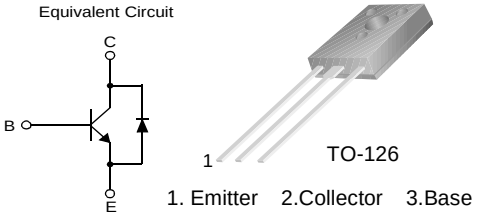
FAIRCHILD
SEMICONDUCTOR®

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°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°C)	25	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 55 ~ 150	°C

Thermal Characteristics T_C=25°C unless otherwise noted

Symbol	Characteristics		Rating	Unit
$R_{\theta jc}$	Thermal Resistance	Junction to Case	5.0	°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=0.4A V_{CE}=1V,I_C=1A	20 10	- -	- -	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C=0.4A, I_B=0.04A I_C=1A, I_B=0.2A	- -	- -	0.4 0.5	V V
V_{BE}(sat)	Collector-Emitter Saturation Voltage	I_C=0.4A, I_B=0.04A I_C=1A, I_B=0.2A	- -	- -	0.9 1.0	V V
C_{ob}	Output Capacitance	VCB = 10V, f=1MHz	-	-	75	pF
t_{ON}	Turn On Time	V_{CC}=300V, I_C =1A I_{B1} = 0.2A, I_{B2}=-0.5A R_L = 300Ω	-	-	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 = 0.8A, I_{B1} = 0.16A I_{B2} = -0.16A, L_C=200μH	-	-	2.35	μs
t_F	Fall Time		-	-	150	ns
V_F	Diode Forward Voltage	I_F = 0.4A I_F = 1A	- -	- -	1.2 1.5	V V
t_{rr}	* Reverse Recovery Time (di/dt = 10A/μs)	I_F = 0.2A I_F = 0.4A I_F = 1A	- - -	800 1 1.4	- - -	ns μs μs

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

Typical Characteristics

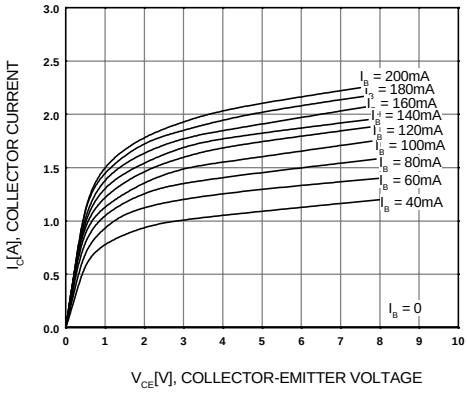


Figure 1. Static Characteristic

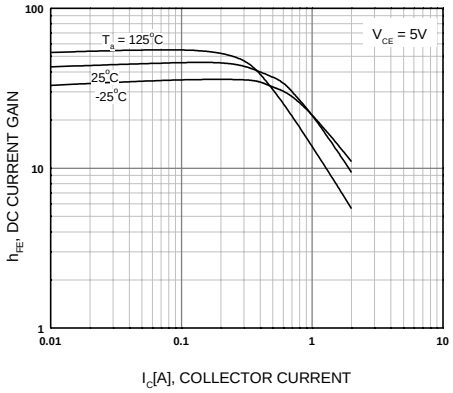


Figure 2. DC current Gain

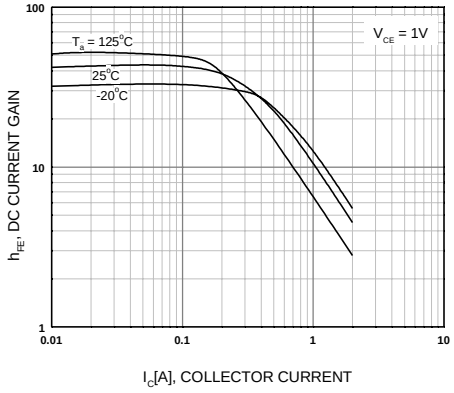


Figure 3. DC current Gain

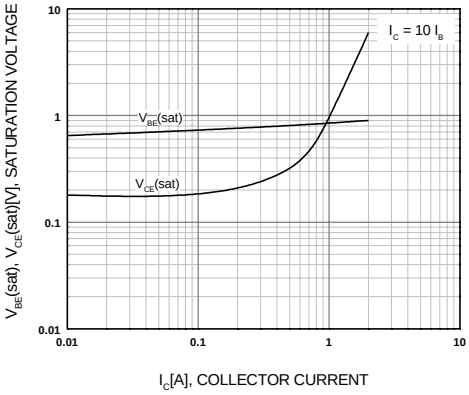


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

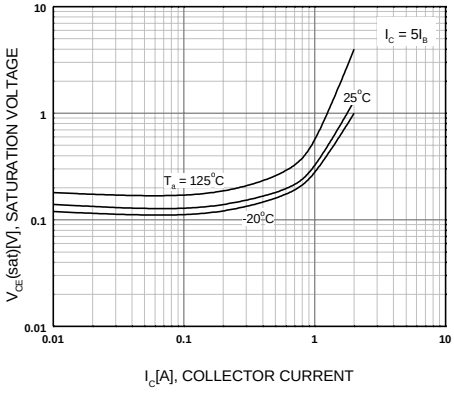


Figure 5. Collector-Emitter Saturation Voltage

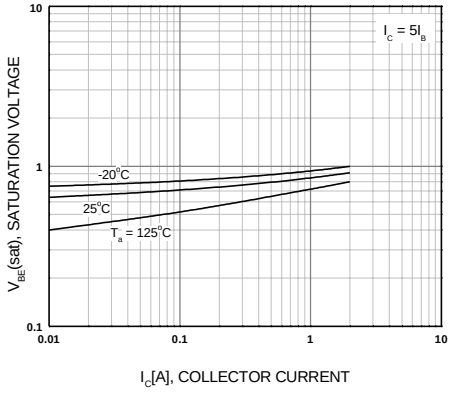


Figure 6. Base-Emitter Saturation Voltage

Typical Characteristics (Continued)

