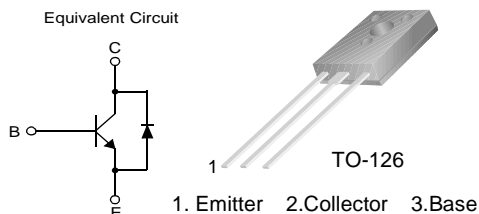


KSC5302DM

KSC5302DM

High Voltage & High Speed Power Switch Application

- High breakdown Voltage : $BV_{CBO}=800V$
- 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



NPN Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ C$ 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)	2	A
I_{CP}	*Collector Current (Pulse)	5	A
I_B	Base Current (DC)	1	A
I_{BP}	*Base Current (Pulse)	2	A
P_C	Power Dissipation($T_C=25^\circ C$)	25	W
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ C$

Thermal Characteristics $T_C=25^\circ C$ unless otherwise noted

Symbol	Characteristics		Rating	Unit
$R_{\theta jc}$	Thermal Resistance	Junction to Case	5.0	$^\circ C/W$
$R_{\theta ja}$		Junction to Ambient	62.5	

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 Cut-off Current	$I_E=1\text{mA}, I_C=0$	12	-	-	V
I_{CBO}	Collector Cut-off Current	$V_{CB}=500\text{V}, I_E=0$	-	-	10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=9\text{V}, I_C=0$	-	-	10	μA
h_{FE1} h_{FE2}	DC Current Gain	$V_{CE}=1\text{V}, I_C=0.4\text{A}$ $V_{CE}=1\text{V}, I_C=1\text{A}$	20 10	- -	- -	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=0.4\text{A}, I_B=0.04\text{A}$ $I_C=1\text{A}, I_B=0.2\text{A}$	- -	- -	0.4 0.5	V V
$V_{BE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=0.4\text{A}, I_B=0.04\text{A}$ $I_C=1\text{A}, I_B=0.2\text{A}$	- -	- -	0.9 1.0	V V
C_{ob}	Output Capacitance	$V_{CB}=10\text{V}, f=1\text{MHz}$	-	-	75	pF
t_{ON}	Turn On Time	$V_{CC}=300\text{V}, I_C=1\text{A}$	-	-	150	ns
t_{STG}	Storage Time	$I_{B1}=0.2\text{A}, I_{B2}=-0.5\text{A}$	-	-	2	μs
t_F	Fall Time	$R_L=300\Omega$	-	-	0.2	μs
t_{STG}	Storage Time	$V_{CC}=15\text{V}, V_Z=300\text{V}$	-	-	2.35	μs
t_F	Fall Time	$I_C=0.8\text{A}, I_{B1}=0.16\text{A}$ $I_{B2}=-0.16\text{A}, L_C=200\mu\text{H}$	-	-	150	ns
V_F	Diode Forward Voltage	$I_F=0.4\text{A}$ $I_F=1\text{A}$	- -	- -	1.2 1.5	V V
t_{rr}	* Reverse Recovery Time ($di/dt=10\text{A}/\mu\text{s}$)	$I_F=0.2\text{A}$ $I_F=0.4\text{A}$ $I_F=1\text{A}$	- - -	800 1 1.4	- - -	ns μs μs

