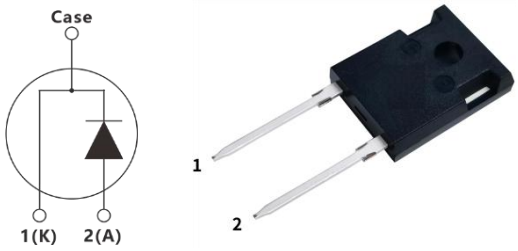
Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	1700	V
I_F	50	A
Q_C	420	nC



TO-247-2L

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

Applications

- Motor drives
- Photovoltaic inverters
- Uninterruptible Power Supply
- High-voltage DC-DC converter

Maximum Ratings (at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1700	V
Surge Peak Reverse Voltage	V_{RSM}	1700	V
Continuous Forward Current T_C=25℃ T_C=135℃ T_C=151℃	I_F	 139.6 67.2 50	A
Repetitive Peak Forward Surge Current T_C = 25℃,tp=10ms, Half Sine Pulse, D=0.1, 1000Cycle	I_{FRM}	185	A
Non-Repetitive Forward Surge Current T_C = 25℃,tp=10ms, Half Sine Pulse	I_{FSM}	370	A
Non-Repetitive Forward Surge Current T_C = 25℃,tp=10ms, Half Sine Pulse	$\int i^2 dt$	684.5	A^2s
Power dissipation T_C = 25℃ T_C = 110℃	P_{tot}	 750 325	W
Operating junction Range	T_j	-55 to +175	℃
Storage temperature Range	T_{stg}	-55 to +175	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	0.2	℃/W

Electrical Characteristics(at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Value			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}		1700			V
Diode forward voltage	V_F	I_F=50A ,T_j=25℃ I_F=50A ,T_j=175℃		1.52 2.4	1.9 3	V
Reverse current	I_R	V_R=1700V, T_j=25℃ V_R=1700V ,T_j=175℃		4 31.8	100 200	μA
Total capacitive charge	Q_C	V_R=1200V, T_j=25℃		420		nC
Total capacitance	C	T_j=25℃ V_R=0V , f=1MHz V_R=400V , f=1MHz V_R=800V , f=1MHz		4736 319 229		pF
Capacitance Stored Energy	E_C	V_R=1200V	-	336	-	uJ

