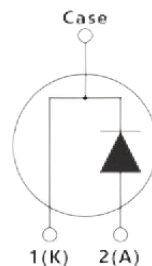


Silicon Carbide Schottky Diode 650V/10A

Parameter	Value	Unit
V_{RRM}	650	V
I_F (TC = 154.5°C)	10	A
Q_c	28	nC



TO-220AC

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 = 154.5°C	I_F	32.7 15.2 10	A
Repetitive Peak Forward Surge Current TC = 25°C, $t_p = 10\text{ms}$, Half Sine Pulse, D = 0.1, 1000Cycle	I_{FRM}	40	A
Non-Repetitive Forward Surge Current TC = 25°C, $t_p = 10\text{ms}$, Half Sine Pulse	I_{FSM}	80	A
i^2t Value TC = 25°C, $t_p = 10\text{ms}$, Half Sine Pulse	$\int i^2 dt$	32	A ² s
Power Dissipation TC = 25°C TC = 110°C	P_{tot}	125 54	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	V _F	I _F = 10A T _J = 25°C T _J = 175°C	- -	1.37 1.74	1.7 2.5	V
Reverse Current	I _R	V _R = 650V T _J = 25°C T _J = 175°C	- -	0.2 2.0	50 100	μA
Total Capacitance	C	f = 1MHz V _R = 0V V _R = 200V V _R = 400V	- - -	536 55 53	- - -	pF
Total Capacitive Charge	Q _C	V _R = 400V T _J = 25°C	-	28	-	nC
Capacitance Stored Energy	EC	V _R = 400V	-	6.8	-	uJ

THERMAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Thermal Resistance, junction-case	R _{th(j-c)}		-	1.2	-	°C/W