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

Typical Characteristics

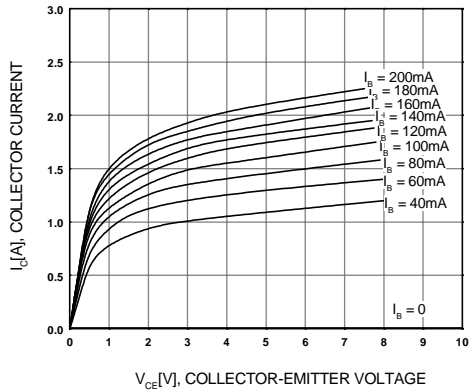


Figure 1. Static Characteristic

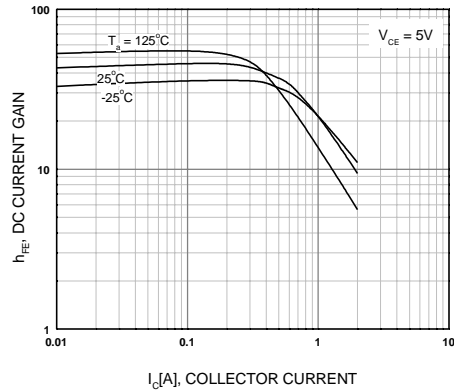


Figure 2. DC current Gain

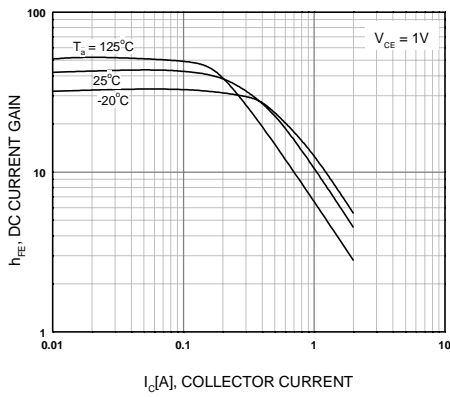


Figure 3. DC current Gain

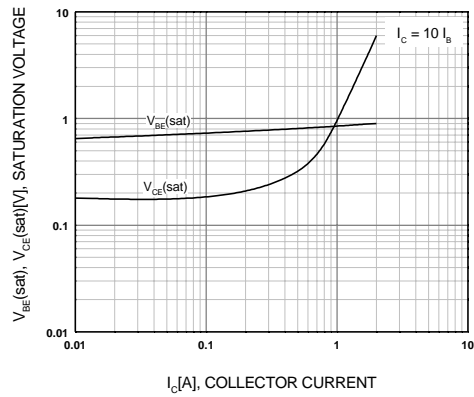


Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

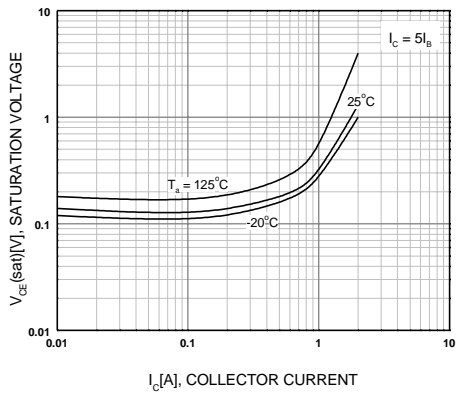


Figure 5. Collector-Emitter Saturation Voltage

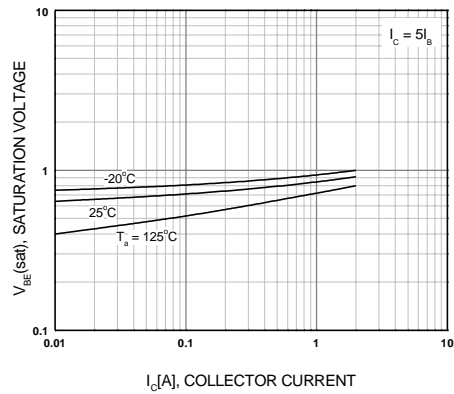


Figure 6. Base-Emitter Saturation Voltage

Typical Characteristics (Continued)

