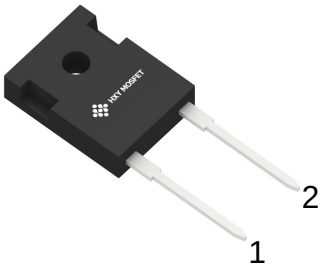
HC3D10065H

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-247-2L

Features

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

Application

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

Part Number	Package	Marking
HC3D10065H	TO-247-2L	H310065WN

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
V_{RSM}	Surge Peak Reverse Voltage	650	V	
V_{DC}	DC Peak Reverse Voltage	650	V	
I_F	Continuous Forward Current	35 18 10	A	T_C=25˚C T_C=135˚C T_C=160˚C
I_{FRM}	Repetitive Peak Forward Surge Current	45 27	A	T_C=25˚C, t_P=10 ms, Half Sine Wave, D=1 T_C=110˚C, t_P=10 ms, Half Sine Wave, D=1
I_{FSM}	Non-Repetitive Peak Forward Surge Current	80 70	A	T_C=25˚C, t_P=10ms, Half Sine Wave, D=1 T_C=110˚C, t_P=10 ms, Half Sine Wave, D=1
P_{tot}	Power Dissipation	100 43	W	T_C=25˚C T_C=110˚C
T_J	Operating Junction Range	-55 to +175	˚C	
T_{stg}	Storage Temperature Range	-55 to +150	˚C	
$\int i^2dt$	i^2dt value	31.7 24.3	A^2s	T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p =10ms,Half Sine Pulse

Electrical Characteristics

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.3	1.5	V	I_F=10A, 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	-	27	-	nC	V_R=400V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	561	-	pF	T_j=25℃, f=1MHz, V_R=0V
		-	55	-		V_R=200V
		-	43	-		V_R=400V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.5	°C/W

