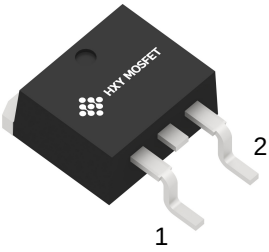
C1D20065G

Silicon Carbide Schottky Diode

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.



TO-263

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

Ordering Part Number	Package	Marking
C1D20065G	TO-263	HC1D20065G

Maximum Ratings(at T_j=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 = 153°C	I_F	 51 26 20	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}	 102 63	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}	 150 120	A
i^2dt value T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	$\int i^2dt$	 112 72	A^2s
Power dissipation T_C = 25°C T_C = 110°C	P_{tot}	 150 65	W
Operating junction Range	T_j	-55 to +175	℃
Storage temperature Range	T_{stg}	-55 to +150	℃

Thermal Resistance

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.00	°C/W

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

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.35	1.5	V	I_F=20A T_j=25°C
		-	1.7	1.8		T_j=175°C
Reverse Current	I_R	-	2	40	μA	V_R=650V T_j=25°C
		-	10	100		T_j=175°C
Total Capacitive Charge	Q_C	-	52	-	nC	V_R=400V Tj=25°C $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	1018	-	pF	Tj=25°C,f=1MHz V_R=0V
		-	104	-		V_R=200V
		-	89	-		V_R=400V