Typical Characteristics

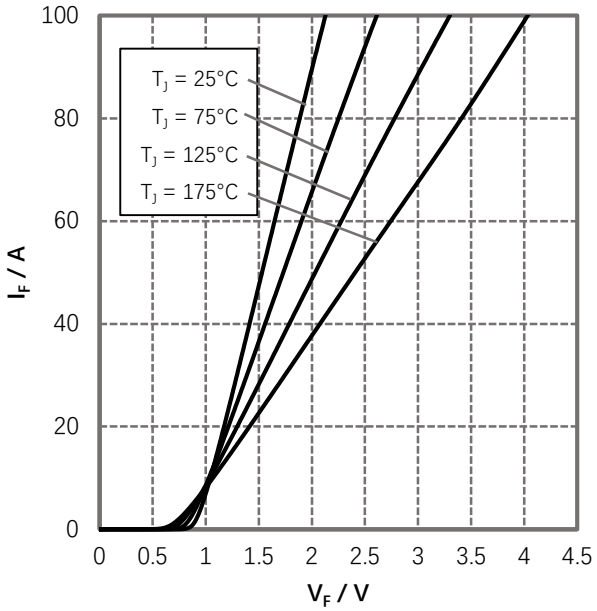


Figure 1. Forward Characteristics

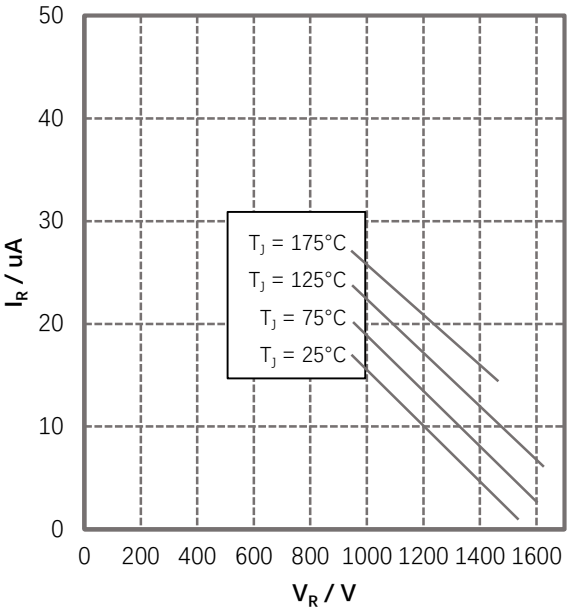


Figure 2. Reverse Characteristics

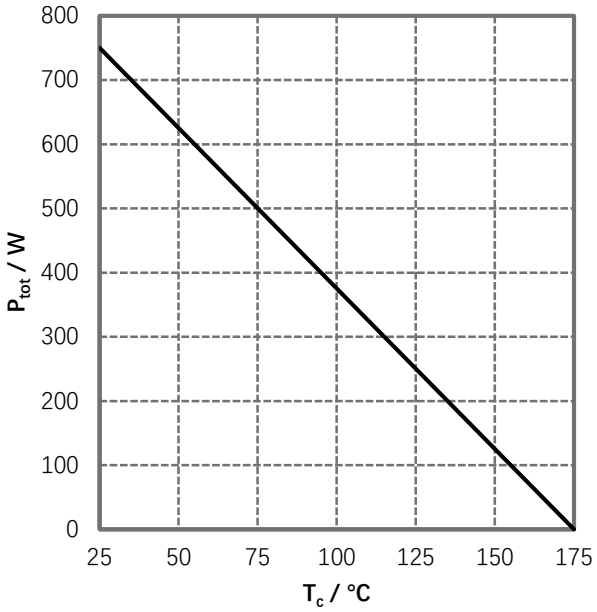


Figure 3. Power Derating

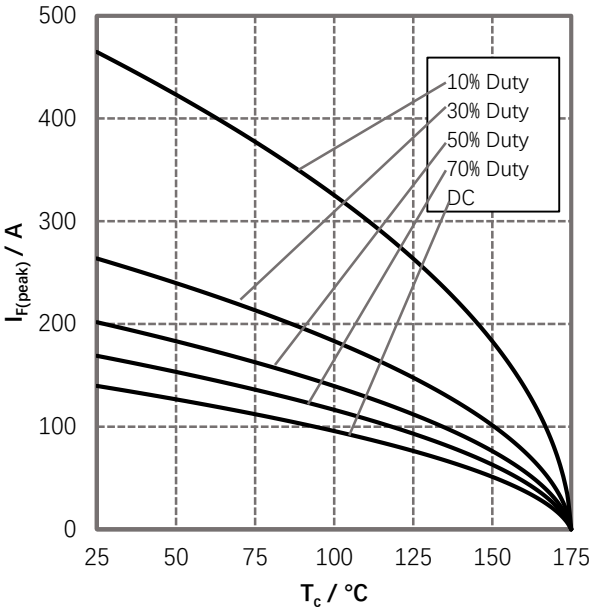


Figure 4. Current Derating
Valid for switching of above 20kHz, excluding D.C. curve

