



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.

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



TO-247-2L
Package



Ordering Part Number	Package	Marking
HC1D16065H	TO-247-2L	HC1D16065H





Maximum Ratings (at $T_C = 25^\circ\text{C}$, 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 $T_C = 25^\circ\text{C}$ $T_C = 135^\circ\text{C}$ $T_C = 159^\circ\text{C}$	I_F	49 25 16	A
Repetitive Peak Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_C = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	I_{FRM}	70 56	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_C = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	I_{FSM}	128 98	A
i^2dt value $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_C = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$\int i^2 dt$	81 48	A^2s
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	P_{tot}	125 54	W
Operating junction Range	T_j	-55 to +175	$^\circ\text{C}$
Storage temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

Thermal Resistance

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.20	$^\circ\text{C/W}$



Electrical Characteristic (at $T_c = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.3	1.5	V	$I_F=16\text{A}$ $T_j=25^\circ\text{C}$ $T_j=175^\circ\text{C}$
Reverse Current	I_R	-	-	100	μA	$V_R=650\text{V}$ $T_j=25^\circ\text{C}$ $T_j=175^\circ\text{C}$
Total Capacitive Charge	Q_C	-	52	-	nC	$V_R=400\text{V}$, $T_j=25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$
Total Capacitance	C	-	993	-	pF	$T_j=25^\circ\text{C}$, $f=1\text{MHz}$ $V_R=0\text{V}$ $V_R=200\text{V}$ $V_R=400\text{V}$