Characteristics Curve

Fig 1: Forward Characteristics

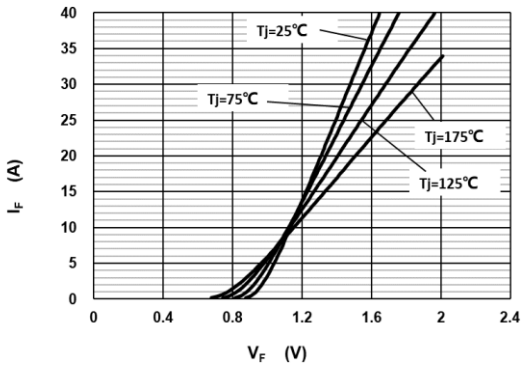


Fig 2: Reverse Characteristics

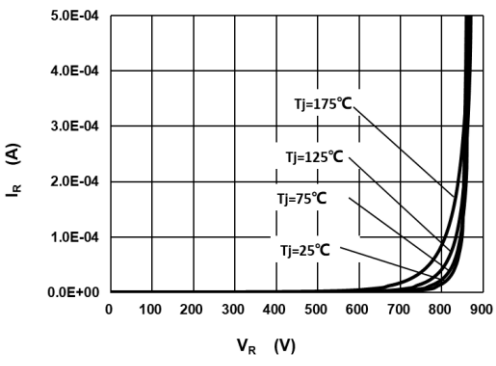


Fig 3: Current Derating

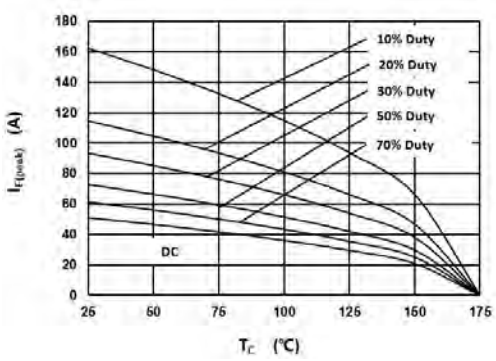


Fig 4: Power Derating

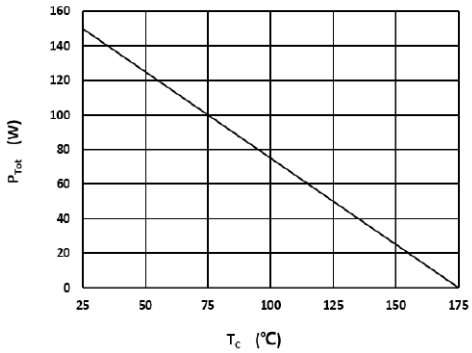


Fig 5: Capacitance vs. Reverse Voltage

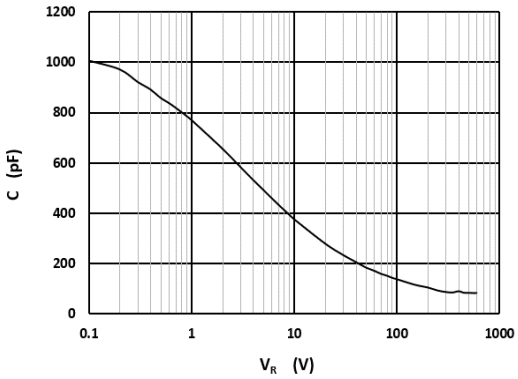


Fig 6: Reverse Charge vs. Reverse Voltage

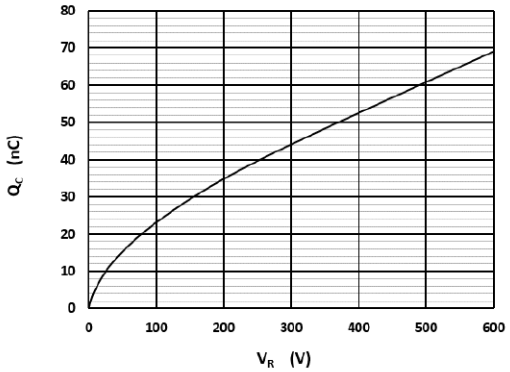


Fig 7: Typical Capacitance Stored Energy

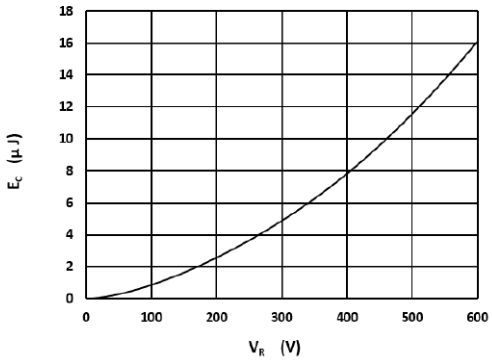
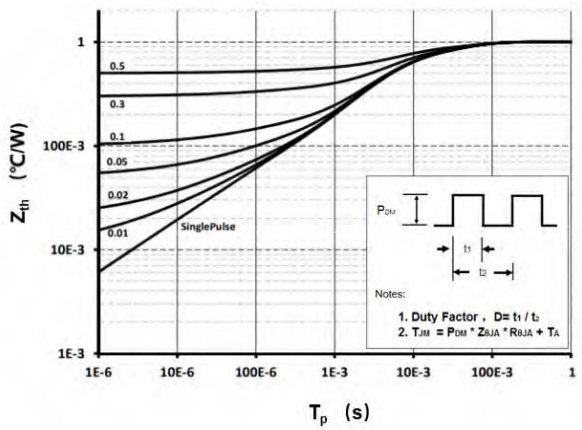
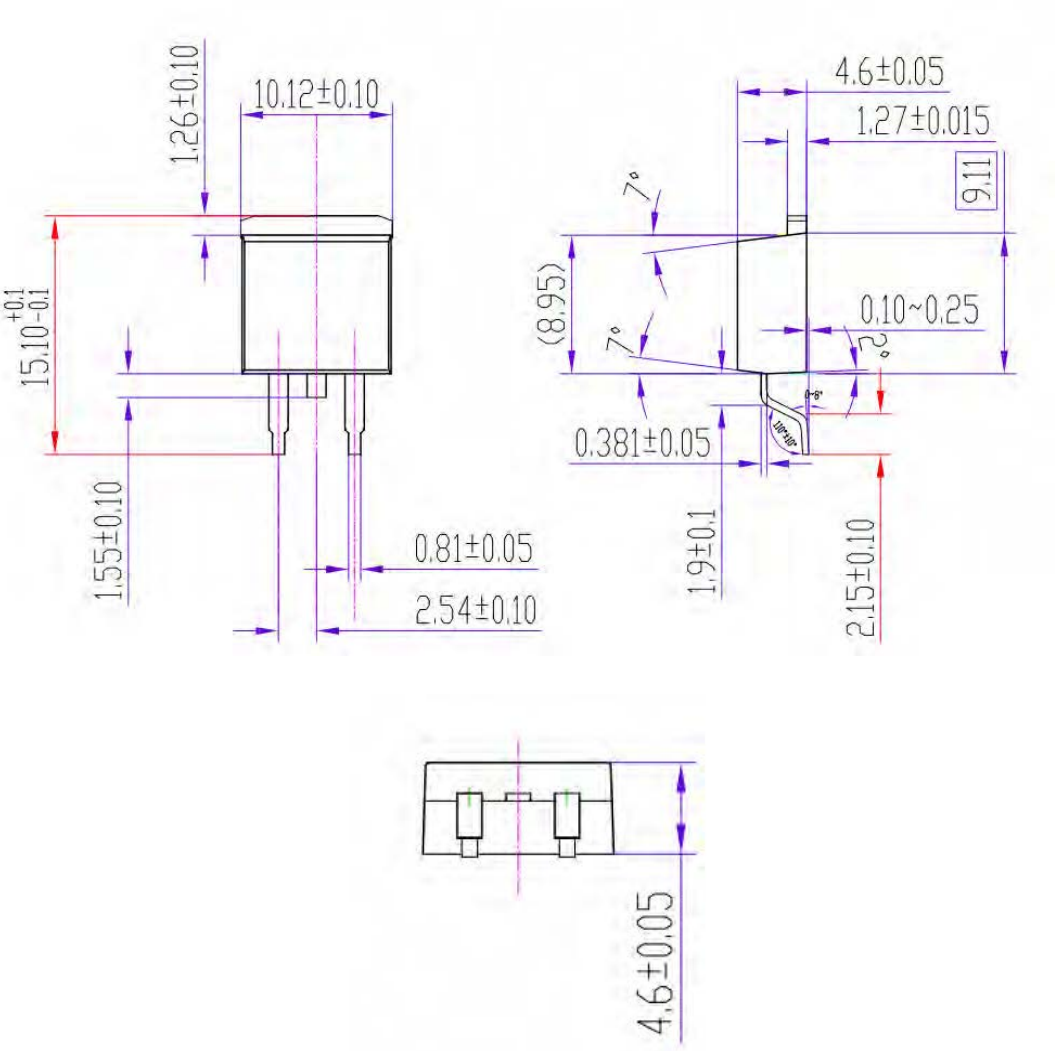


Fig 8: Transient Thermal Impandance



Package Dimensions

Package TO-263



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