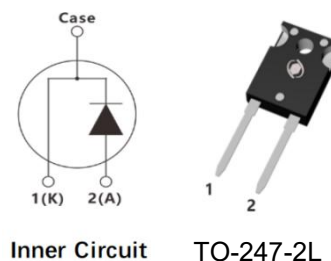


Silicon Carbide Schottky Diode 650V/20A

Parameter	Value	Unit
V_{RRM}	650	V
I_F (TC = 153.5°C)	20	A
Q_c	48	nC



FEATURES

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

APPLICATIONS

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction

MAXIMUM RATED VALUES (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 TC= 25°C TC= 135°C TC= 158.5°C	I_F	60.6 28.9 20	A
Repetitive Peak Forward Surge Current TC= 25°C, tp= 10ms, Half Sine Pulse, D= 0.1, 1000Cycle	I_{FRM}	60	A
Non-Repetitive Forward Surge Current TC= 25°C, tp= 10ms, Half Sine Pulse	I_{FSM}	120	A
i^2t Value TC= 25°C, tp= 10ms, Half Sine Pulse	$\int i^2 dt$	72	A ² s
Power Dissipation TC= 25°C TC= 110°C	P_{tot}	263 114	W
Operating Junction Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{stg}	-55 to +175	°C
Mounting Torque, M3 Screw	M	1	Nm

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

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
DC Blocking Voltage	VDC		650	-	-	V
Forward Voltage	VF	IF = 20A TJ = 25°C TJ = 175°C	- -	1.46 1.88	1.7 2.5	V
Reverse Current	IR	VR = 650V TJ = 25°C TJ = 175°C	- -	3.2 35	50 100	μA
Total Capacitance	C	f = 1MHz VR = 0V VR = 200V VR = 400V	- - -	1281 89 82	- - -	pF
Total Capacitive Charge	QC	VR = 400V TJ = 25°C	-	48	-	nC
Capacitance Stored Energy	EC	VR = 400V	-	12	-	uJ

THERMAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Thermal Resistance, junction-case	Rth(j-c)		-	0.57	-	°C/W

