H3D06065F

650V Silicon Carbide Schottky Diode

V_{RRM} = 650 V

I_F (T_c=150℃) = 6 A

Q_C = 17 nC

Features

- 650Volt Schottky Rectifier
- Shorter recovery time
- Highspeed switching possible
- HighFrequency Operation
- TemperatureIndependent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on VF

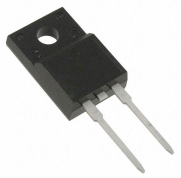
Benefits

- Higher safety margin against overvoltage
- Improved efficiency all load conditions
- Increased efficiency compared to Silicon Diode alternatives
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway
- Essentialy No Switching Losses

Applications

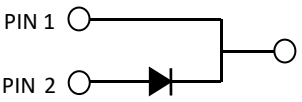
- HVAC
- Switch Mode Power Supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Free Wheeling Diodes in Inverter Stages
- AC/DC converters

Package



Type : TO-220F-2L

1、Cathode 2、Anode



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	6	A	T_C=150˚C	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	40	A	T_C=25˚C, t_P=10 ms, Half Sine Wave,	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	65	A	T_C=25˚C, t_P=10ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	520	A	T_C=25˚C, t_P= 10 µs, Pulse	
P_{tot}	Power Dissipation	111 48	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	1.45 1.75	1.70 2.00	V	I_F= 6 A T_J=25°C I_F= 6 A T_J=175°C	Fig. 1
I_R	Reverse Current	2 40	20 200	μA	V_R= 650 V T_J=25°C V_R= 650 V T_J=175°C	Fig. 2
Q_C	Total Capacitive Charge	17		nC	V_R= 400 V, T_J= 25°C $Qc=\int_0^{V_R} C(V)dV$	Fig. 4
C	Total Capacitance	332 33 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	2.65	°C/W	Fig. 8

