



## 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  
Package

## 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
HC1D100065H	TO-247-2L	HC1D100065H





**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 $T_c = 25^\circ\text{C}$ $T_c = 110^\circ\text{C}$ $T_c = 138^\circ\text{C}$	$I_F$	205 135 100	A
Repetitive Peak Forward Surge Current $T_c = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_c = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$I_{FRM}$	450 360	A
Non-Repetitive Forward Surge Current $T_c = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_c = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$I_{FSM}$	750 570	A
$i^2dt$ value $T_c = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_c = 110^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$\int i^2 dt$	2812 1624	$\text{A}^2\text{s}$
Power dissipation $T_c = 25^\circ\text{C}$ $T_c = 110^\circ\text{C}$	$P_{tot}$	405 175	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.	$R_{thJC}$	0.37	$^\circ\text{C}/\text{W}$



**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	$I_F=100\text{A}$
		-	1.5			$T_j=25^\circ\text{C}$
Reverse Current	$I_R$	-	-	100	$\mu\text{A}$	$V_R=650\text{V}$
		-	-	200		$T_j=25^\circ\text{C}$
Total Capacitive Charge	$Q_C$	-	301	-	$\text{nC}$	$V_R=400\text{V}, T_j=25^\circ\text{C}$
		-				$Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	$C$	-	5705	-	$\text{pF}$	$T_j=25^\circ\text{C}, f=1\text{MHz}$
		-	581	-		$V_R=0\text{V}$
		-	479	-		$V_R=200\text{V}$
						$V_R=400\text{V}$

