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
HC3D25170H	TO-247-2L	HC3D25170H

Maximum Ratings (at Tj = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1700	V
Surge Peak Reverse Voltage	V_{RSM}	1700	V
DC Peak Reverse Voltage	V_R	1700	V
Continuous Forward Current T_C = 25°C T_C = 135°C T_C = 160°C	I_F	 74 38 25	A
Repetitive Peak Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FRM}	 140 88	A
Non-Repetitive Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FSM}	 225 180	A
i^2dt value T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	$\int i^2dt$	 253 162	A^2s
Power dissipation T_C = 25°C T_C = 110°C	P_{tot}	 375 162	W
Operating junction Range	T_j	-55 to +175	°C
Storage temperature Range	T_{stg}	-55 to +150	°C

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal resistance, junction – case.	R_{thJC}	0.26	°C/W

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

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	- -	1.4 2.2	1.7 -	V	I_F=30A T_j=25°C T_j=175°C
Reverse Current	I_R	- -	10 60	200 400	μA	V_R=1700V T_j=25°C T_j=175°C
Total Capacitive Charge	Q_C	-	324	-	nC	V_R=1700V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	- - -	3110 134 132	- - -	pF	T_j=25℃, f=1MHz V_R=0V V_R=800V V_R=1700V

Characteristics Curve:

