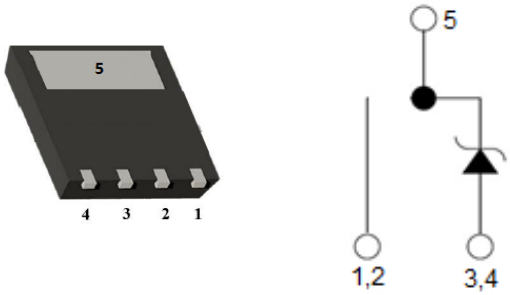
Silicon Carbide Schottky Diode 650V, 6A, 15nC

General Description

This product family offers state of the art performance. It is designed for high frequency applications here high efficiency and high reliability are required.

Features

- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on VF
- Temperature Independent Switching Behavior
- High surge current capability



DFN 8×8

Applications

- PC Power
- Server Power Supply
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- Higher Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection

Key performance parameters

Type	V_R	I_F T_C=150°C	Q_C
CC3D06065G	650V	6A	15nC

Maximum Ratings

T_C=25°C, unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Peak Reverse Surge Voltage	V_{RSM}	650	V
DC Blocking Voltage	V_R	650	V

Maximum Ratings

T_C=25°C, unless otherwise specified

Parameter	Symbol	Value	Unit
Continuous Forward Current: T_C = 25°C T_C = 135°C T_C = 150°C	I_F	18 8 6	A
Non Repetitive Forward Surge Current： T_C = 25°C, tp =10ms, Half Sine Pulse T_C = 150°C, tp =10ms, Half Sine Pulse T_C = 25°C, tp =10 µs, Square	I_{FSM}	35 25 200	A
Repetitive peak Forward Surge Current: Freq = 0.1Hz, 100 cycles T_C = 25°C, tp=10ms, Half Sine Pulse T_C = 150°C, tp=10ms, Half Sine Pulse	I_{FRM}	25 20	A
Total power dissipation ： T_C = 25°C	P_D	63	W
Operating Junction Temperature :	T_j	-55 to 175	°C
Storage Temperature :	T_{stg}	-55 to 175	°C

Thermal Resistance

Parameter	Symbol	Typ.	Max	Unit
Thermal resistance, junction-case	R_{thJC}	2.0		°C/W

Electrical Characteristic

T_C =25°C, unless otherwise specified

Parameter	Symbol	Value			Unit	Test Condition
		Min.	Typ.	Max.		
DC Blocking Voltage	V_{DC}	650			V	I_R = 250μA T_j=25°C
Forward Voltage	V_F		1.50 1.65 1.80	1.80	V	I_F = 6A T_j=25°C T_J = 125°C T_j=175°C
Reverse Current	I_R		5 60 100	80	μA	V_R=650V T_j=25°C T_J = 125°C Tj=175°C
Total Capacitance Charge	Q_C		15		nC	V_R = 400V T_J = 25°C
Total Capacitance	C		240 30 21		pF	T_J = 25°C， Freq = 1MHz V_R = 1V V_R = 200V V_R = 400V