**Characteristics Curve:**

Fig 1: Forward Characteristics

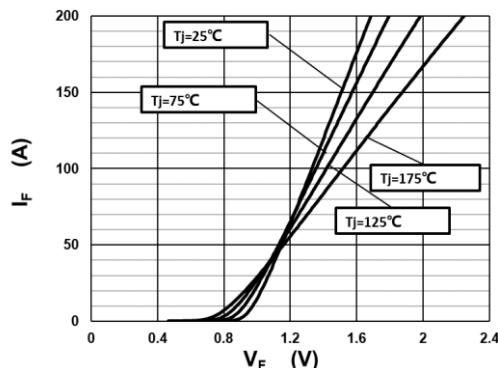


Fig 2: Reverse Characteristics

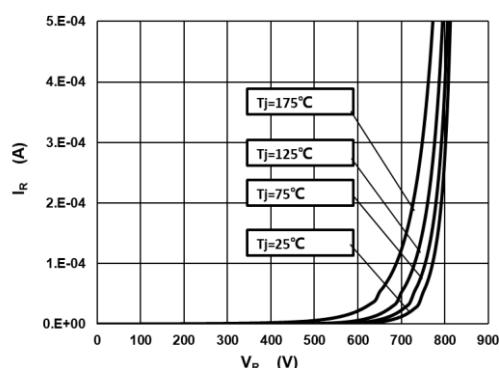


Fig 3: Current Derating

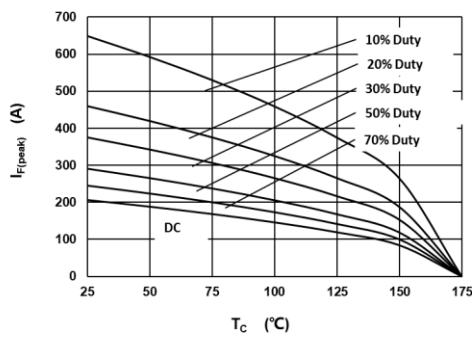


Fig 4: Power Derating

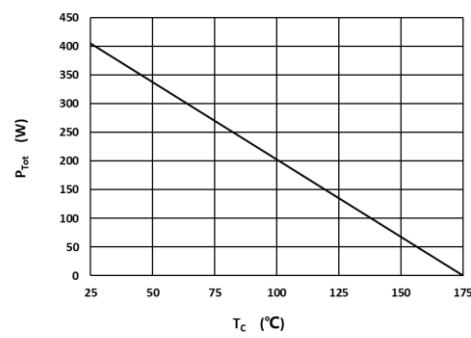




Fig 5: Capacitance vs. Reverse Voltage

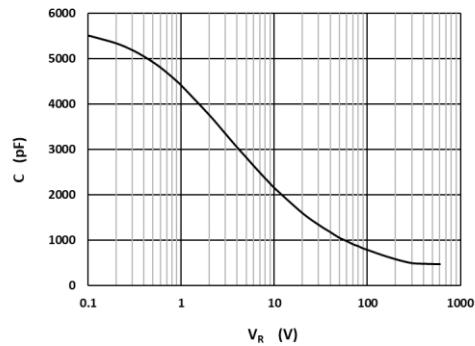


Fig 6: Reverse Charge vs. Reverse Voltage

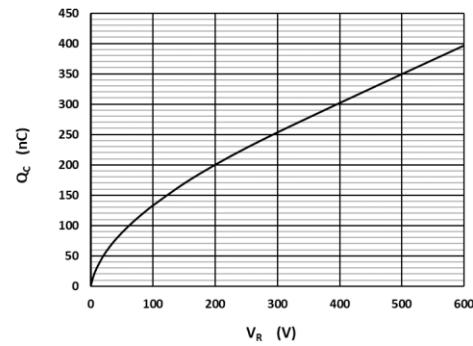
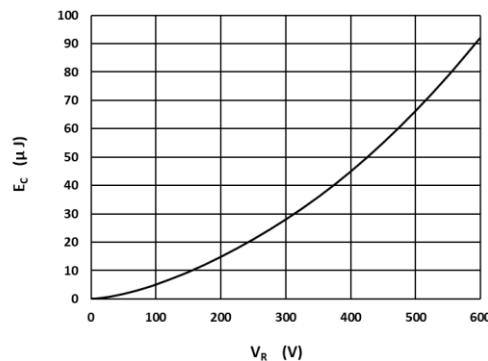


Fig 7: Typical Capacitance Stored Energy

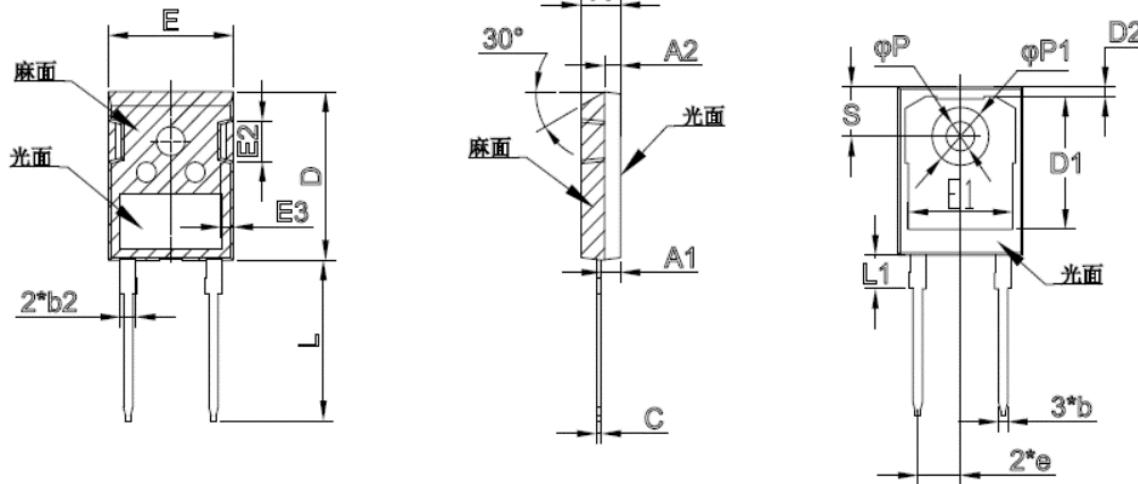




## Package Dimensions

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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