THCS06065A

Silicon Carbide Schottky Diode

Maximum Ratings (T_c = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V		
V_{RSM}	Surge Peak Reverse Voltage	650	V		
V_{DC}	DC Blocking Voltage	650	V		
I_F	Continuous Forward Current	22 11 8	A	T_C=25°C T_C=125°C T_C=140°C	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	30	A	T_C=25°C, t_P=10 ms, Half Sine Wave, D=0.3	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	60	A	T_C=25°C, t_P=10ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	500	A	T_C=25°C, t_P= 10 µs, Pulse	
P_{tot}	Power Dissipation	119 51	W	T_C=25°C T_C=110°C	Fig. 6
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.5 2.2	1.8 3	V	I_F= 6 A T_J=25°C I_F= 6 A T_J=175°C	Fig. 1
I_R	Reverse Current	10 50	60 500	µA	V_R= 650 V T_J=25°C V_R= 650 V T_J=175°C	Fig. 2
Q_C	Total Capacitive Charge	22		nC	V_R= 400 V T_J= 25°C $Qc=\int C(V)dV$	Fig. 4
C	Total Capacitance	329 38 28		pF	V_R= 0 V, T_J= 25°C, f = 1 MHz V_R= 200 V, T_J= 25°C, f = 1 MHz V_R= 400 V, T_J= 25°C, f = 1 MHz	Fig. 3
E_C	Capacitance Stored Energy	4.3		µJ	V_R= 400 V	Fig. 5

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.35	°C/W	Fig. 8

Typical Performance

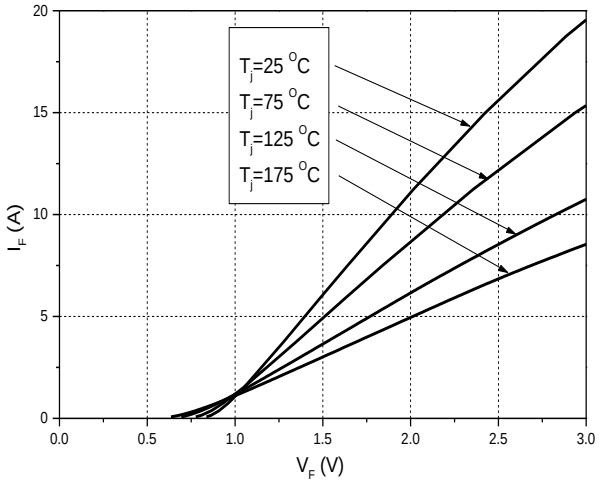
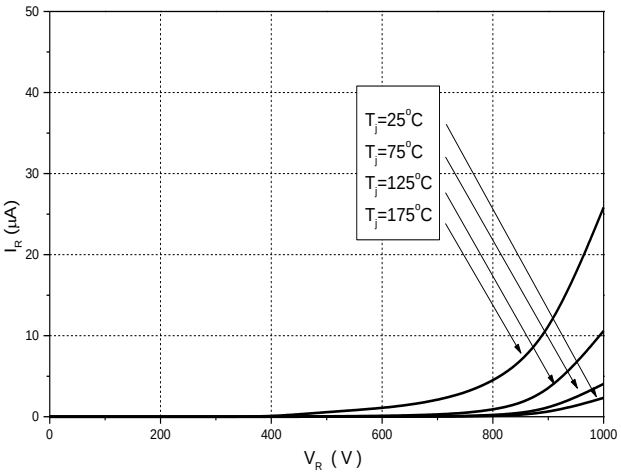