Characteristics Curves

Figure 1. Forward Characteristics

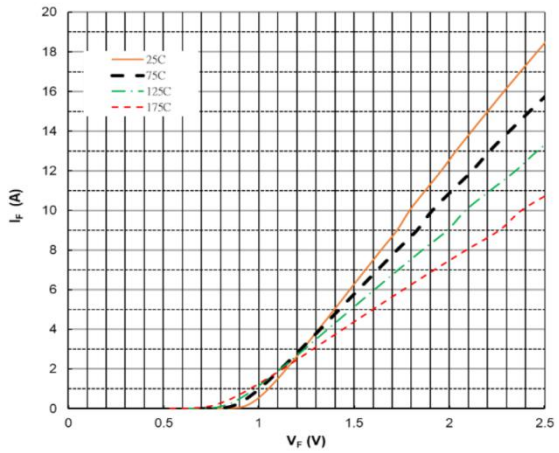


Figure 2. Forward Characteristics

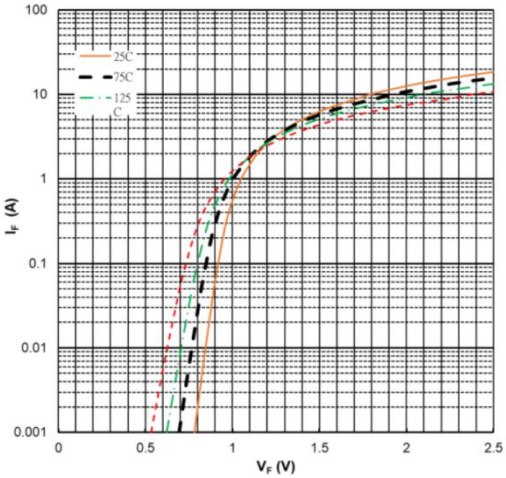


Figure 3. Reverse Characteristics

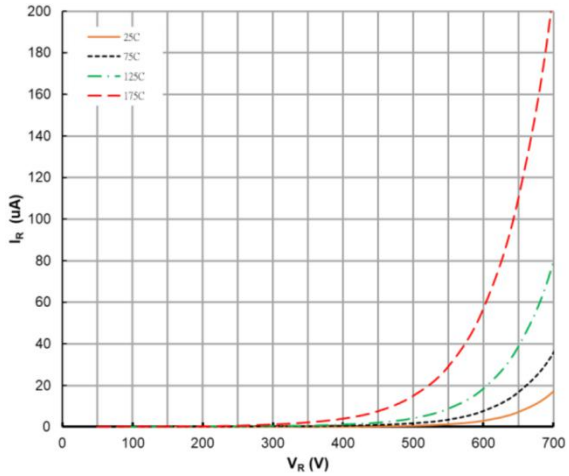


Figure 4. Power Derating

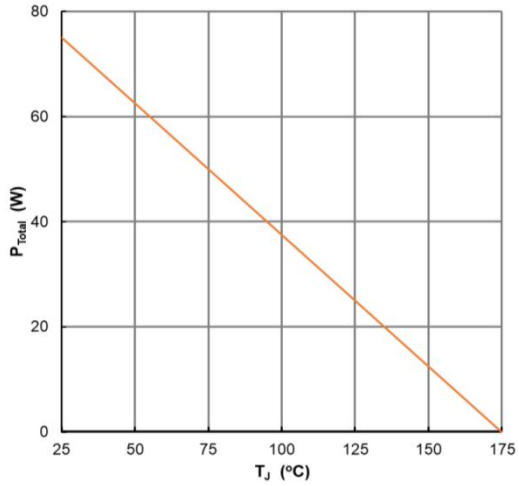


Figure 5. Capacitance vs Reverse Voltage

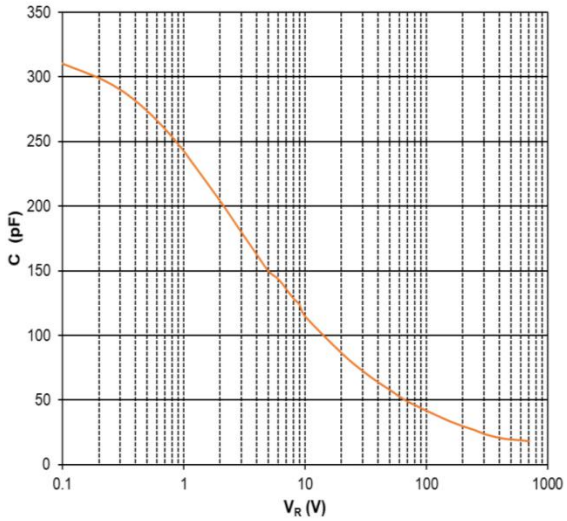
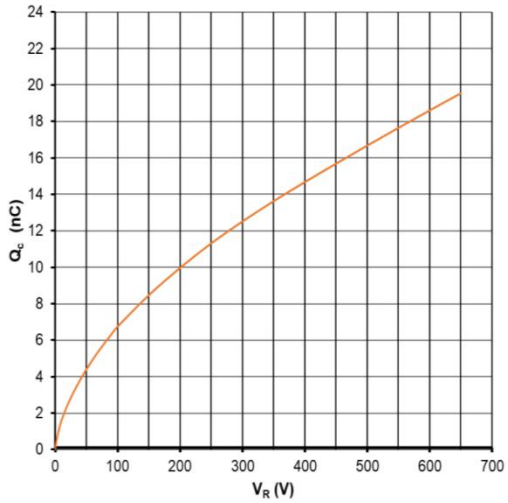