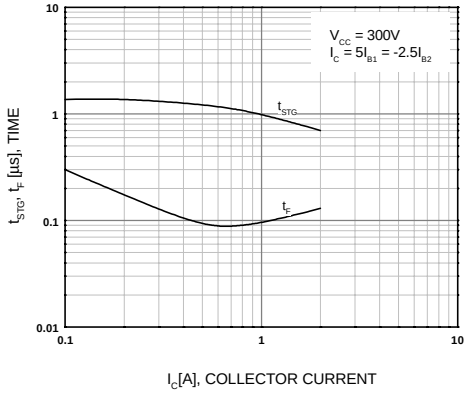


Figure 7. Switching Time

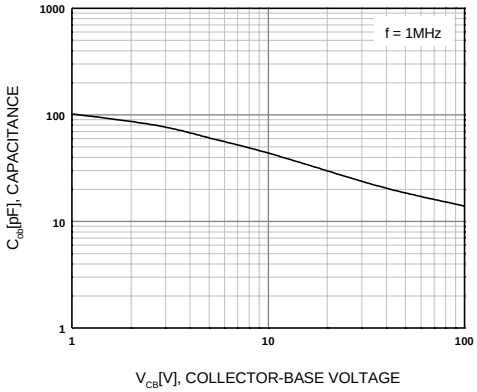


Figure 8. Collector Output Capacitance

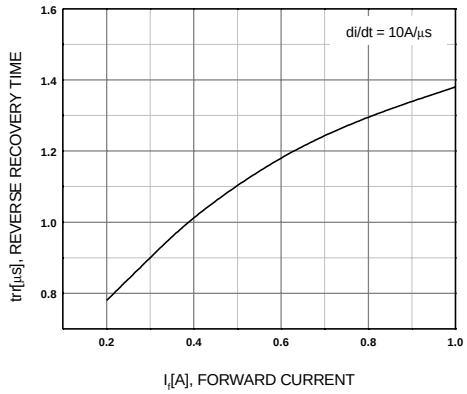


Figure 9. Reverse Recovery Time

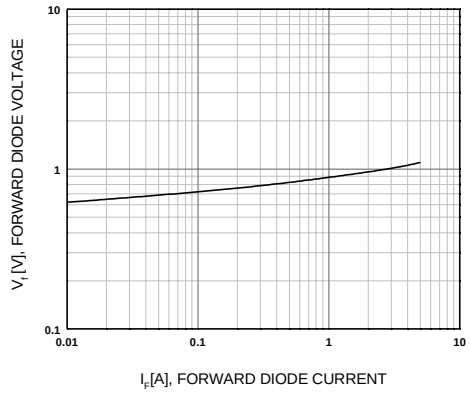
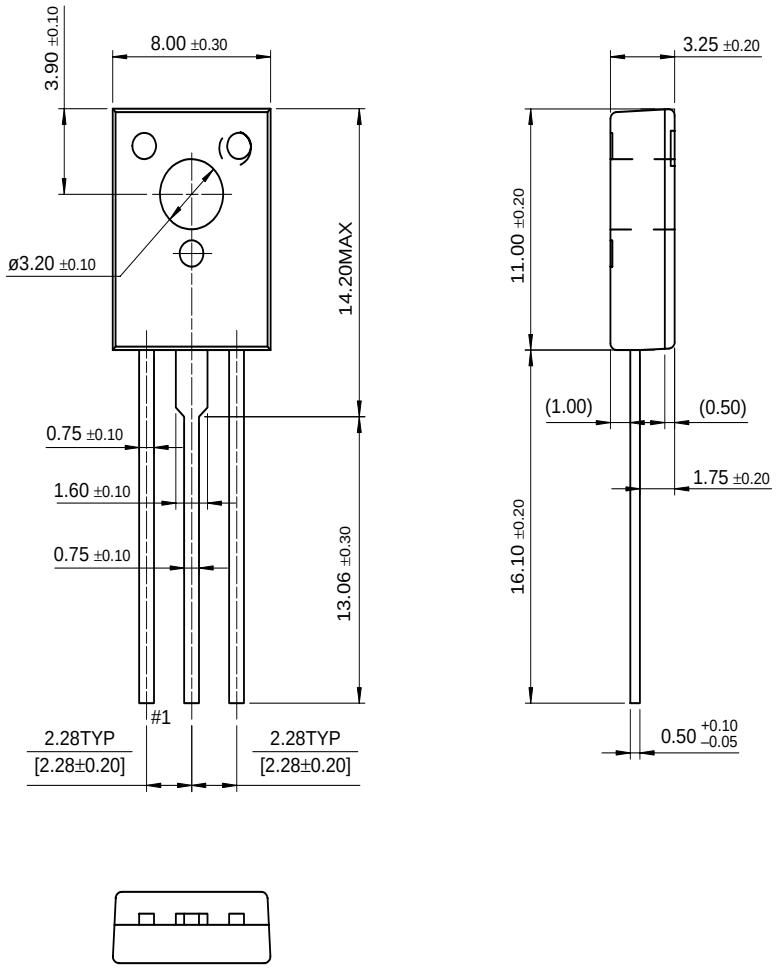


Figure 10. Forward Diode Voltage

Package Dimensions

TO-126



Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
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