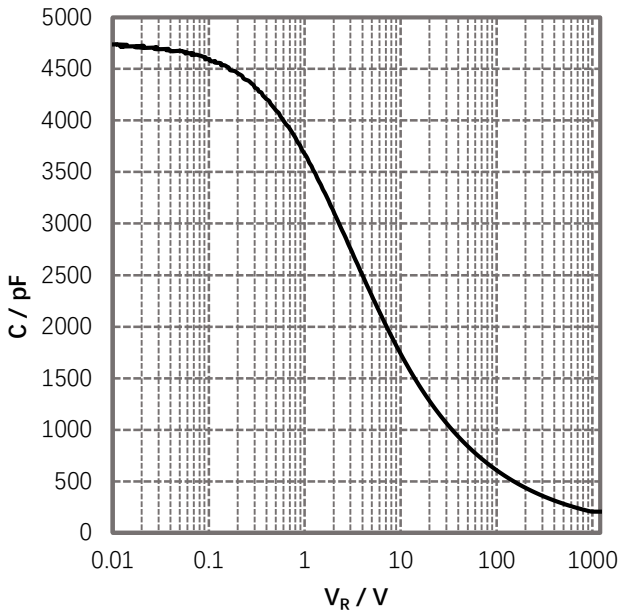


Figure 5. Capacitance vs. Reverse Voltage

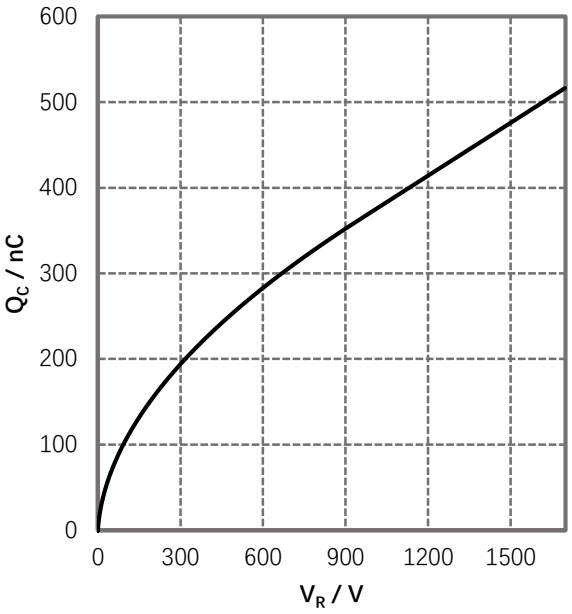


Figure 6. Reverse Charge vs. Reverse Voltage

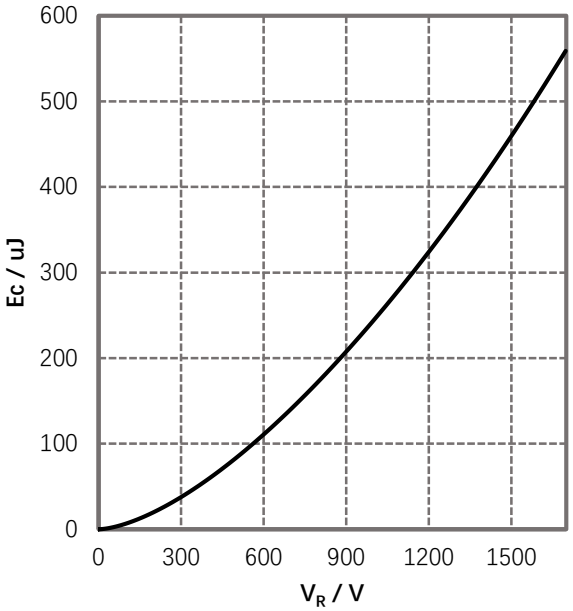


Figure 7. Capacitance Stored Energy

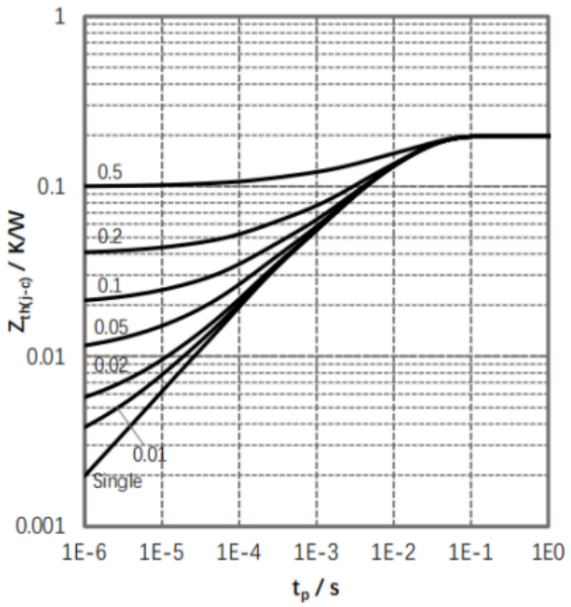
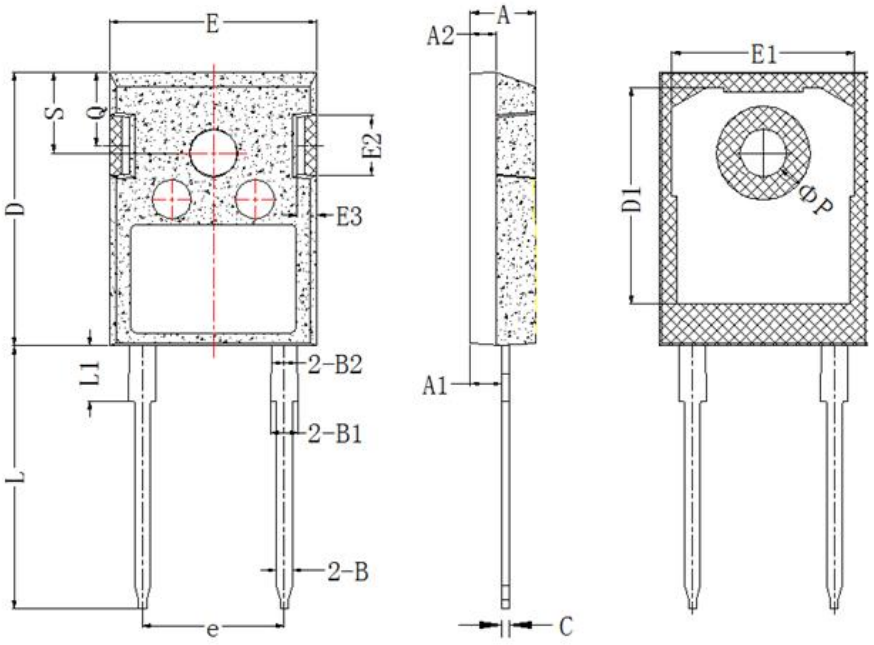


Figure 8. Transient Thermal Impedance

Package Outlines(Unit:mm)

TO-247-2L



Items	Values(mm)	
	MIN	MAX
A	4.85	5.15
A1	2.25	2.55
A2	1.85	2.15
B	1.04	1.33
B1	1.90	2.35
B2	1.90	2.15
C	0.55	0.68
D	20.80	21.10
D1	16.25	17.65
D2	0.95	1.35
E	15.70	16.10
E1	13.50	14.20
E2	3.80	5.00
E3	1.00	2.60
e	10.63	11.13
L	19.80	20.30
L1	4.00	4.50
φP	3.50	3.70
Q	5.40	6.00
S	6.00	6.40

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