TYPICAL CHARACTERISTICS CURVES

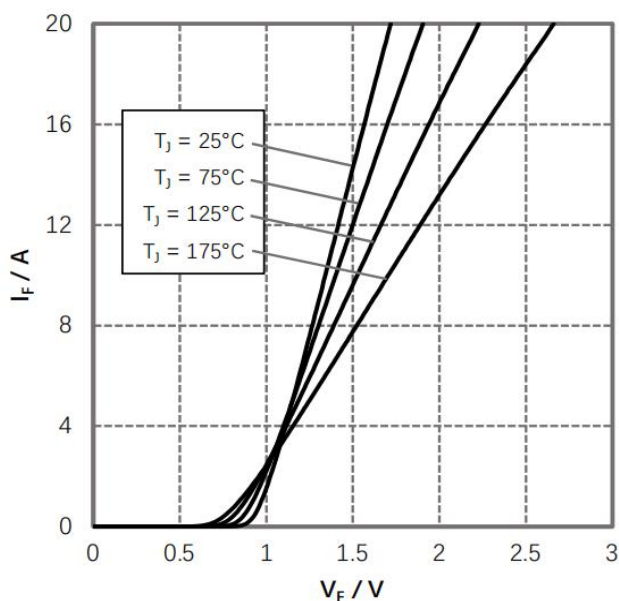


Figure 1. Forward Characteristics

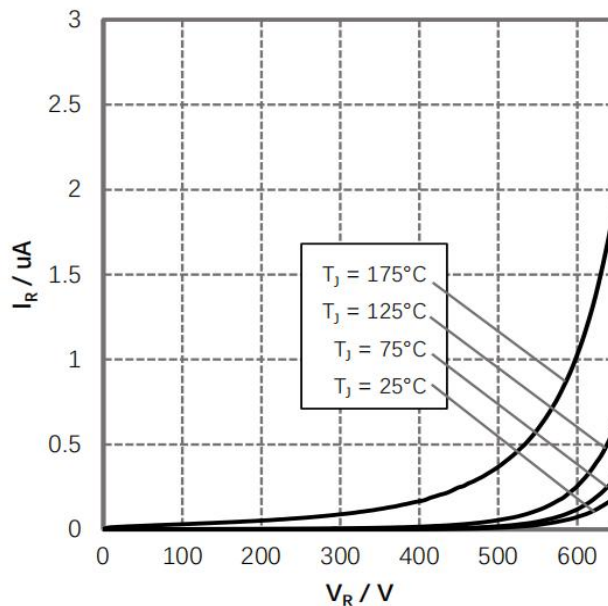


Figure 2. Reverse Characteristics

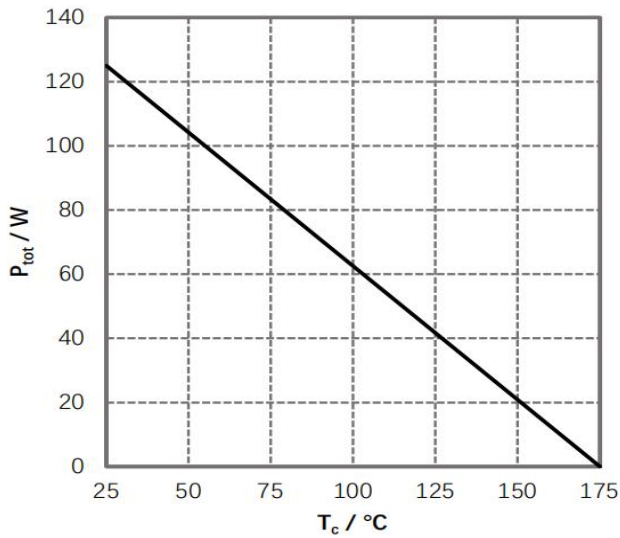


Figure 3. Power Derating

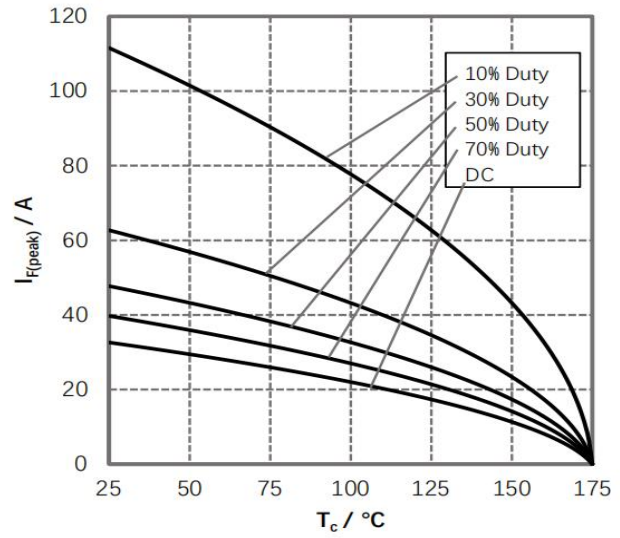


Figure 4. Current Derating
Valid for switching of above 20kHz,
excluding D.C. curve