Typical Performance

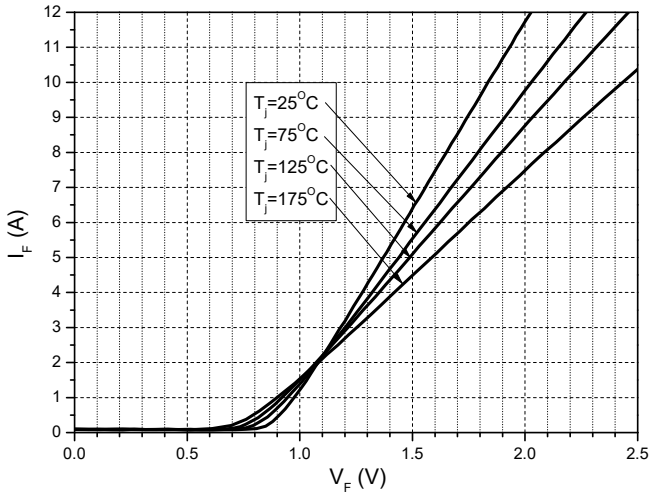


Figure 1.Forward Characteristics

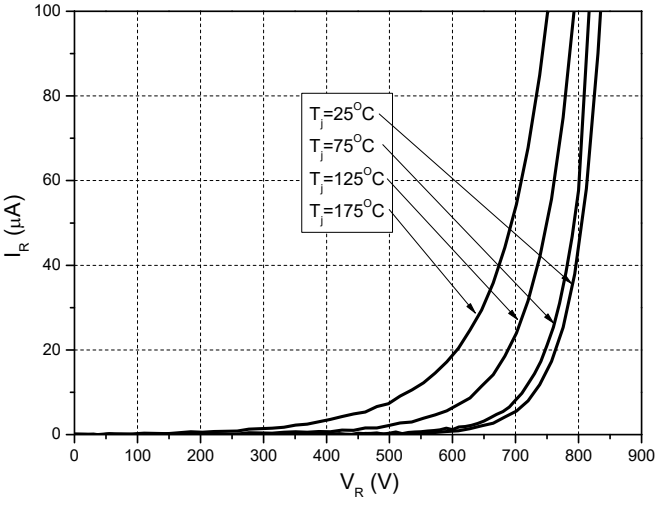


Figure2. Reverse Characteristics

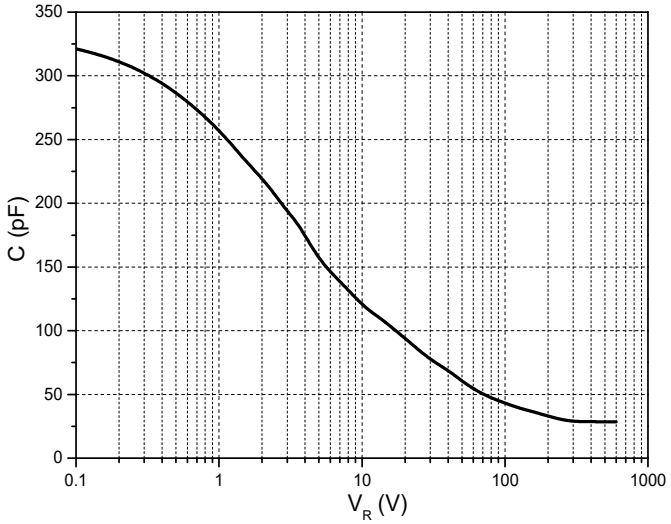


Figure 3.Capacitance vs. Reverse Voltage

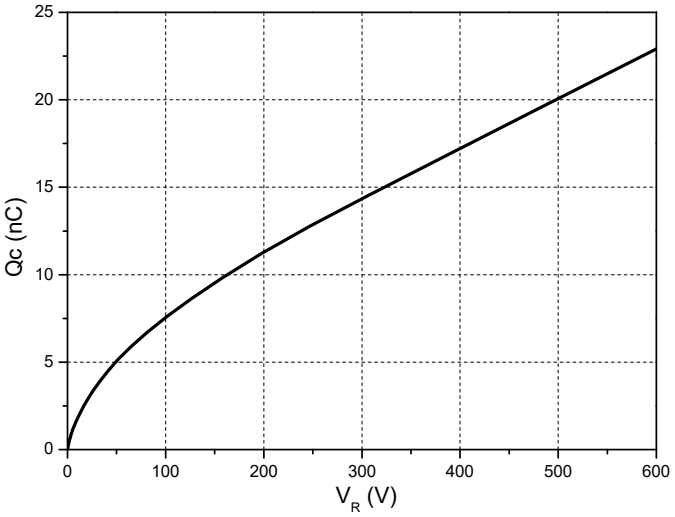


Figure 4. Total Capacitance Charge vs. Reverse Voltage

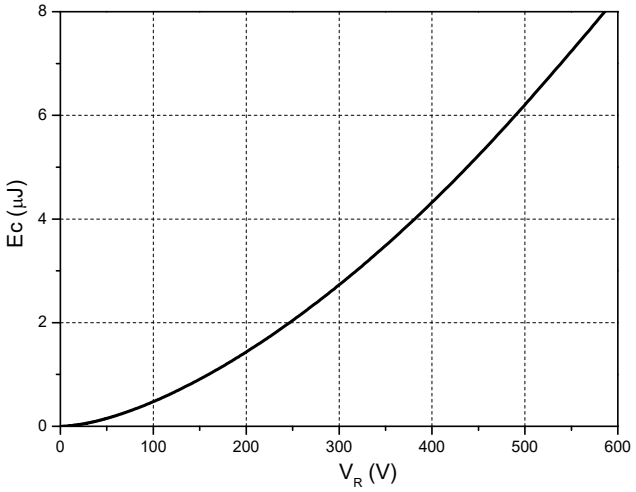


Figure 5. Capacitance Stored Energy

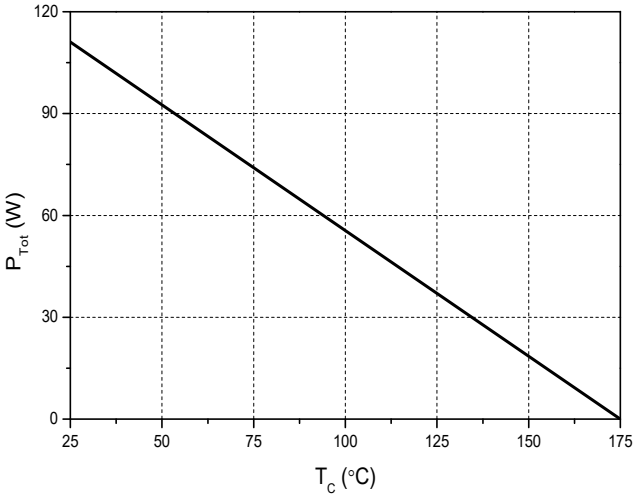


Figure 6. Power Derating