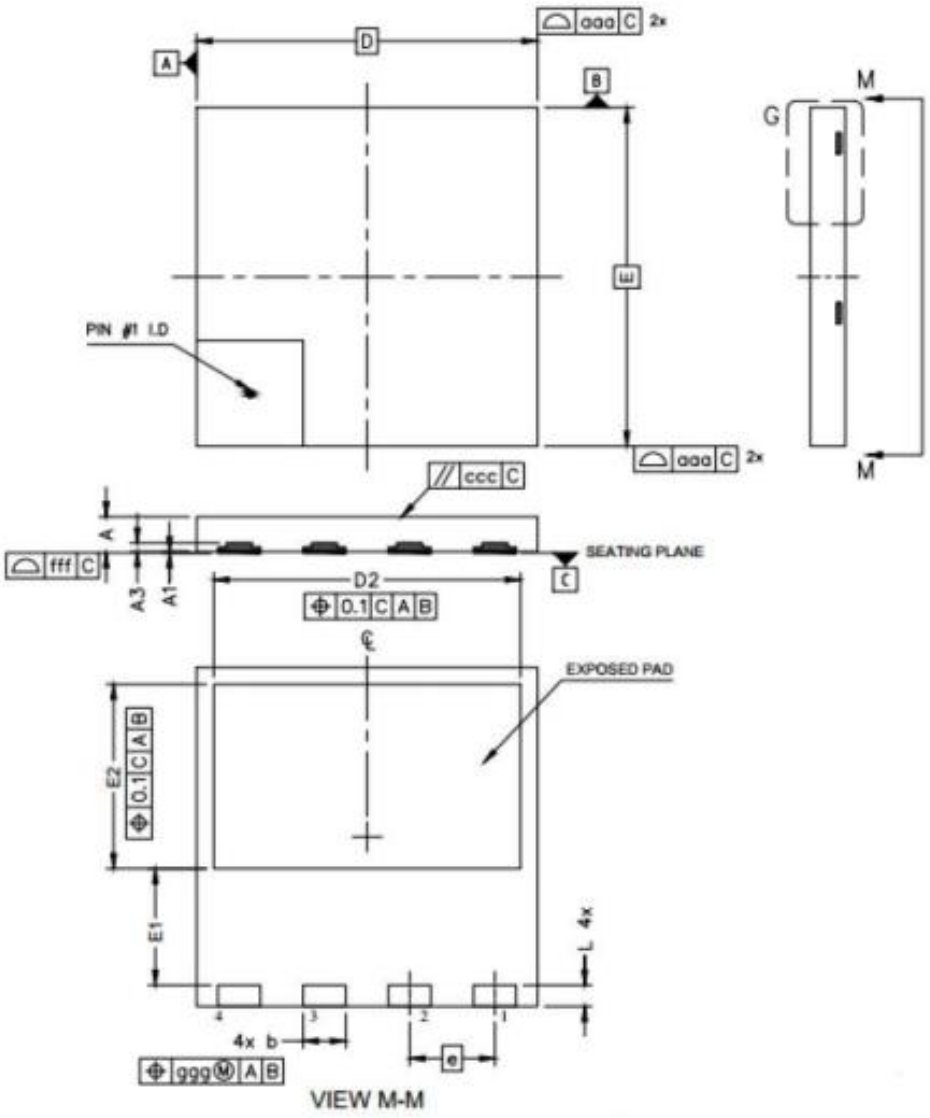


Figure 6. Recovery Charge vs Reverse Voltage



Caution: This device is sensitive to electrostatic discharge .Users should follow ESD handing procedures.

Package Dimensions: DFN 8×8 Package



Items	Millimeters	
	Min	Max
A	0.75	0.95
A1	0.00	0.05
A3	0.10	0.30
b	0.9	1.10
D	7.90	8.10
E	7.90	8.10
D2	7.10	7.30
E1	2.65	2.85
E2	4.25	4.45
e	2.00 (BSC)	
L	0.40	0.60
aaa	0.10	
ggg	0.05	
ccc	0.05	
fff	0.05	