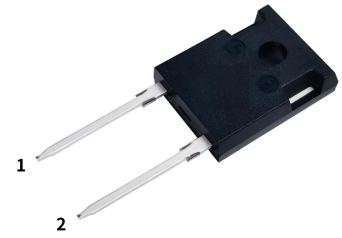
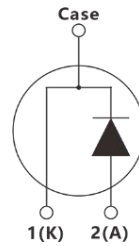


Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	40	A
Q_C	96	nC



TO-247-2L

Features

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

Applications

- Switched-Mode Power Supply
- Power Factor Correction
- Uninterruptible Power Supply
- Photovoltaic inverters
- Motor drives
- High-power adapters

Maximum Ratings (at $T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Continuous Forward Current $T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=139^\circ\text{C}$	I_F	93 42.8 40	A
Repetitive Peak Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}, D=0.1, 1000\text{Cycle}$	I_{FRM}	135	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	I_{FSM}	270	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$\int i^2 dt$	364.5	A^2s
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	P_{tot}	333 144	W
Operating junction Range	T_J	-55 to +175	$^\circ\text{C}$
Storage temperature Range	T_{stg}	-55 to +175	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	0.45	°C/W

Electrical Characteristics(at $T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Value			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}		650			V
Diode forward voltage	V_F	$I_F=40\text{A}, T_J=25^{\circ}\text{C}$ $I_F=40\text{A}, T_J=175^{\circ}\text{C}$		1.47 2.02	1.7 2.5	V
Reverse current	I_R	$V_R=650\text{V}, T_J=25^{\circ}\text{C}$ $V_R=650\text{V}, T_J=175^{\circ}\text{C}$		1 5	50 100	μA
Total capacitive charge	Q_C	$V_R=400\text{V}, T_J=25^{\circ}\text{C}$		96		nC
Total capacitance	C	$T_J=25^{\circ}\text{C}$ $V_R=0\text{V}, f=1\text{MHz}$ $V_R=200\text{V}, f=1\text{MHz}$ $V_R=400\text{V}, f=1\text{MHz}$		1802 184 182		pF
Capacitance Stored Energy	E_C	$V_R=400\text{V}$	-	23	-	μJ

