Silicon Carbide Schottky Diode 650 V, 6 A

General Description

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

Product Summary

V_{RRM}	650 V
I_F (T_C 162℃)	6 A
V_F (T_j 25℃)	1.3 V

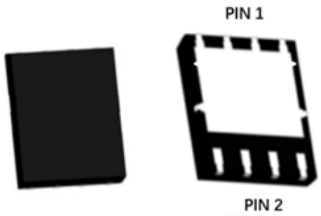
Features

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_C
- Highly rugged due to better surge current
- Industrial standard quality and reliability

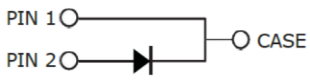
Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

DFN5×6



Equivalent circuit



Package Marking and Ordering Information

Part #	Marking	Package
PSN065D06	PSN065D06	DFN5×6

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Maximum Ratings (at Tc = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
DC Peak Reverse Voltage	V_R	650	V
Continuous Forward Current T_C = 25°C T_C = 135°C T_C = 162°C	I_F	 23 12 6	A
Repetitive Peak Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FRM}	 28 17	A
Non-Repetitive Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FSM}	 48 43	A
i^2dt value T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	$\int i^2dt$	 11.4 9.1	A^2s
Power dissipation T_C = 25°C T_C = 110°C	P_{tot}	 71 30	W
Operating junction Range	T_j	-55 to +175	°C
Storage temperature Range	T_{stg}	-55 to +150	°C

Thermal Resistance

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	2.10	°C/W

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Electrical Characteristic (at Tc = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.3	1.5	V	I_F=6A T_j=25°C
		-	1.5			T_j=175°C
Reverse Current	I_R	-	-	50	μA	V_R=650V T_j=25°C
		-	-	200		T_j=175°C
Total Capacitive Charge	Q_C	-	18	-	nC	V_R=400V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	358	-	pF	T_j=25℃, f=1MHz V_R=0V
		-	36	-		V_R=200V
		-	30	-		V_R=400V

Characteristics Curve:

