



General Description

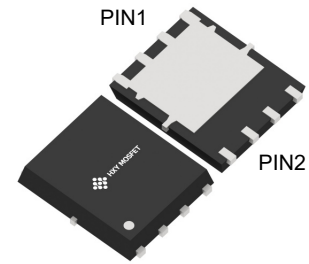
This product family offers state of the art performance. It is designed for high frequency applications where high efficiency and high reliability are required.

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



DFN5X6-8L



Ordering Part Number	Package	Marking
HC1D08065N	DFN5X6-8L	HC1D08065N





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 $T_C = 25^\circ\text{C}$ $T_C = 135^\circ\text{C}$ $T_C = 160^\circ\text{C}$	I_F	30 15 8	A
Repetitive Peak Forward Surge Current $T_C = 25^\circ\text{C}, t_p = 10\text{ms}$, Half Sine Pulse $T_C = 110^\circ\text{C}, t_p = 10\text{ms}$, Half Sine Pulse	I_{FRM}	35 20	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p = 10\text{ms}$, Half Sine Pulse $T_C = 110^\circ\text{C}, t_p = 10\text{ms}$, Half Sine Pulse	I_{FSM}	55 45	A
i^2dt value $T_C = 25^\circ\text{C}, t_p = 10\text{ms}$, Half Sine Pulse $T_C = 110^\circ\text{C}, t_p = 10\text{ms}$, Half Sine Pulse	$\int i^2 dt$	15 10	A^2s
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	P_{tot}	93 40	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}	1.60	$^\circ\text{C}/\text{W}$



Electrical Characteristic (at T_c = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V _F	-	1.3	1.5	V	I _F =8A T _j =25°C
		-	1.55	-		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	-	23	-	nC	V _R =400V, T _j =25°C $Q_C = \int_0^{V_R} C(V) dV$
Total Capacitance	C	-	466	-	pF	T _j =25°C, f=1MHz V _R =0V
		-	47	-		V _R =200V
		-	38	-		V _R =400V

