



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-220-2L
Package



Ordering Part Number	Package	Marking
HC3D16065A	TO-220-2L	HC3D16065A





Maximum Ratings (at $T_j = 25\text{ }^\circ\text{C}$, 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 $T_c = 25\text{ }^\circ\text{C}$ $T_c = 135\text{ }^\circ\text{C}$ $T_c = 160\text{ }^\circ\text{C}$	I_F	47 24 16	A
Repetitive Peak Forward Surge Current $T_c = 25\text{ }^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_c = 110\text{ }^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	I_{FRM}	70 56	A
Non-Repetitive Forward Surge Current $T_c = 25\text{ }^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_c = 110\text{ }^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	I_{FSM}	128 98	A
i^2dt value $T_c = 25\text{ }^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$ $T_c = 110\text{ }^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$\int i^2dt$	81 48	A^2s
Power dissipation $T_c = 25\text{ }^\circ\text{C}$ $T_c = 110\text{ }^\circ\text{C}$	P_{tot}	115 50	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	Value	Unit
Thermal resistance, junction – case.	R_{thJC}	1.30	$^\circ\text{C/W}$



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

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.3	1.5	V	$I_F=16\text{A}$ $T_j=25^\circ\text{C}$ $T_j=175^\circ\text{C}$
		-	1.5	-		
Reverse Current	I_R	-	-	100	μA	$V_R=650\text{V}$ $T_j=25^\circ\text{C}$ $T_j=175^\circ\text{C}$
		-	-	200		
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	$T_j=25^\circ\text{C}, f=1\text{MHz}$ $V_R=0\text{V}$ $V_R=200\text{V}$ $V_R=400\text{V}$
		-	101	-		
		-	83	-		

Characteristics Curve:

Fig 1: Forward Characteristics

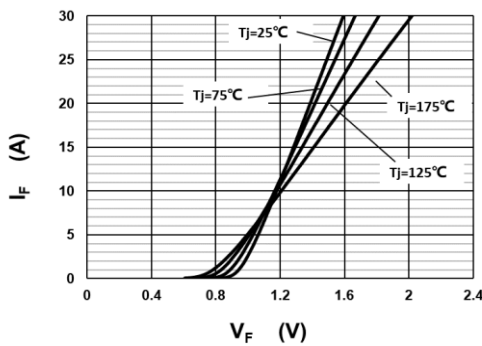


Fig 2: Reverse Characteristics

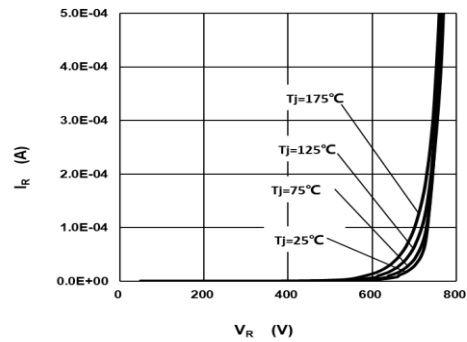


Fig 3: Current Derating

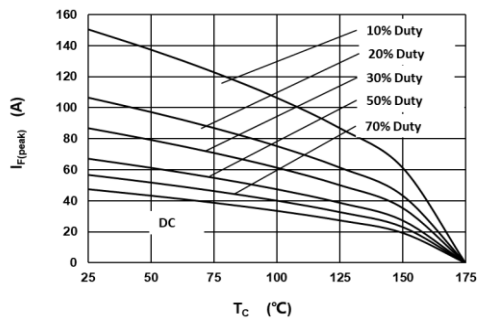


Fig 4: Power Derating

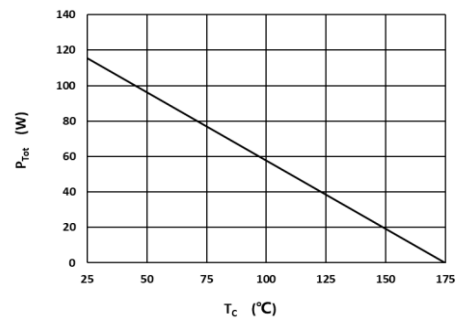




Fig 5: Capacitance vs. Reverse Voltage

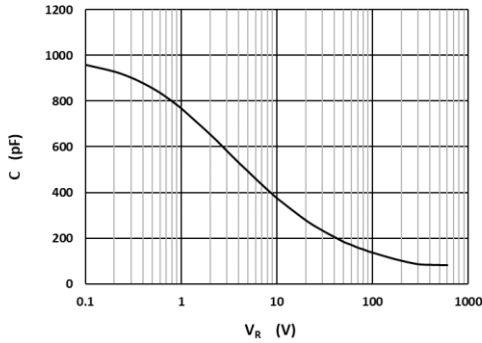


Fig 6: Reverse Charge vs. Reverse Voltage

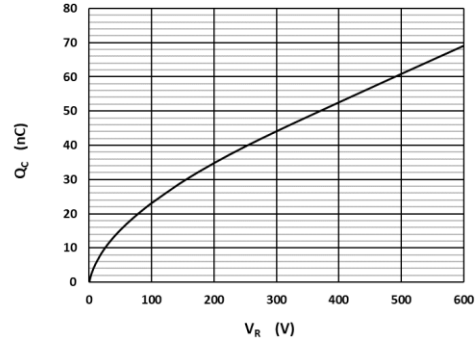


Fig 7: Typical Capacitance Stored Energy

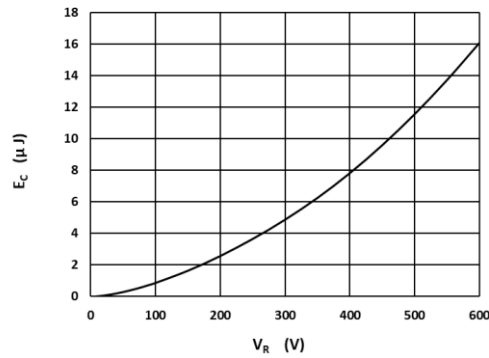
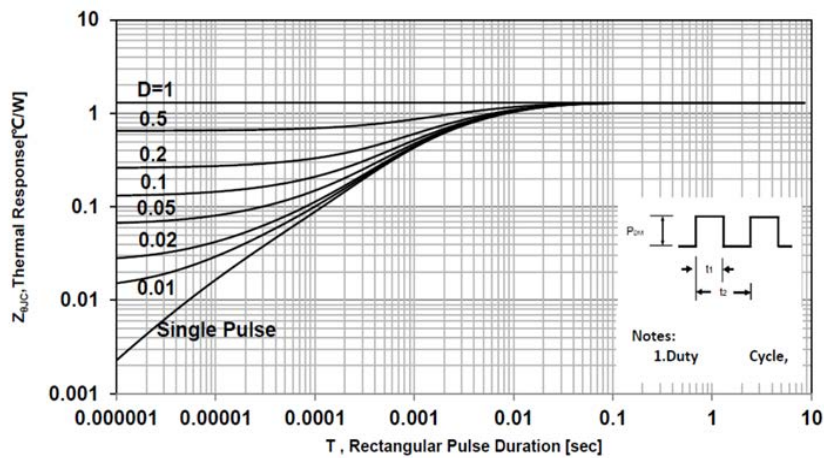


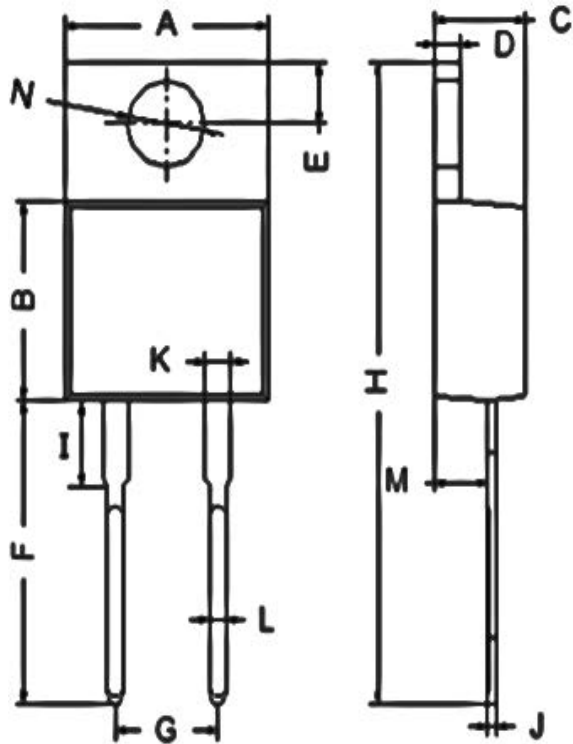
Fig 8: Transient Thermal Impandance





Package Dimensions

Package TO-220-2L



POS.	Millimeters	
	Min.	Max.
A	9.80	10.30
B	8.60	9.20
C	4.37	4.77
D	1.07	1.47
E	2.64	2.84
F	13.14	14.20
G	4.98	5.18
H	28.03	29.06
I	3.50	4.00
J	0.28	0.48
K	1.22	1.32
L	0.71	0.91
M	2.40	2.90
N	3.76	3.96



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