Typical Characteristics

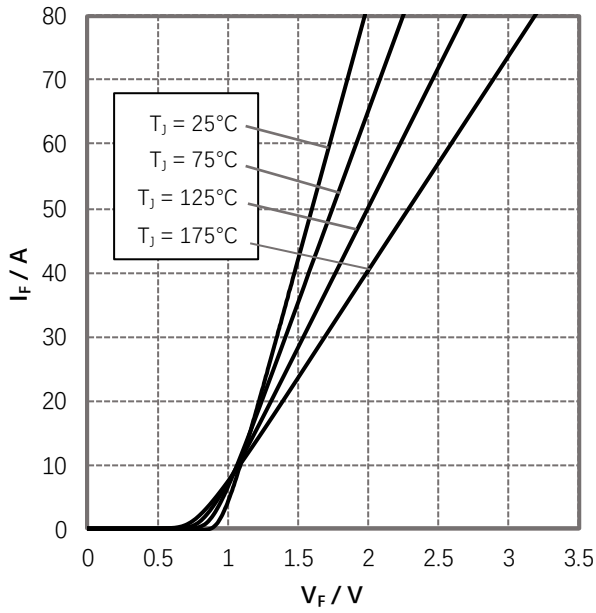


Figure 1. Forward Characteristics

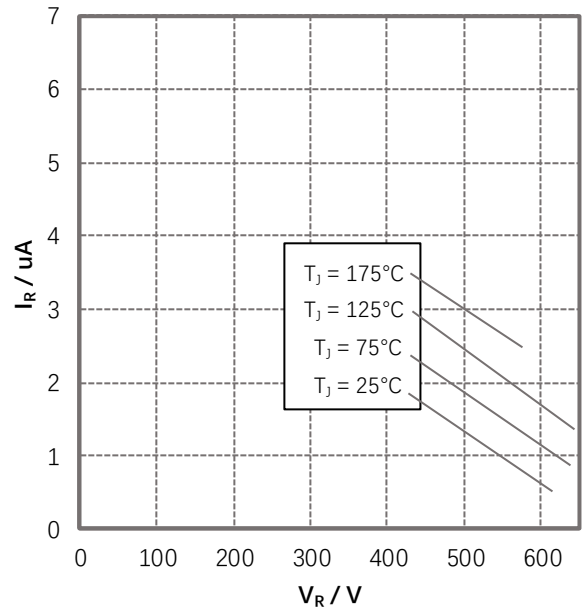


Figure 2. Reverse Characteristics

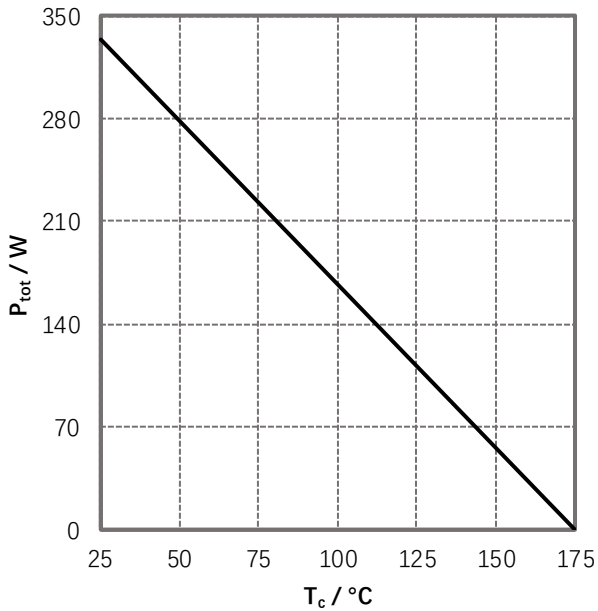


Figure 3. Power Derating

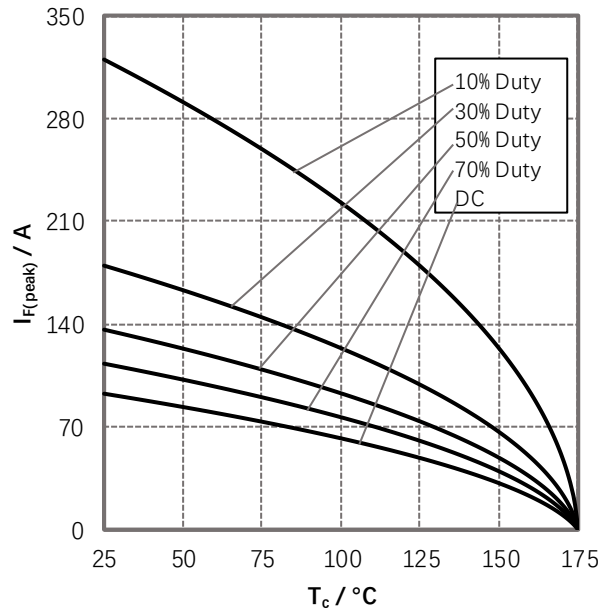


Figure 4. Current Derating
Valid for switching of above 20kHz,
excluding D.C. curve