TYPICAL CHARACTERISTICS CURVES

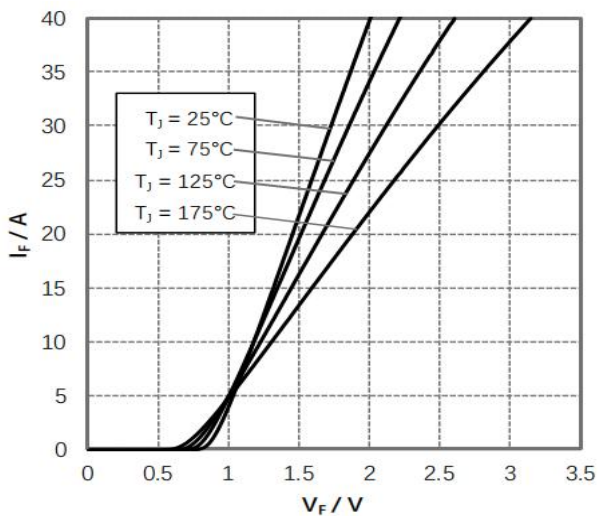


Figure 1. Forward Characteristics

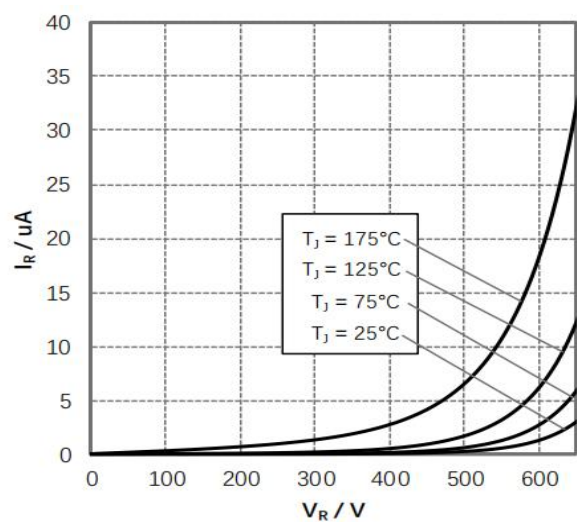


Figure 2. Reverse Characteristics

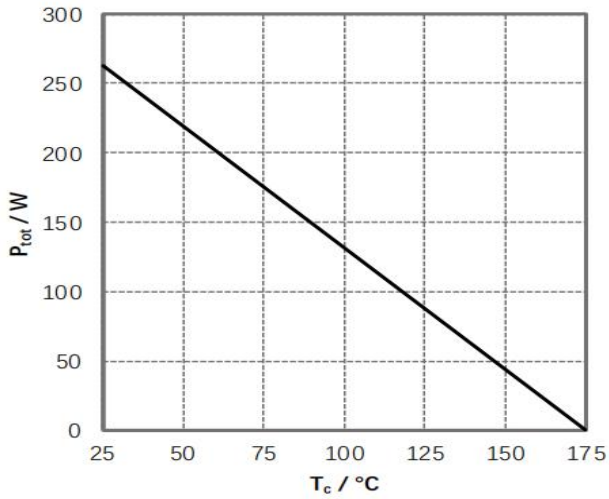


Figure 3. Power Derating

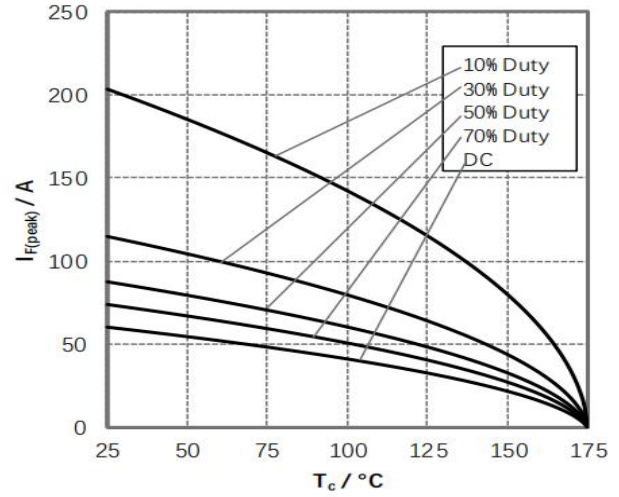


Figure 4. Current Derating
Valid for switching of above 20kHz,
excluding D.C. curve

