

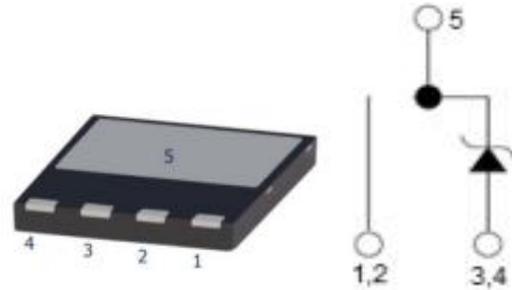
# Silicon Carbide Schottky Diode 650V, 6A, 15nC

## 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	$V_R$	$I_F$ $T_C=150^\circ\text{C}$	$Q_C$
NF3D06065G	650V	6A	15nC

## Maximum Ratings

$T_C=25^{\circ}\text{C}$ , 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

$T_C=25^{\circ}\text{C}$ , unless otherwise specified

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

## Thermal Resistance

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

### Electrical Characteristic

$T_C = 25^\circ\text{C}$ , unless otherwise specified

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

**Characteristics Curves**

Figure 1. Forward Characteristics

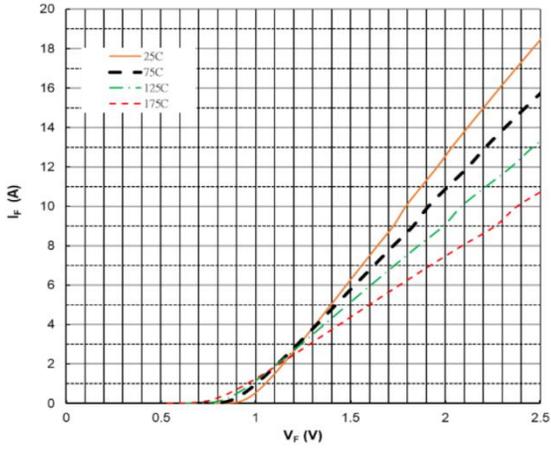


Figure 2. Forward Characteristics

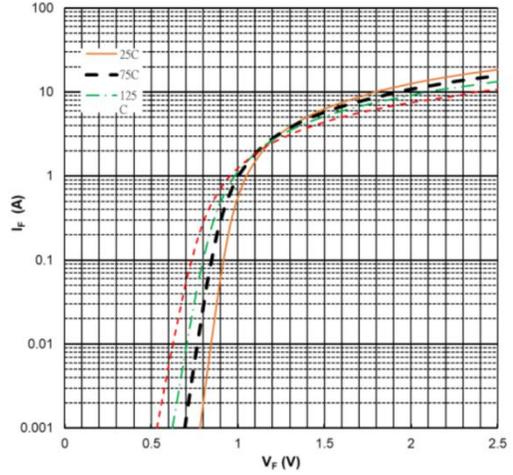


Figure 3. Reverse Characteristics

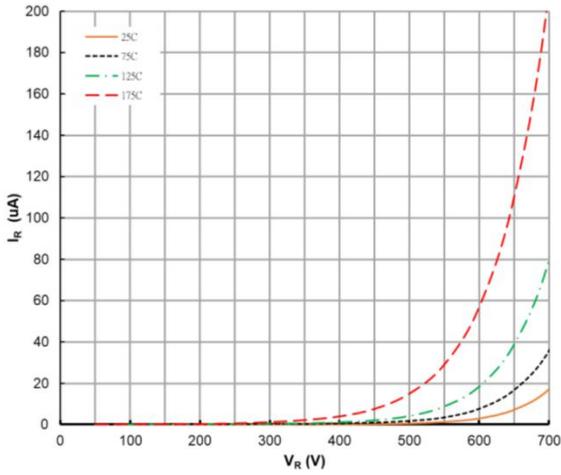


Figure 4. Power Derating

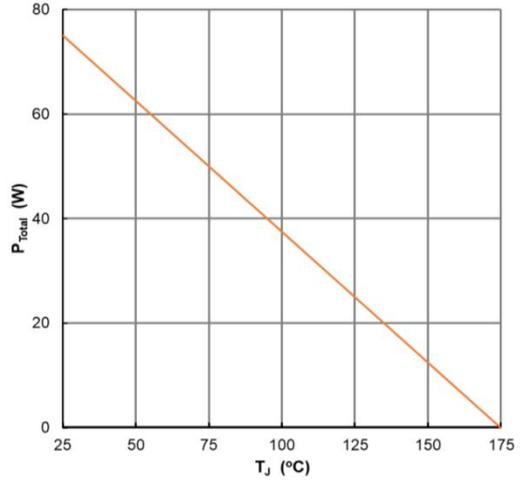


Figure 5. Capacitance vs Reverse Voltage

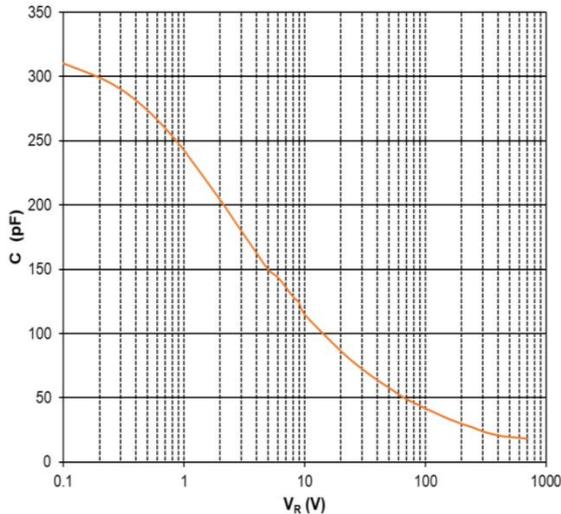
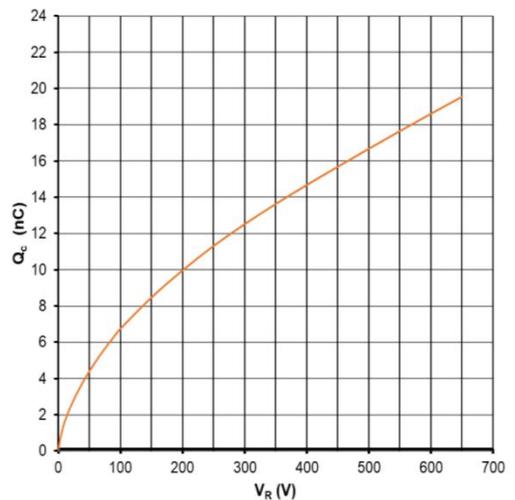
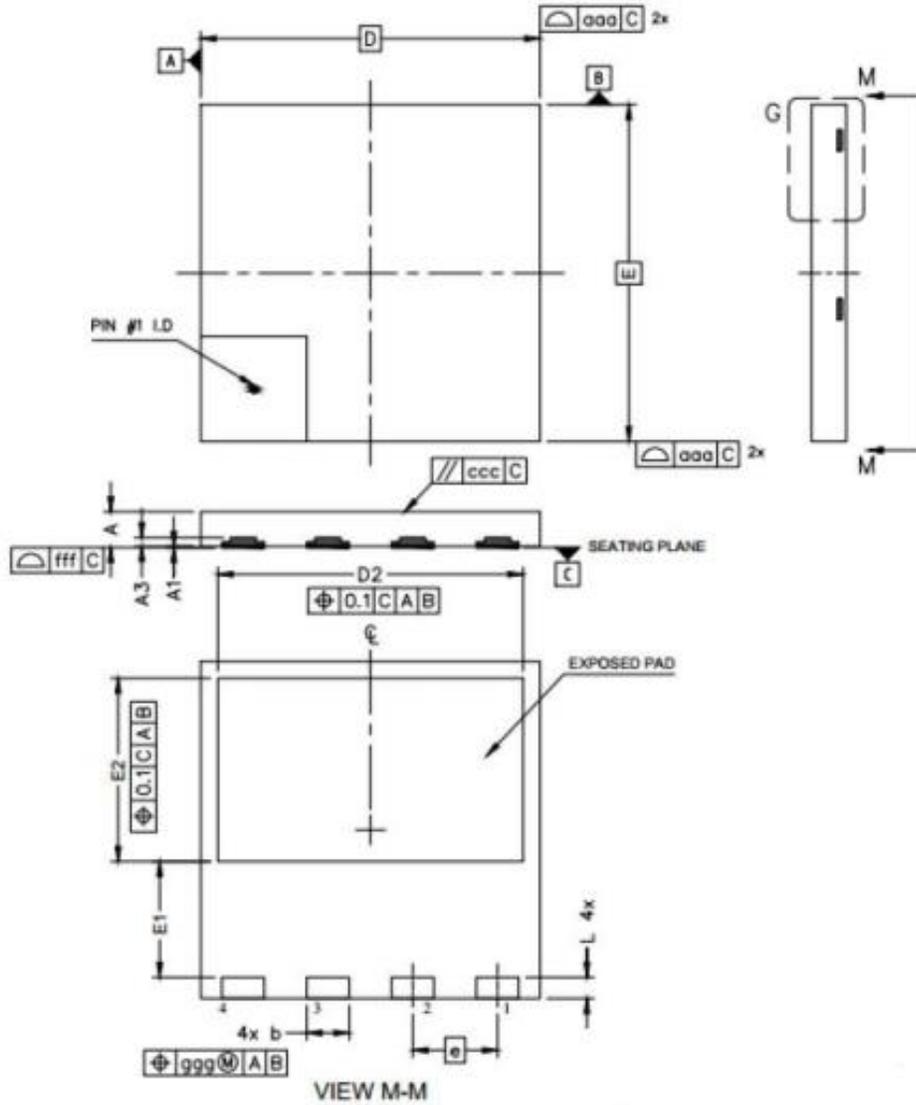


Figure 6. Recovery Charge vs Reverse Voltage



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