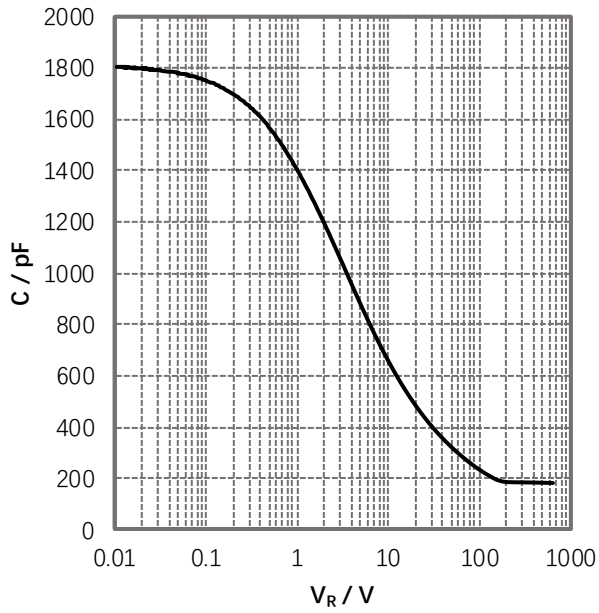


Figure 5. Capacitance vs. Reverse Voltage

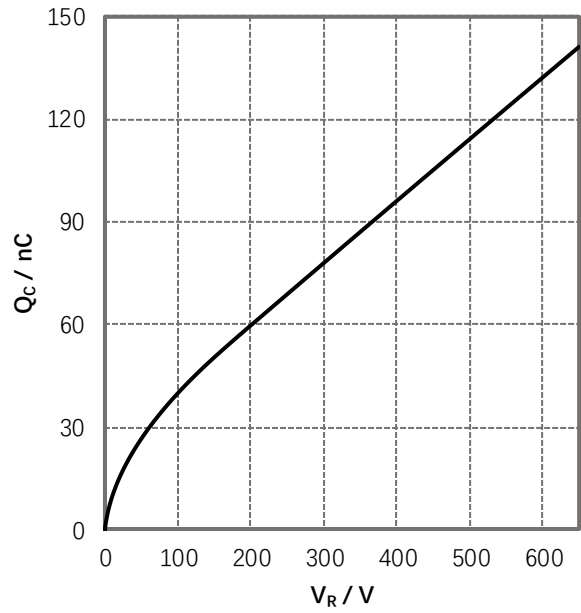


Figure 6. Reverse Charge vs. Reverse Voltage

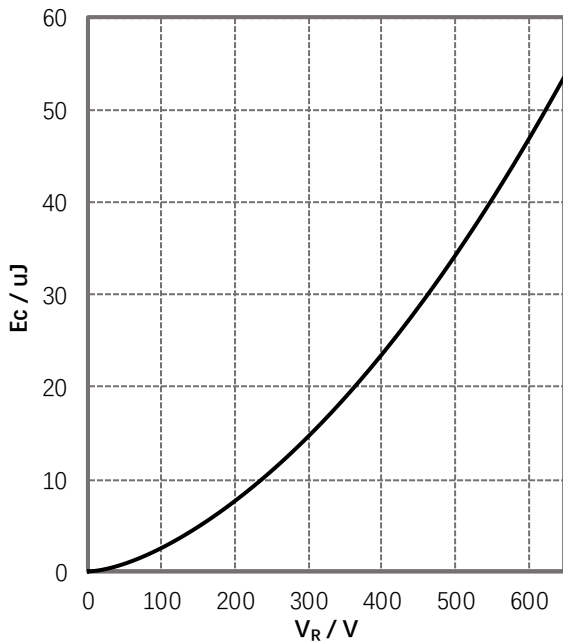


Figure 7. Capacitance Stored Energy

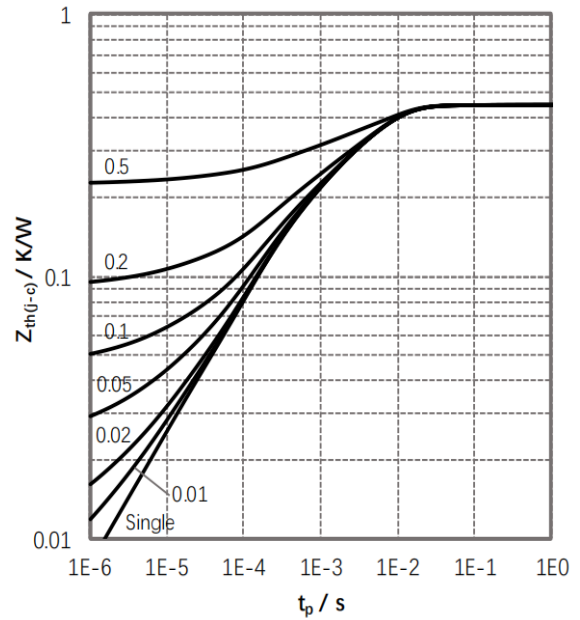
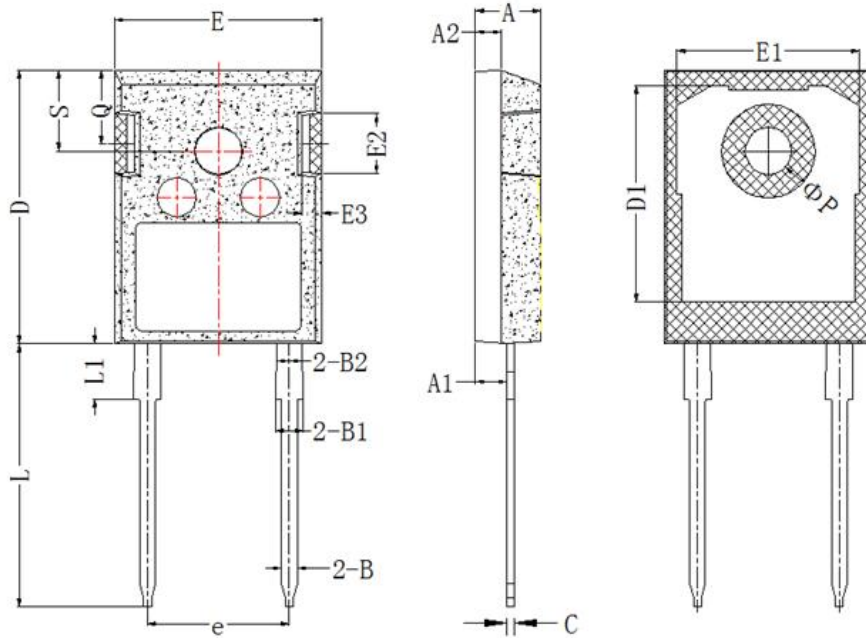


Figure 8. Transient Thermal Impedance

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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