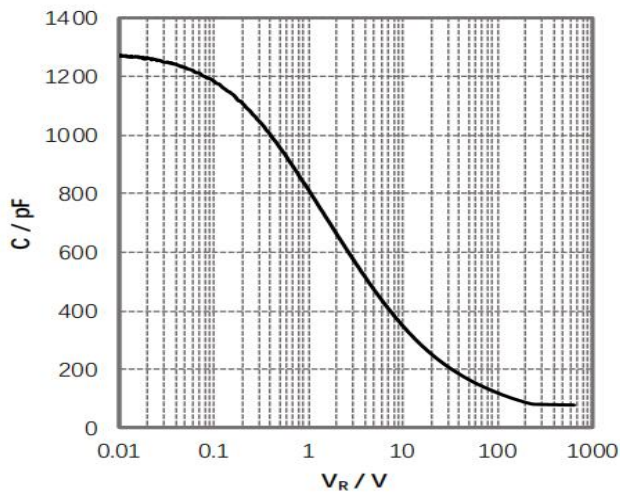


Figure 5. Capacitance vs. Reverse Voltage

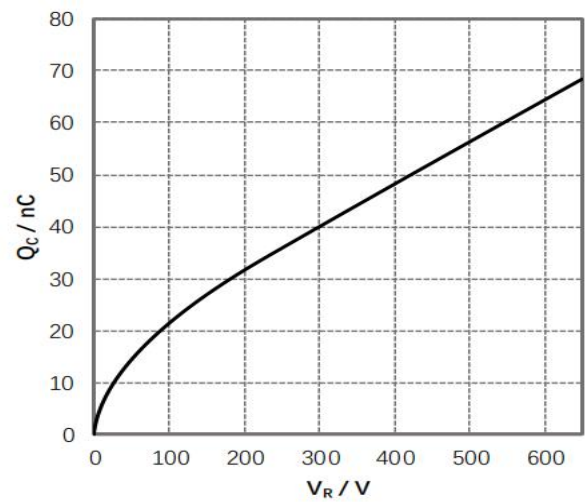


Figure 6. Reverse Charge vs. Reverse Voltage

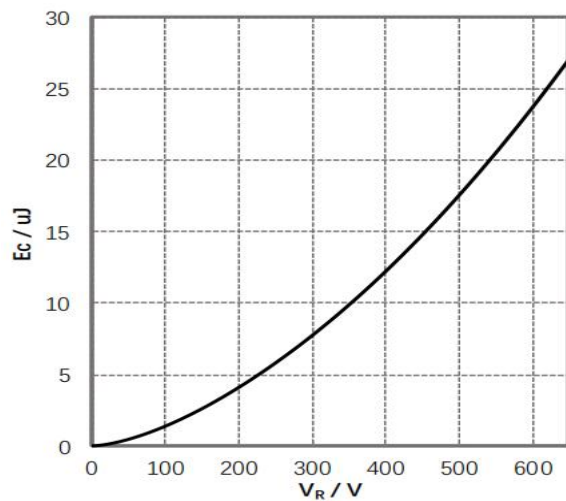


Figure 7. Capacitance Stored Energy

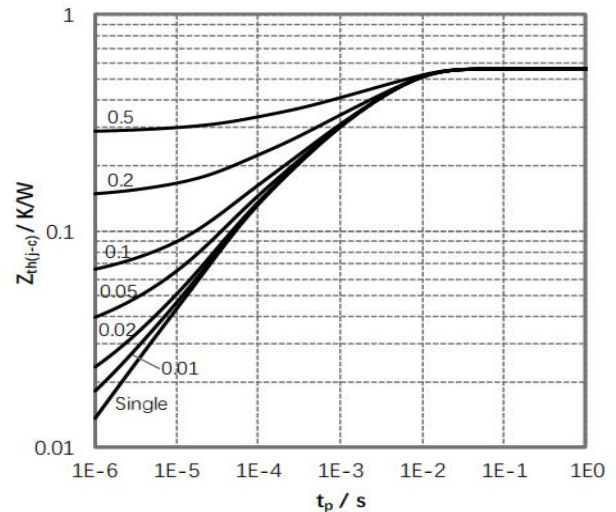
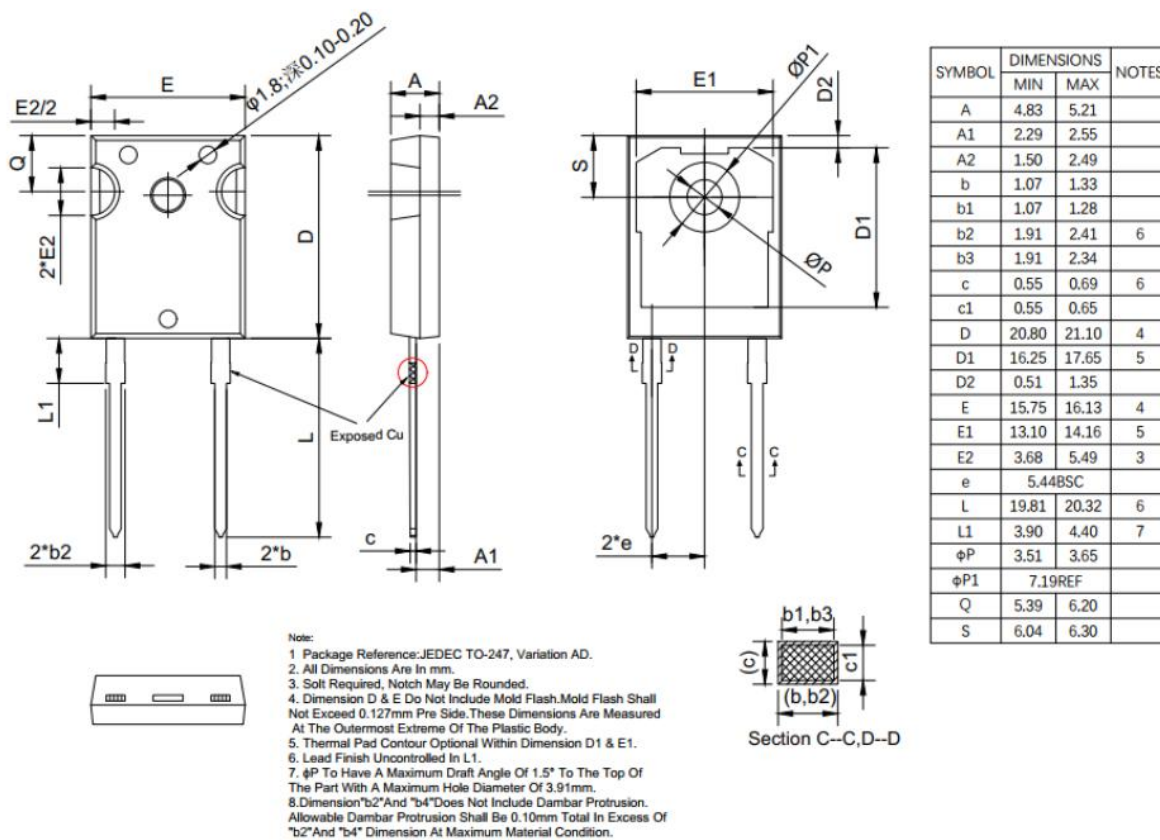


Figure 8. Transient Thermal Impedance

PACKAGE OUTLINES



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