Characteristics Curve

Fig 1: Forward Characteristics

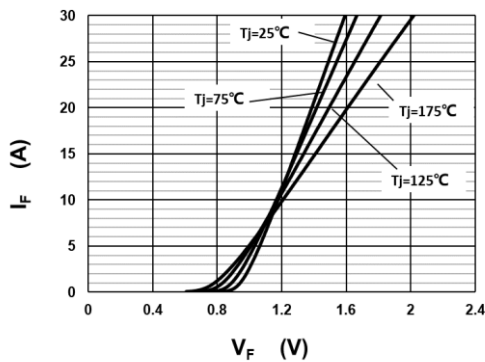


Fig 2: Reverse Characteristics

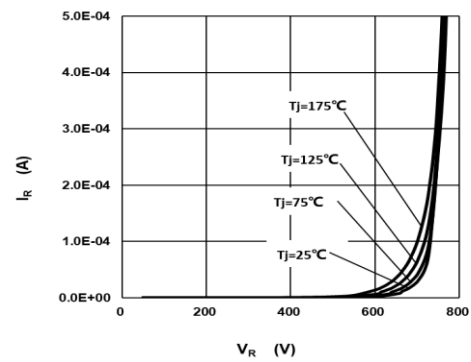


Fig 3: Current Derating

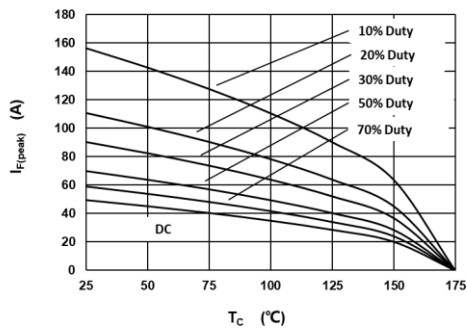


Fig 4: Power Derating

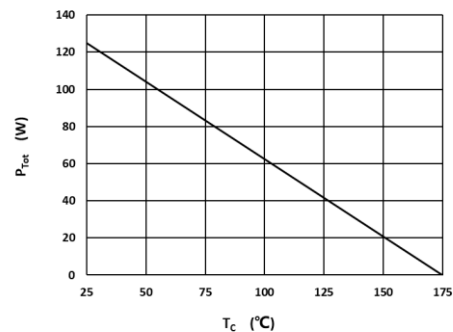




Fig 5: Capacitance vs. Reverse Voltage

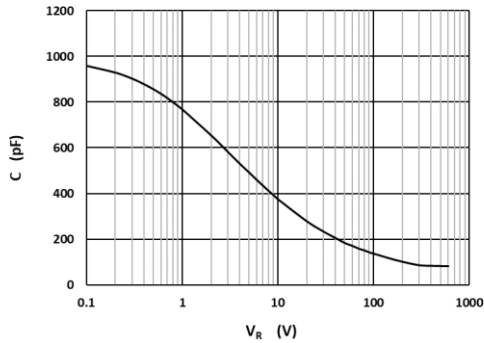


Fig 6: Reverse Charge vs. Reverse Voltage

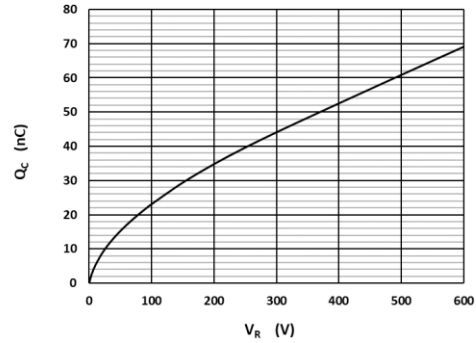


Fig 7: Typical Capacitance Stored Energy

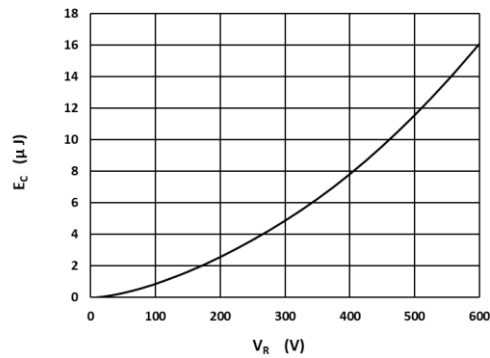
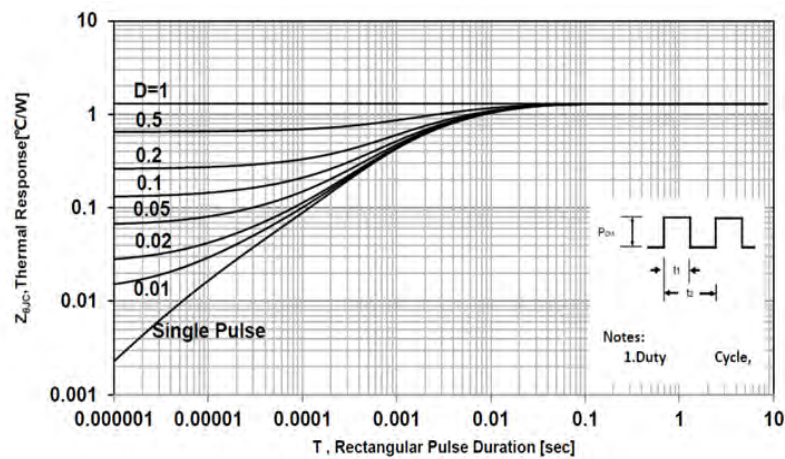


Fig 8: Transient Thermal Impedance

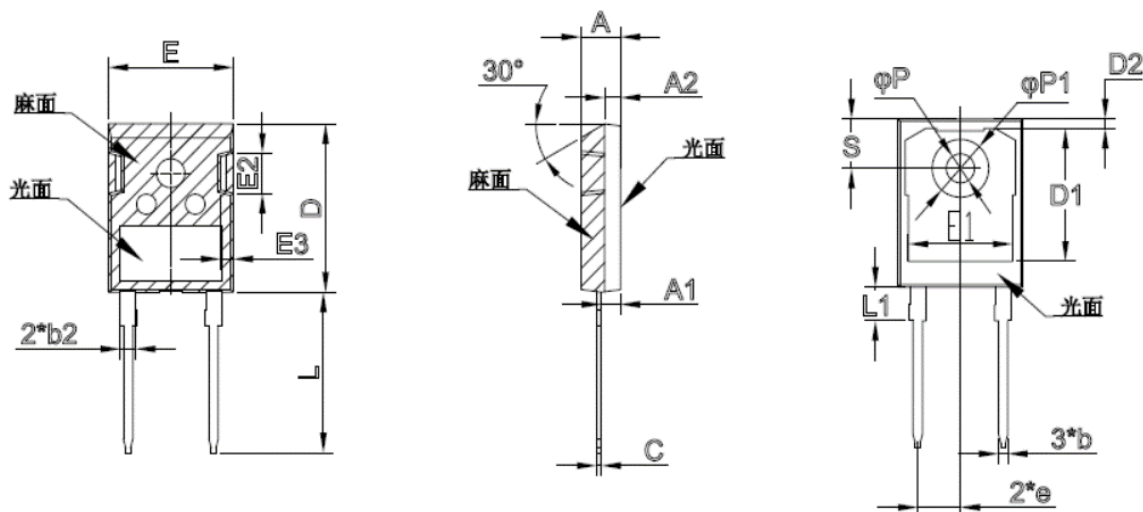




Package Dimensions

Package TO-247-2L

Unit:mm



	Min	Nom	Max		Min	Nom	Max
A	4.70	5.00	5.20	E1	13.06	13.26	13.56
A1	2.30		2.50	E2	4.90	5.00	5.10
A2	1.90	2.00	2.10	E3	1.50	1.60	1.70
b	1.10	1.20	1.30	e	5.34	5.44	5.54
b2		2.00		L	19.80	20.00	20.32
				L1		4.17	4.50
C	0.5	0.6	0.7	P	3.50	3.60	3.70
D	20.8	20.95	21.1	P1	7.00	7.19	7.40
D1		16.55		S	6.04	6.15	6.3
D2	0.95	1.17	1.35				
E	15.48	15.88	16.28				



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