Tusemi

T1D16065H

Silicon Carbide Schottky Diode 650 V, 16A

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.

Product Summary

V_{RRM}	650 V
I_F (T_C 159℃)	16A
V_F (T_j 25℃)	1.3 V

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

RoHS

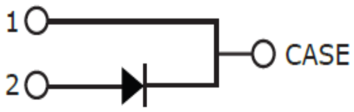
Halogen Free

Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

TO-247-2

Equivalent circuit



Package Marking and Ordering Information

Part #	Marking	Package
T1D16065H	1D16065H	TO-247-2

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

Thermal Resistance

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.20	°C/W

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

Parameter	Symbol	Value min.	Value typ.	Value max.	Unit	Test Condition
Forward Voltage	V_F	- -	1.3 1.5	1.5	V	I_F=16A T_j=25°C T_j=175°C
Reverse Current	I_R	- -	- -	100 200	μA	V_R=650V T_j=25°C T_j=175°C
Total Capacitive Charge	Q_C	-	52	-	nC	V_R=400V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	- - -	993 101 83	- - -	pF	T_j=25℃, f=1MHz V_R=0V V_R=200V V_R=400V

Characteristics Curve:

Fig 1: Forward Characteristics

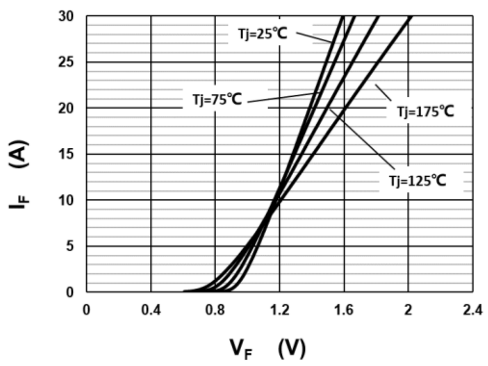


Fig 2: Reverse Characteristics

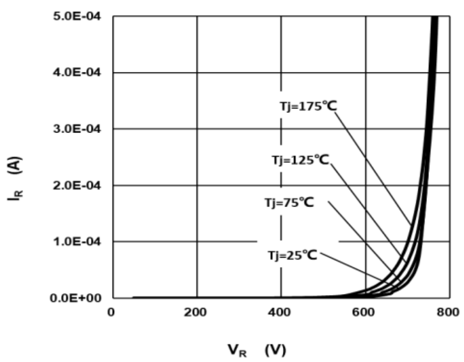


Fig 3: Current Derating

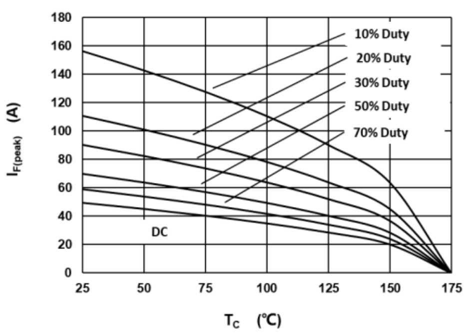


Fig 4: Power Derating

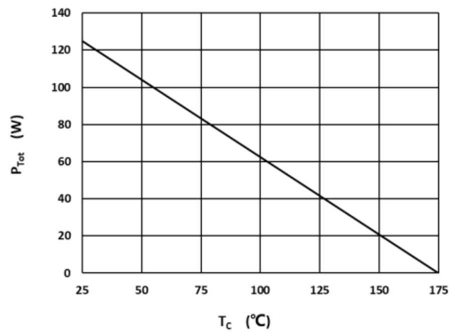


Fig 5: Capacitance vs. Reverse Voltage

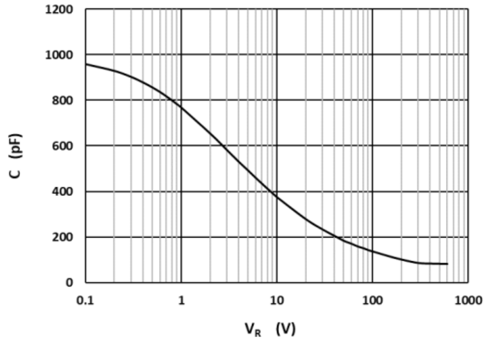


Fig 6: Reverse Charge vs. Reverse Voltage

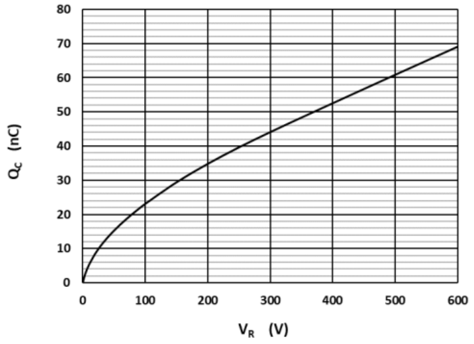


Fig 7: Typical Capacitance Stored Energy

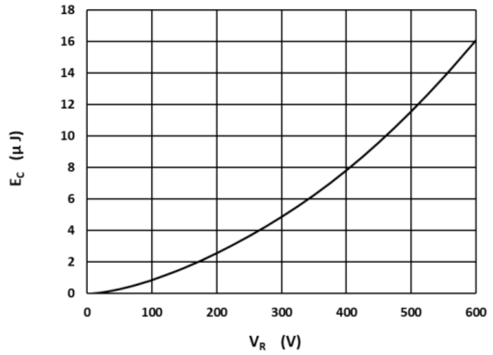
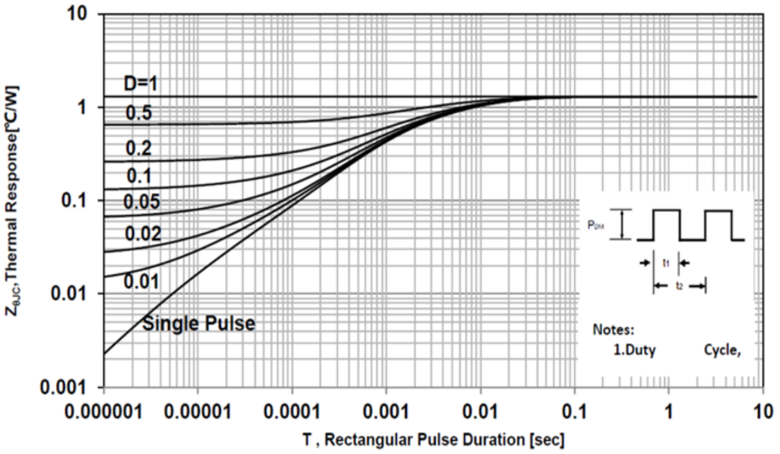
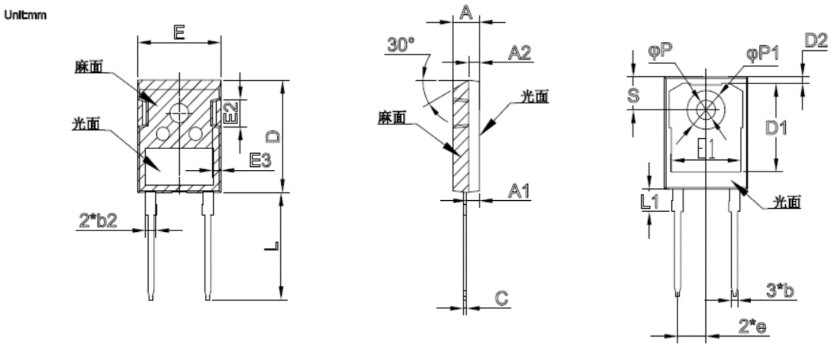


Fig 8: Transient Thermal Impandance



Mechanical Dimensions：



TO247-2L							
	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				

Contact Information

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For additional information, please contact your local Sales Representative.

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