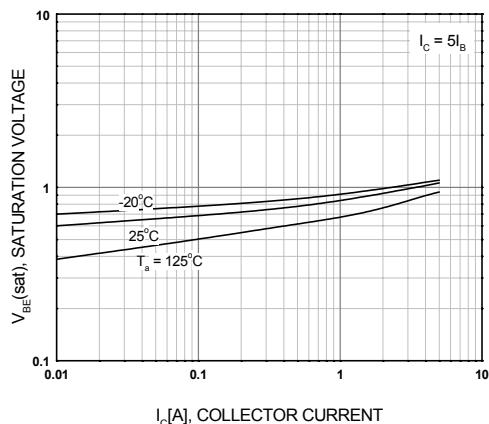


Figure 6. Base-Emitter Saturation Voltage