Characteristics Curve

Fig 1: Forward Characteristics

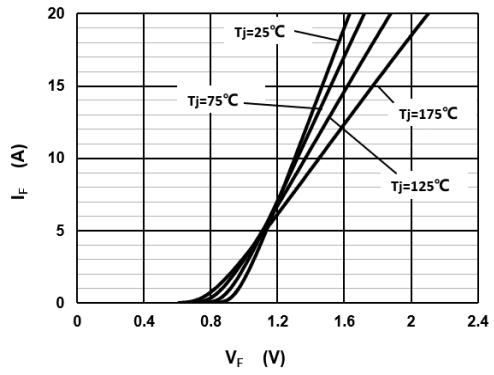


Fig 2: Reverse Characteristics

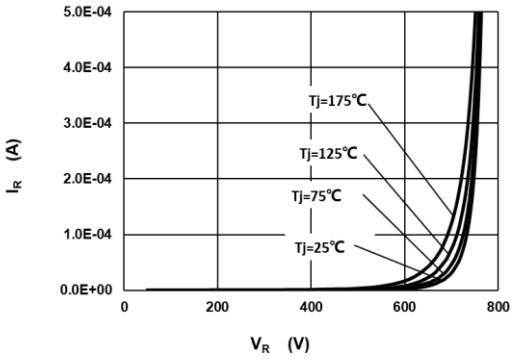


Fig 3: Current Derating

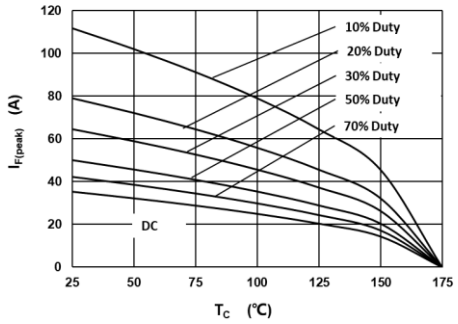


Fig 4: Power Derating

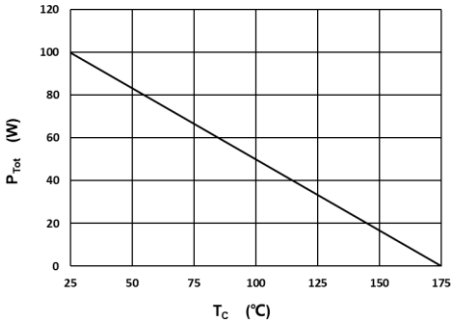


Fig 5: Capacitance vs. Reverse Voltage

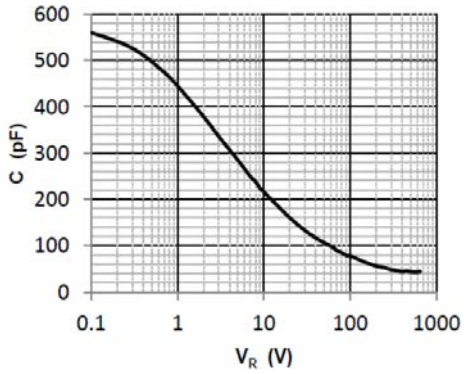


Fig 6: Reverse Charge vs. Reverse Voltage

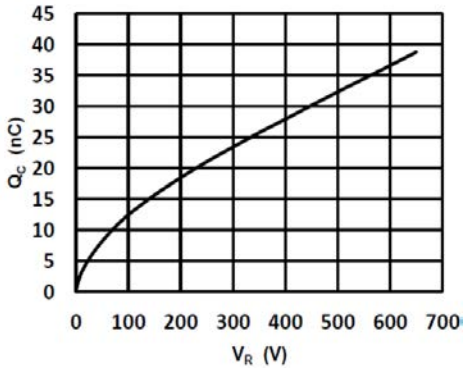


Fig 7: Typical Capacitance Stored Energy

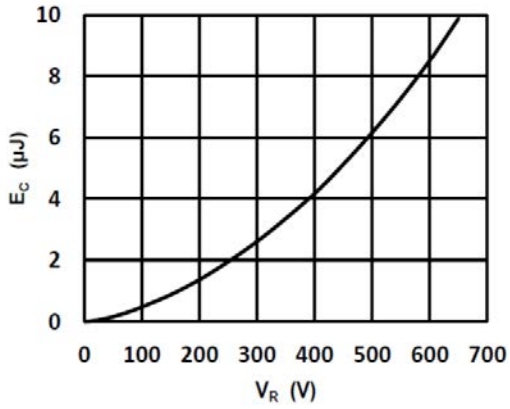
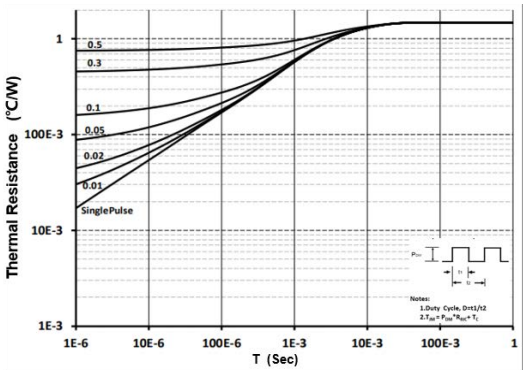


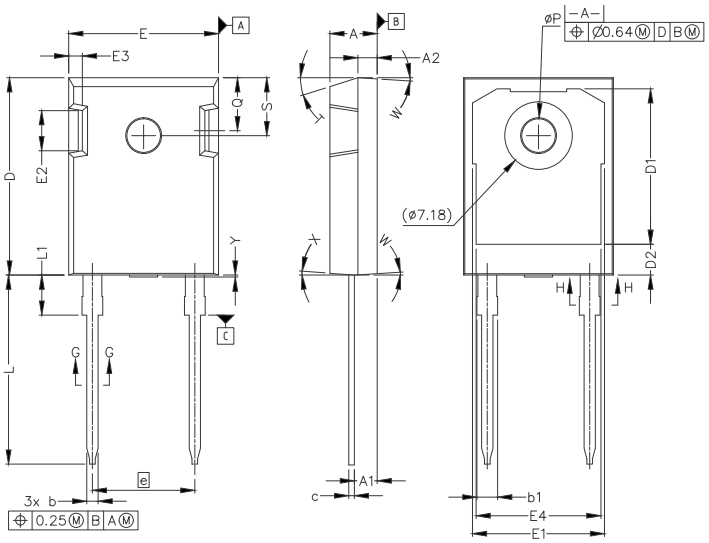
Fig 8: Transient Thermal Impandance



Package Dimensions

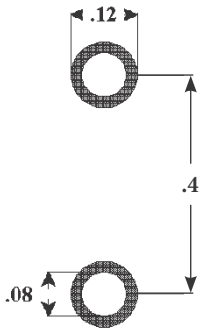
Package: TO-247-2L

All dimensions in mm.



SYM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.83	5.21	.190	.205
A1	2.29	2.54	.090	.100
A2	1.91	2.16	.075	.085
b'	1.07	1.28	.042	.050
b	1.07	1.33	.042	.052
b1	1.91	2.41	.075	.095
b2	1.91	2.16	.075	.085
c'	0.55	0.65	.022	.026
c	0.55	0.68	.022	.027
D	20.80	21.10	.819	.831
D1	16.25	17.35	.640	.683
D2	2.86	3.16	.112	.124
E	15.75	16.13	.620	.635
E1	13.10	14.15	.516	.557
E2	3.68	5.10	.145	.201
E3	1.00	1.90	.039	.075
E4	12.38	13.43	.487	.529
e	10.88 BSC		.428 BSC	
L	19.81	20.32	.780	.800
L1	4.10	4.40	.161	.173
øP	3.51	3.65	.138	.144
Q	5.49	6.00	.216	.236
S	6.04	6.30	.238	.248
T	17.5° REF.			
W	3.5° REF.			
X	4° REF.			
Y	0	0.50	0	0.020

Recommended Solder Pad Layout



TO247-2L

all units are in inches

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