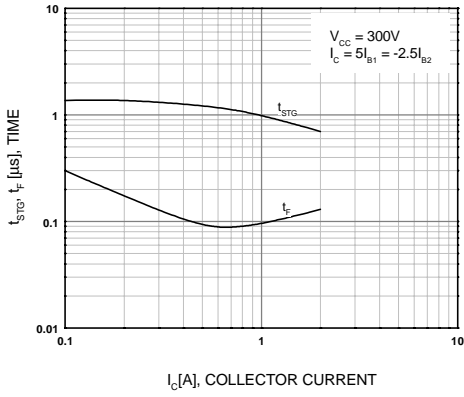


Figure 7. Switching Time

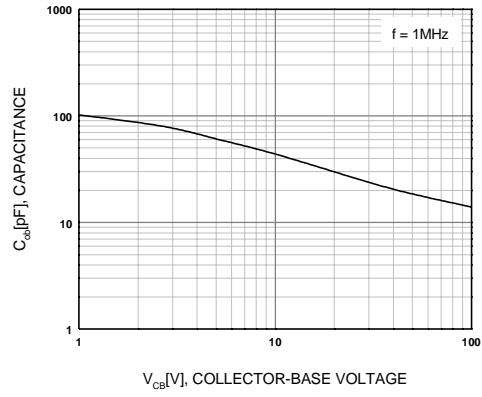


Figure 8. Collector Output Capacitance

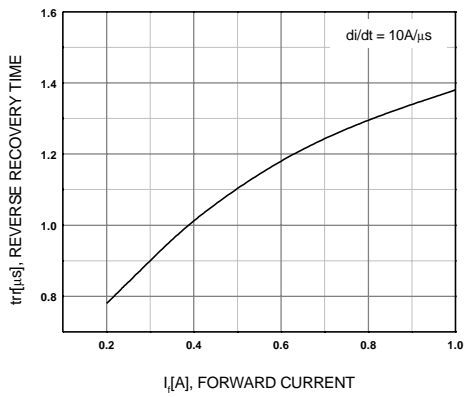


Figure 9. Reverse Recovery Time

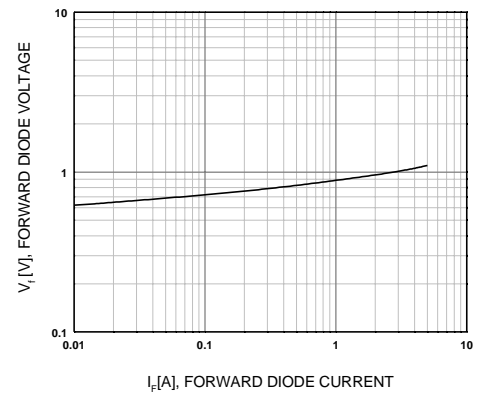
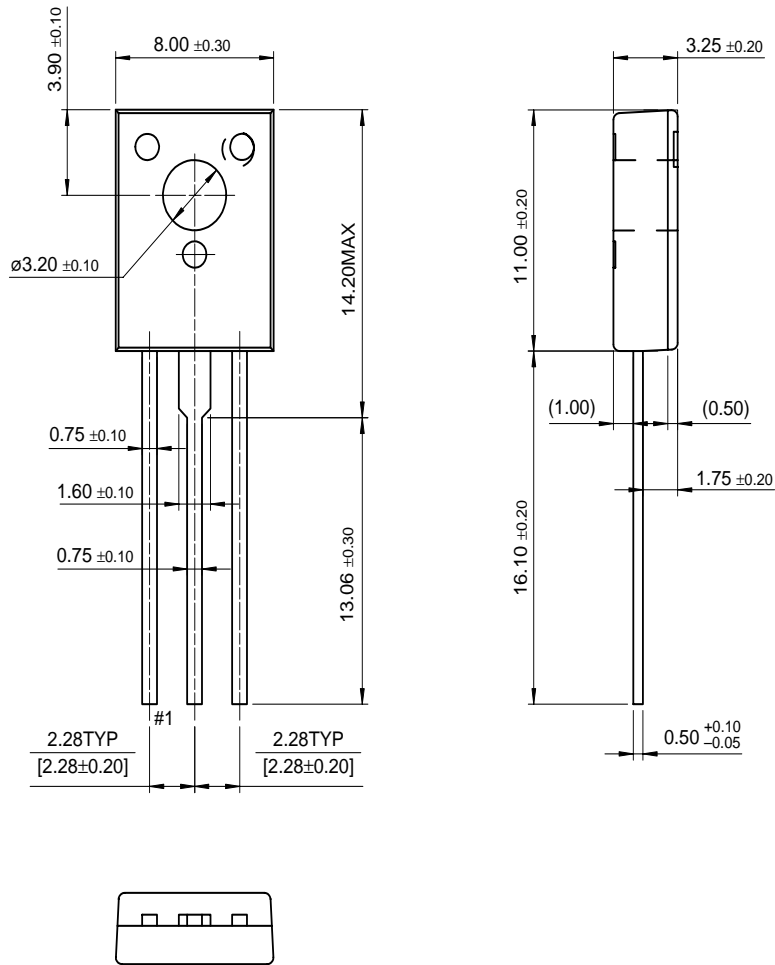


Figure 10. Forward Diode Voltage

Package Dimensions

KSC5302DM

TO-126



Dimensions in Millimeters

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