Figure 1.Forward CharacteristicsFigure



2. Reverse Characteristics

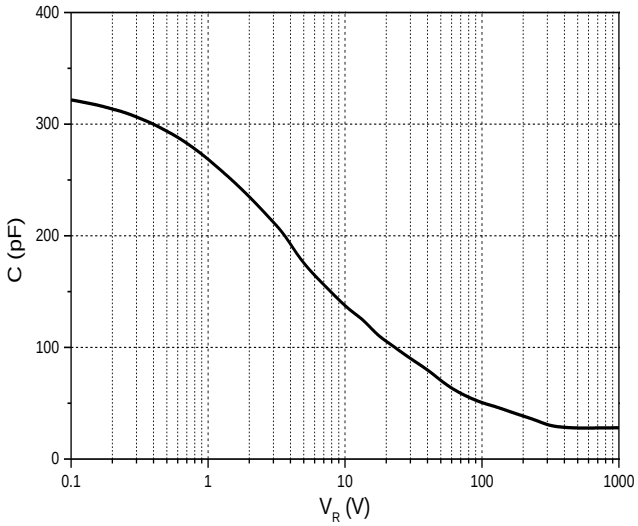


Figure 3.Capacitance vs. Reverse Voltage

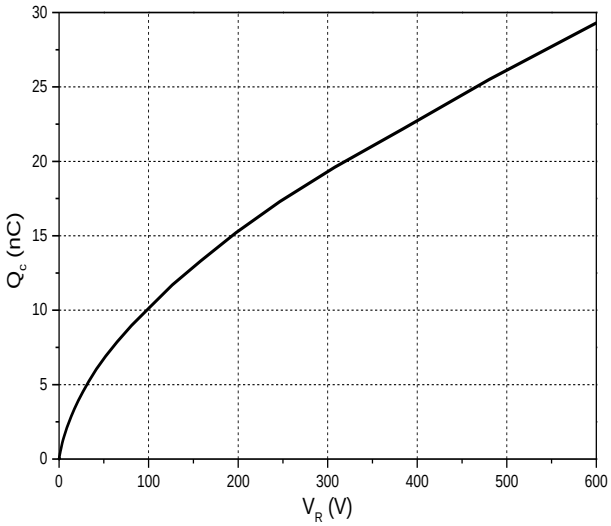


Figure 4. Total Capacitance Charge vs. Reverse Voltage

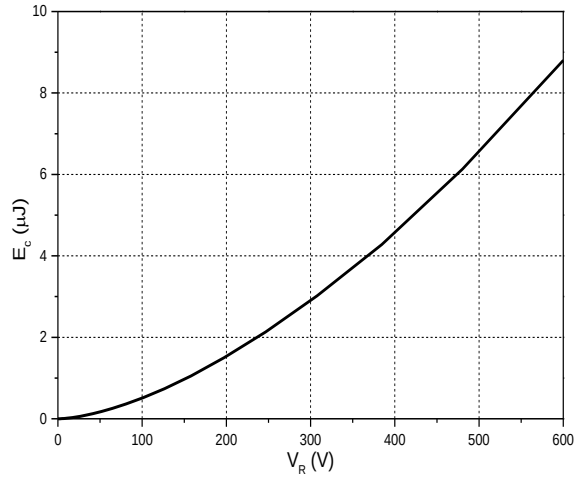


Figure 5. Capacitance Stored Energy

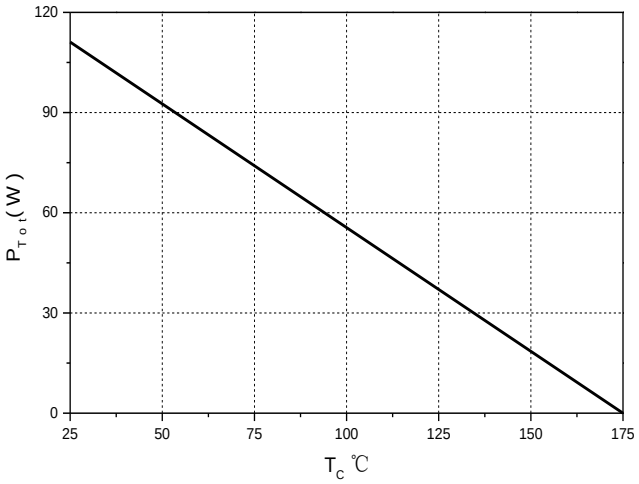


Figure 6. Power Derating

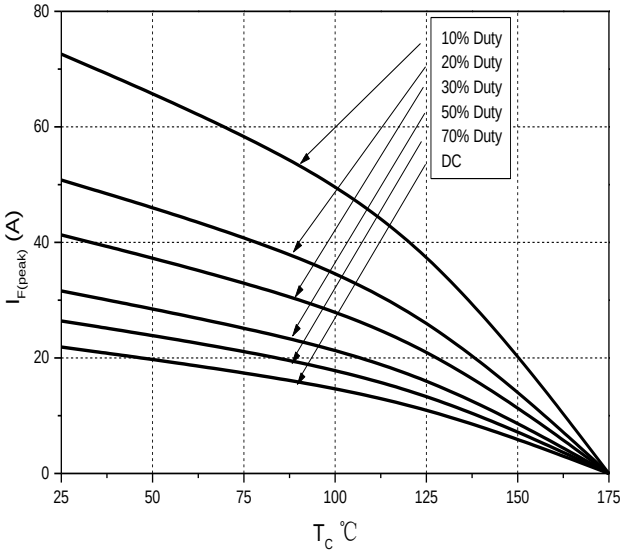


Figure 7. Current Derating

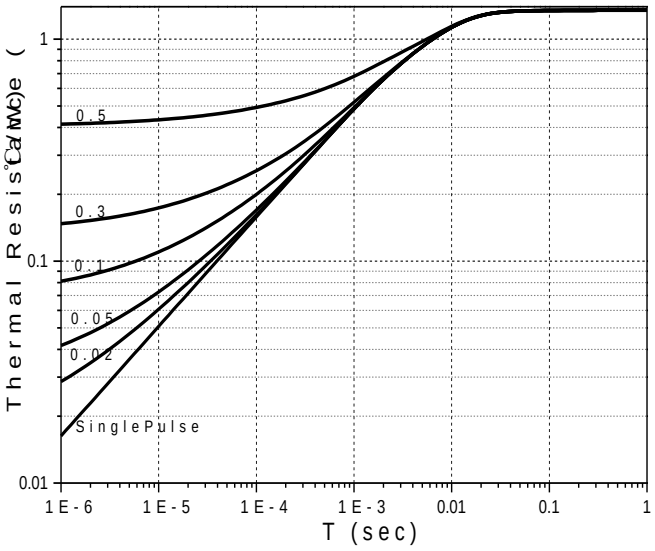


Figure 8. Transient Thermal Impedance

PackageDimensions

TO-220-2