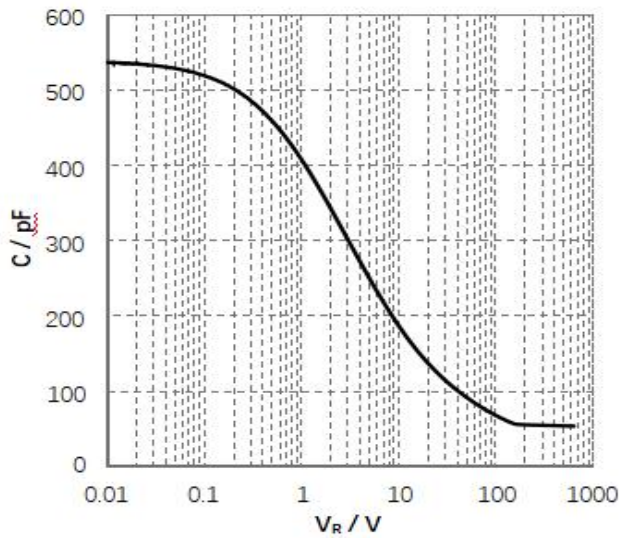


Figure 5. Capacitance vs. Reverse Voltage

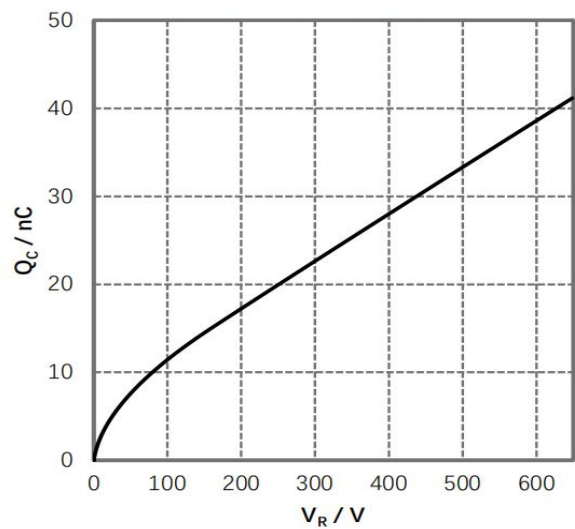


Figure 6. Reverse Charge vs. Reverse Voltage

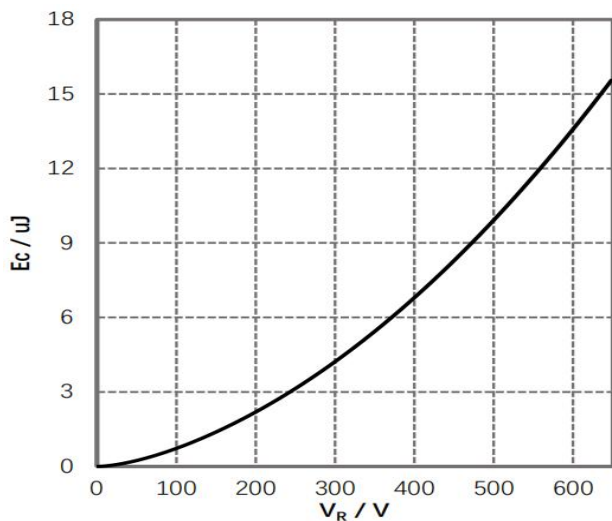


Figure 7. Capacitance Stored Energy

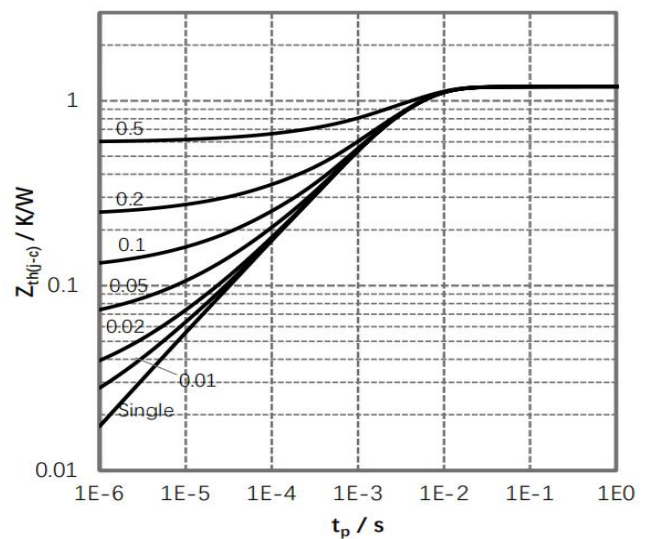
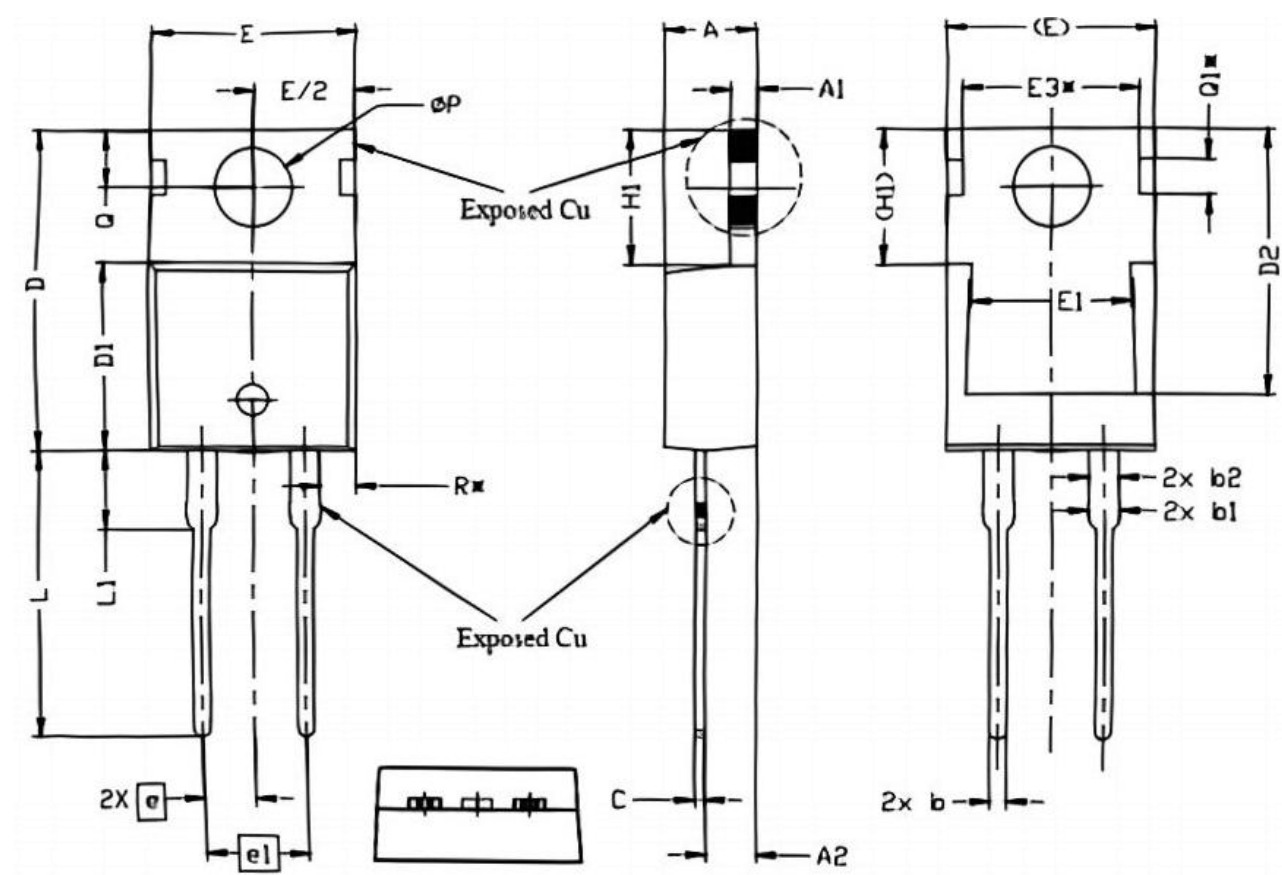


Figure 8. Transient Thermal Impedance

PACKAGE OUTLINES



SYMBOL	A	A1	A2	b	b1	b2	c	D	D1	D2	E
MIN.	4.24	1.15	2.3	0.7	1.2	1.2	0.4	14.7	8.82	12.63	9.96
NOM.	4.44	1.27	2.48	0.8	1.55	1.45	0.5	15.37	8.92	12.73	10.16
MAX.	4.64	1.4	2.7	0.9	1.75	1.7	0.6	16	9.02	12.83	10.36
SYMBOL	E1	E3*	e	e1	H1	L	L1	ØP	Q	Q1*	R*
MIN.	6.86	8.70 REF.	2.54 BSC	5.08 BSC	6.3	13.47	3.6	3.75	2.6	1.73 REF.	1.82 REF.
NOM.	7.77				6.45	13.72	3.8	3.84	2.8		
MAX.	8.89				6.6	13.97	4	3.93	3		

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