Characteristics Curve

Fig 1: Forward Characteristics

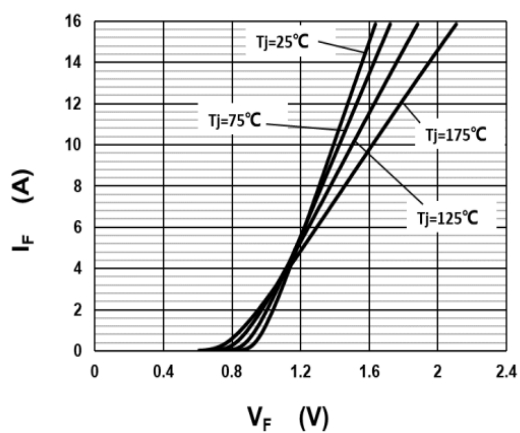


Fig 2: Reverse Characteristics

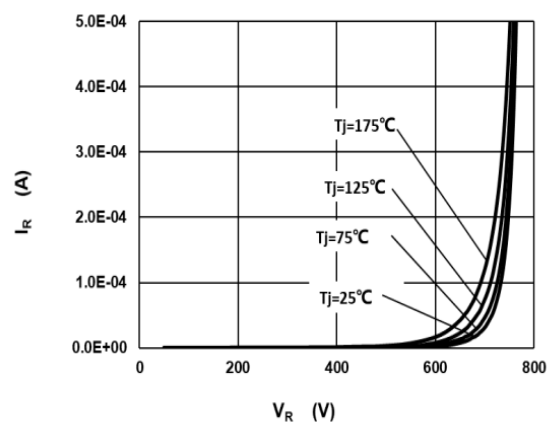




Fig 3: Current Derating

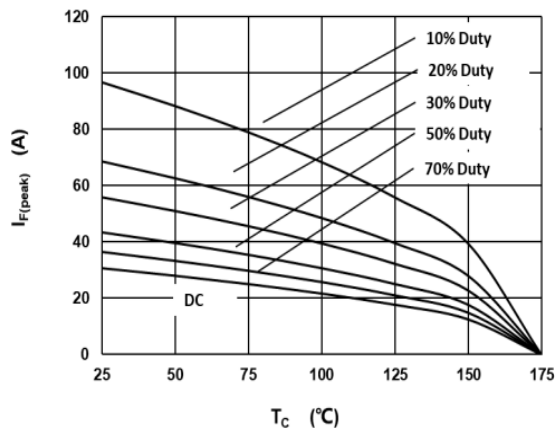


Fig 4: Power Derating

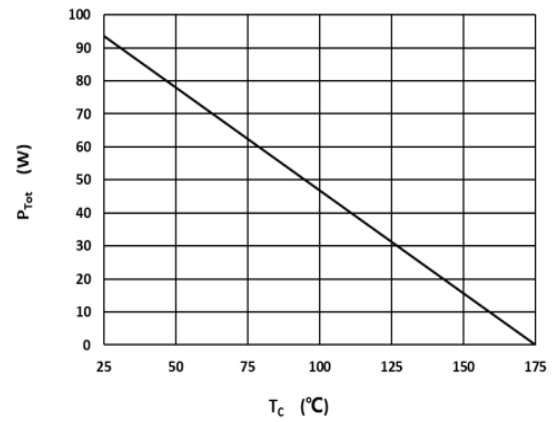


Fig 5: Capacitance vs. Reverse Voltage

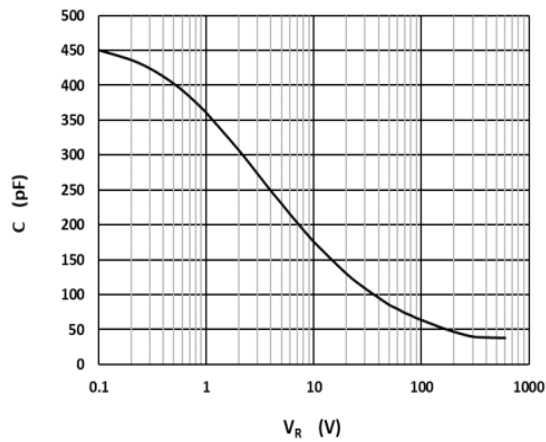


Fig 6: Reverse Charge vs. Reverse Voltage

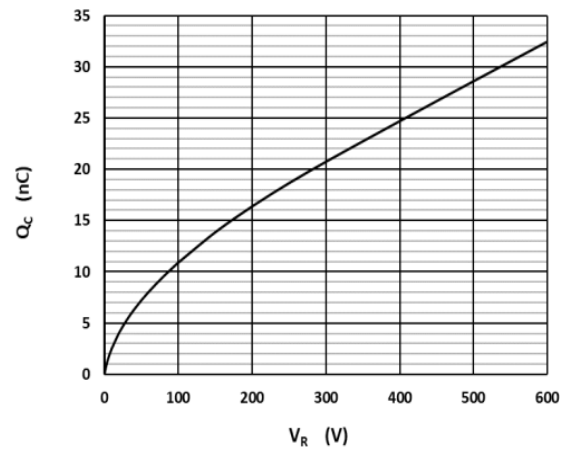


Fig 7: Typical Capacitance Stored Energy

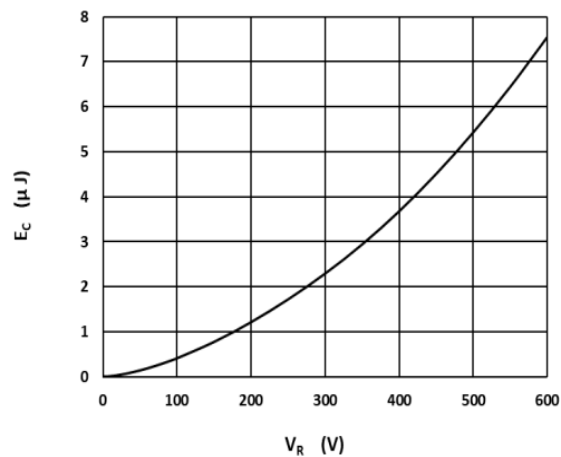
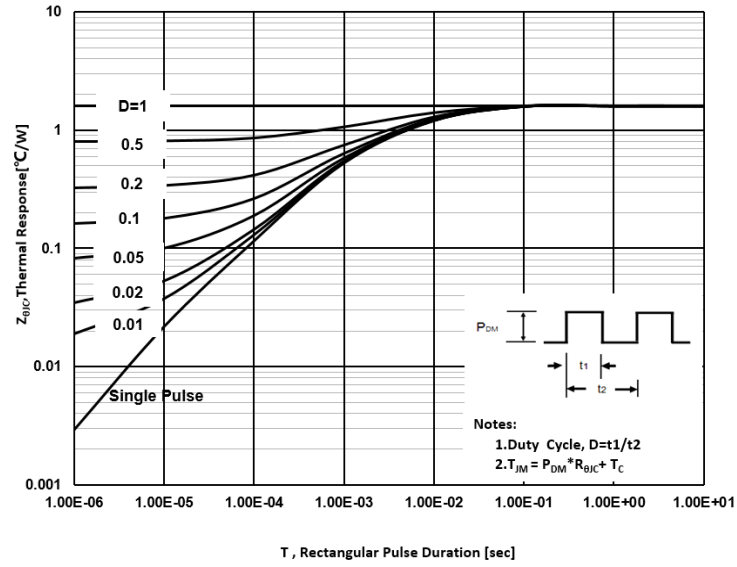