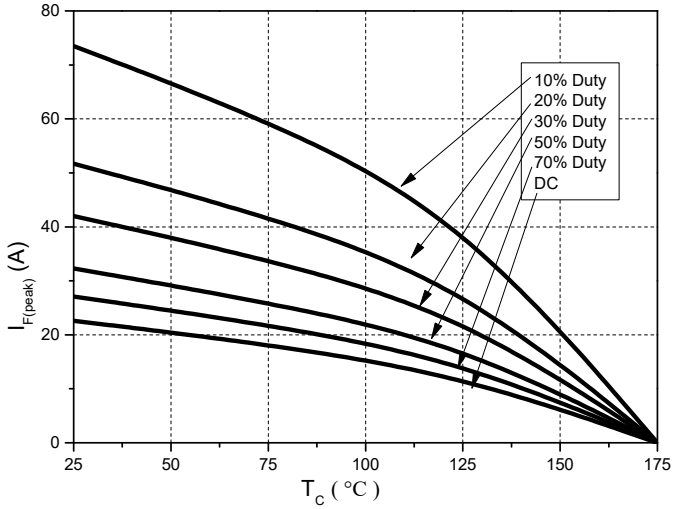


Figure 7. Current Derating

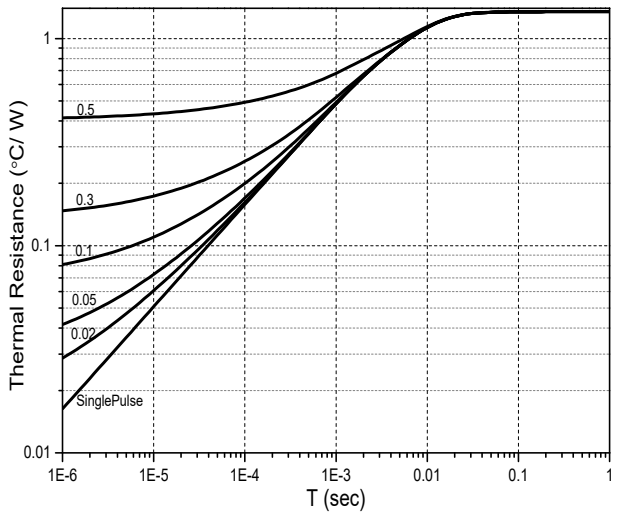
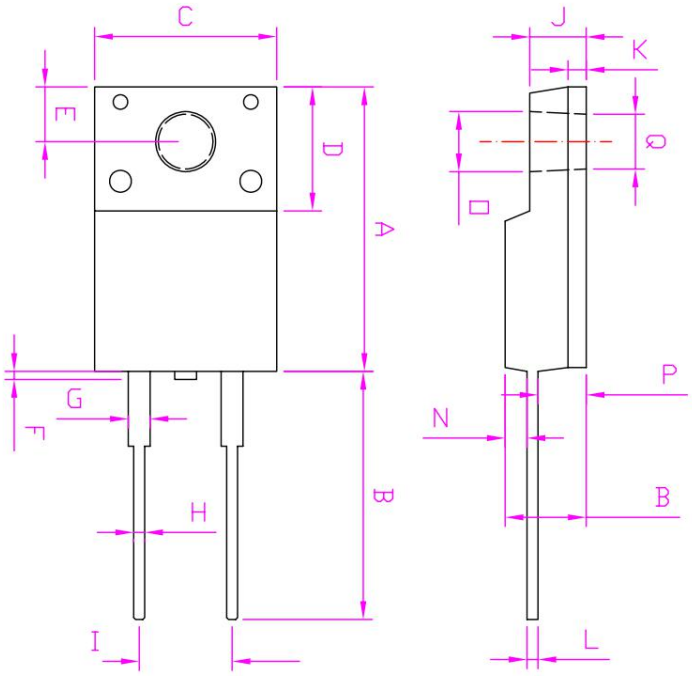


Figure 8. Transient Thermal Impedance

Package Dimensions: TO-220F-2L



REF.DIM	DATA BOOK mm		
	NOR	MIN	MAX
A	15.6	14.8	16.1
B	13	12.65	13.8
C	10	9.85	10.36
D	6.5	4.6	6.8
E	3.0	2.55	3.5
F			1
G	1.2	1	1.45
H	0.6	0.3	0.9
I	5.1	4.8	5.4
J	3.1	2.34	3.3
K	1.0	0.55	1.3
L	0.6	0.36	0.8
M	4.45	4.2	4.9
N	1.2	1.1	1.8
O	3.3	2.9	3.5
P	2.6	2.5	3.15
Q	3	2.9	3.5