Fig 1: Forward Characteristics

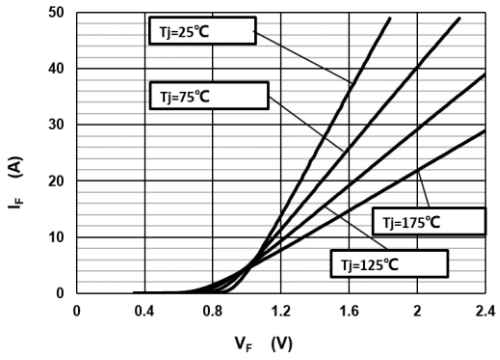


Fig 2: Reverse Characteristics

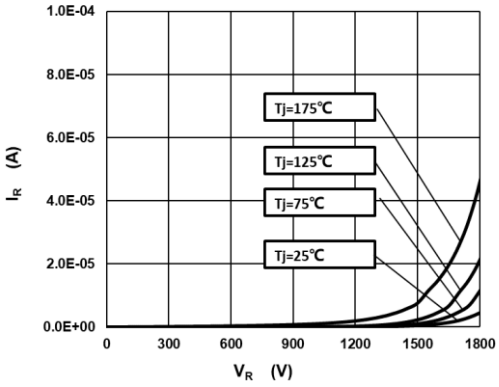


Fig 3: Current Derating

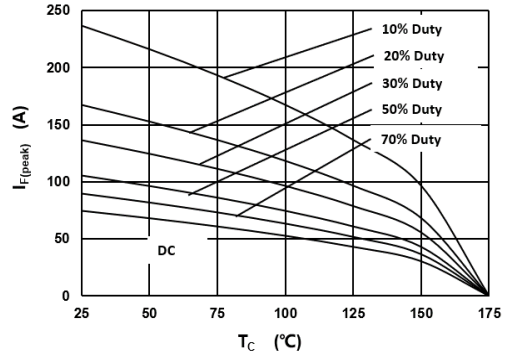


Fig 4: Power Derating

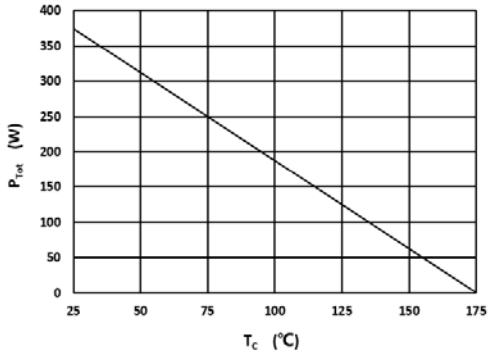


Fig 5: Capacitance vs. Reverse Voltage

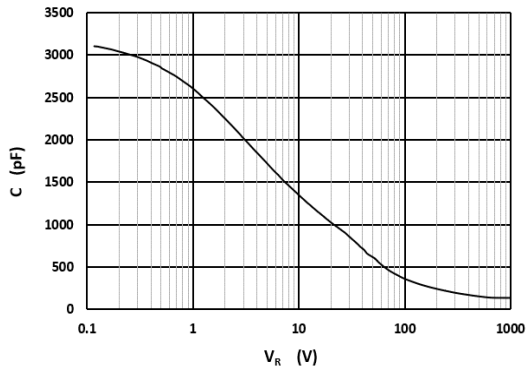


Fig 6: Reverse Charge vs. Reverse Voltage

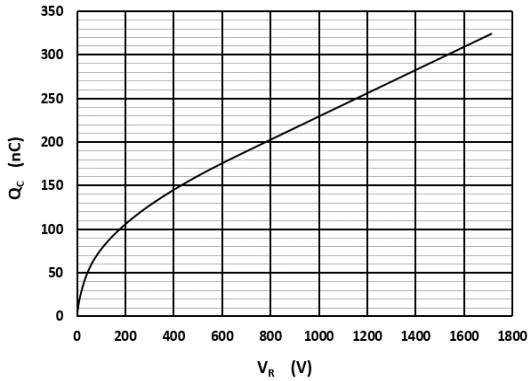


Fig 7: Typical Capacitance Stored Energy

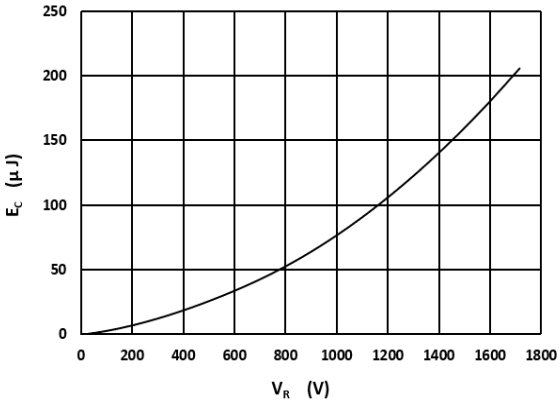
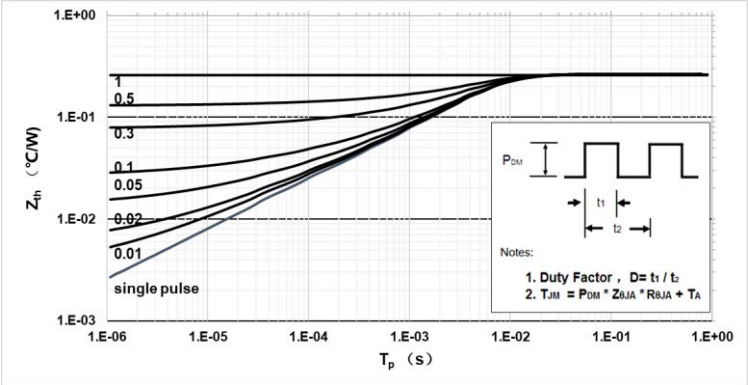


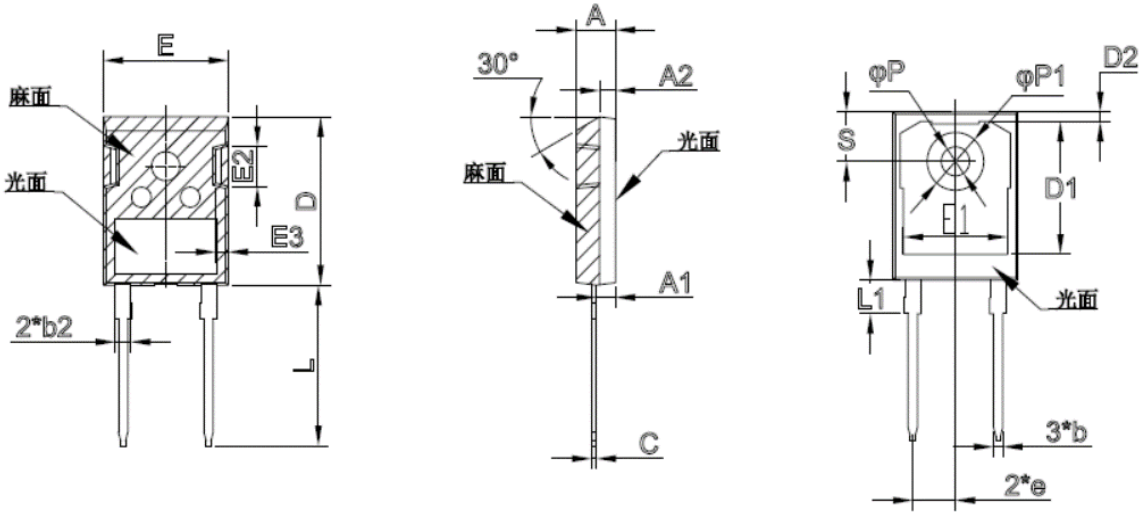
Fig 8: Transient Thermal Impandance



Package Dimensions

Package TO-247-2L

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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