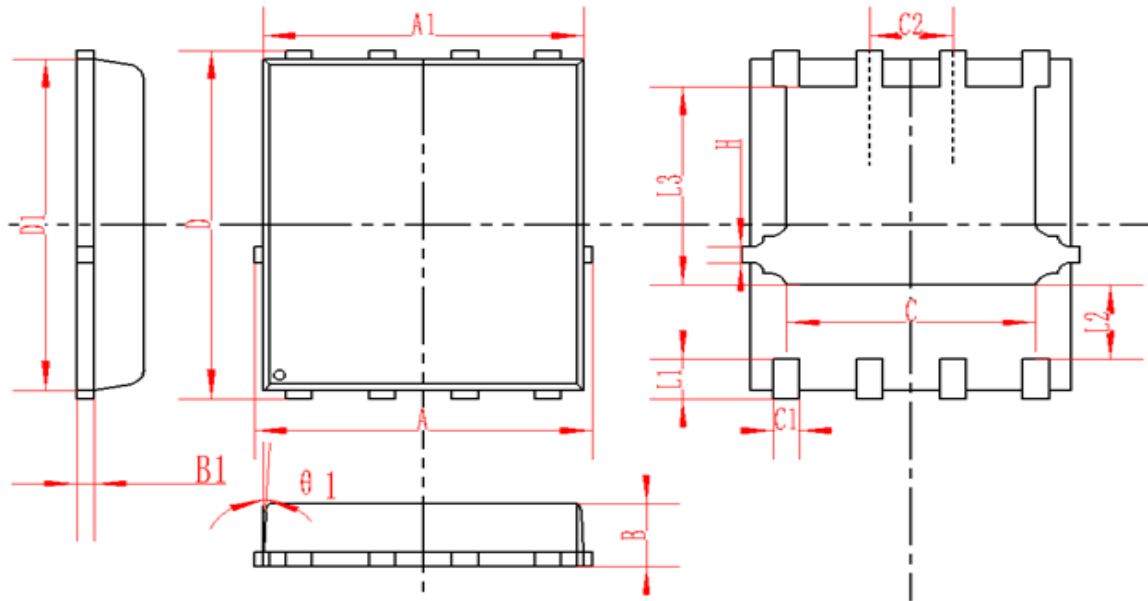
Fig 8: Transient Thermal Impandance





Package Dimensions

Package DFN5X6-8L



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.95	5	5.05	0.195	0.197	0.199
A1	4.82	4.9	4.98	0.190	0.193	0.196
D	5.98	6	6.02	0.235	0.236	0.237
D1	5.67	5.75	5.83	0.223	0.226	0.230
B	0.9	0.95	1	0.035	0.037	0.039
B1	0.254REF			0.010REF		
C	3.95	4	4.05	0.156	0.157	0.159
C1	0.35	0.4	0.45	0.014	0.016	0.018
C2	1.27TYP			0.5TYP		
θ1	8°	10°	12°	8°	10°	12°
L1	0.63	0.64	0.65	0.025	0.025	0.026
L2	1.2	1.3	1.4	0.047	0.051	0.055
L3	3.415	3.42	3.425	0.134	0.135	0.135
H	0.24	0.25	0.26	0.009	0.010	0.010



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