Fig 1: Forward Characteristics

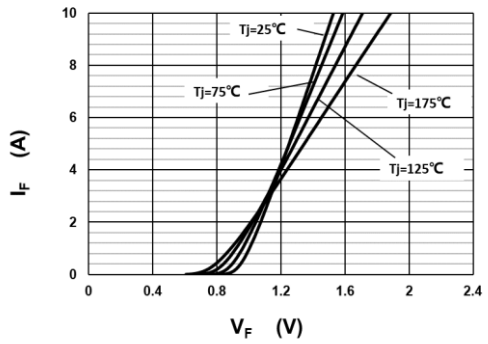


Fig 2: Reverse Characteristics

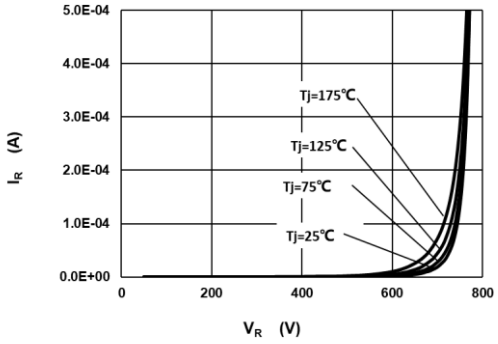


Fig 3: Current Derating

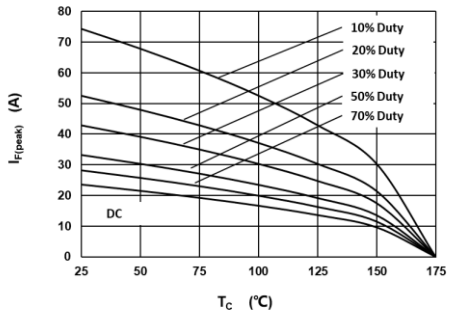


Fig 4: Power Derating

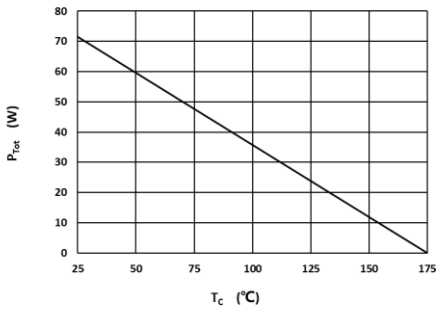


Fig 5: Capacitance vs. Reverse Voltage

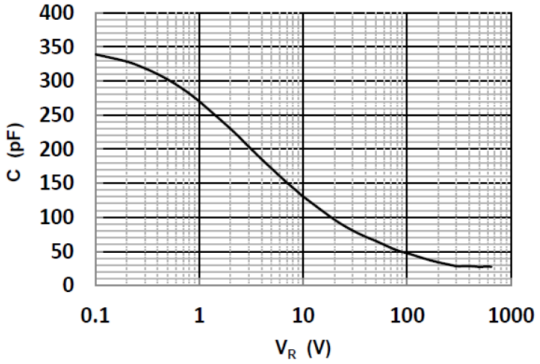


Fig 6: Reverse Charge vs. Reverse Voltage

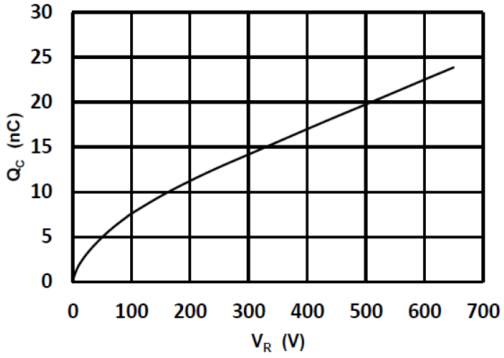


Fig 7: Typical Capacitance Stored Energy

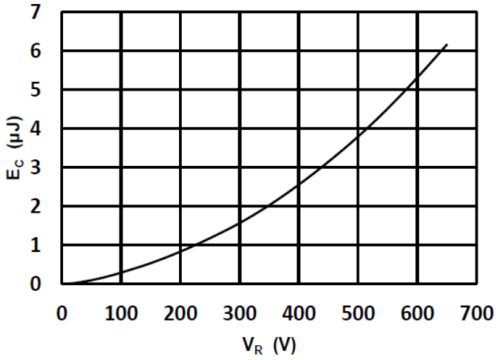
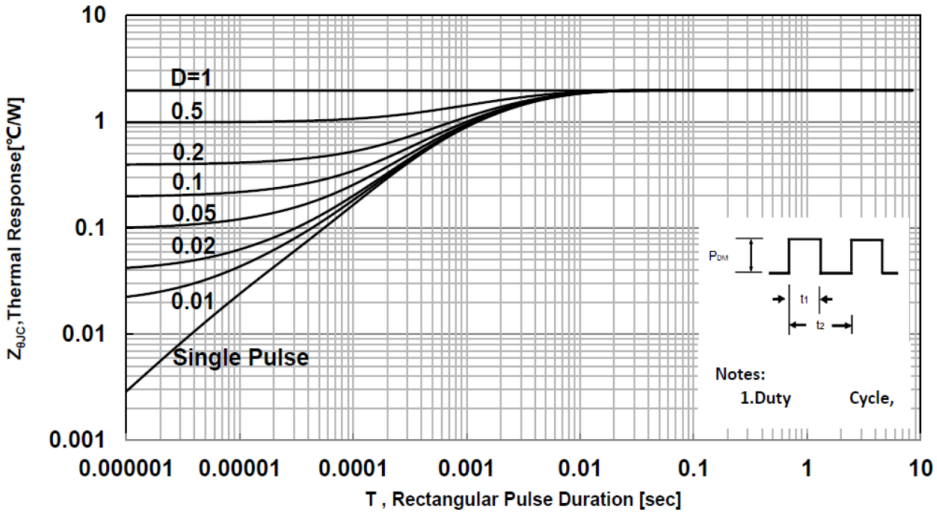
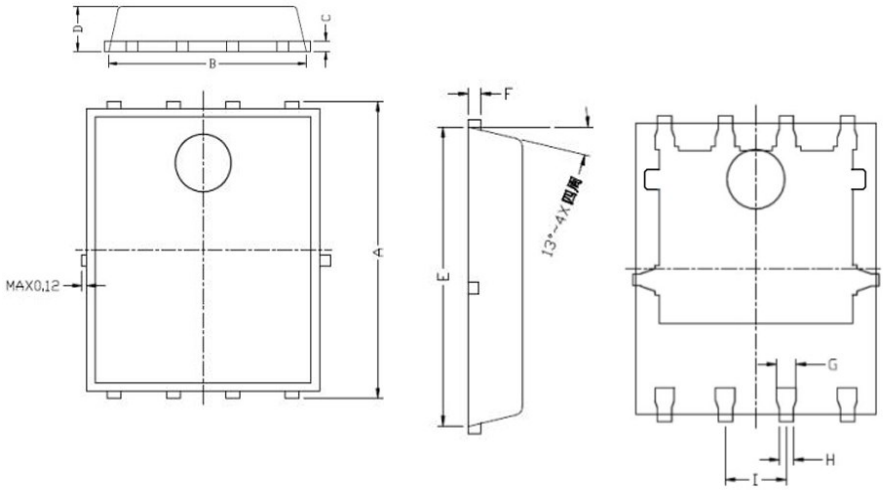


Fig 8: Transient Thermal Impandance



Mechanical Dimensions:



项目	规范(mm)	
	MIN	MAX
A	6.05	6.25
B	4.975	5.025
C	0.246	0.262
D	1.075	1.125
E	5.835	5.885
F	0.246	0.262
G	0.3	0.5
H	0.2	0.4
I	1.26	1.28