

Q-SSC1065-T

650V Silicon Carbide Schottky Diode

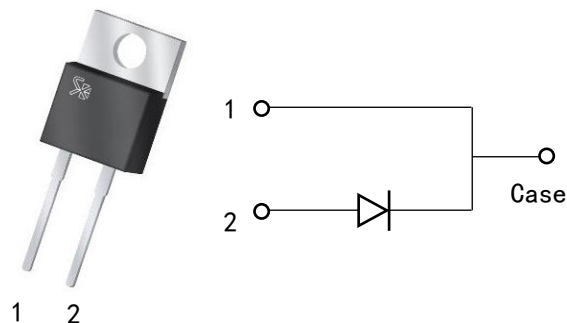
Features

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- Pb-free / RoHS compliant

V_{RRM}	650V
I_F	10A (TC=154°C)
Q_C	30nC

Benefits

- Higher frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability



Applications

- Switch mode power supply
- Solar inverter
- Data Center
- Uninterruptible power supply

Marking	Package
Q-SSC1065-T	TO-220-2

Thermal Characteristics

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
$R_{th(j-c)}$	Thermal resistance (Junction to case)	1.175	-	°C/W	Figure 8



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Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter		Value	Unit	Note
V_{RRM}	Repetitive peak reverse voltage		650	V	
I_F	Continuous forward current	Tc=25°C	32	A	Figure 3
		Tc=135°C	15	A	
		Tc=154°C	10	A	
I_{FSM}	Non-repetitive forward surge current	Tc=25°C, $t_p=10ms$, Half sine pulse	96	A	
		Tc=110°C, $t_p=10ms$, Half sine pulse	83	A	
I_{FRM}	Repetitive Peak Forward Surge Current	Tc=25°C, $t_p=10ms$, Half sine pulse	85	A	
$\int i^2 dt$	i^2t value	Tc=25°C, $t_p=10ms$	60.5	A ² S	
		Tc=110°C, $t_p=10ms$	44	A ² S	
P_{tot}	Power Dissipation	Tc=25°C	127	W	Figure 4
		Tc=110°C	55	W	
		Tc=150°C	21	W	
T_j, T_{stg}	Operating and Storage Temperature		-55 to +175	°C	

Electrical Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V_{DC}	DC blocking voltage		650	-	-	V	
V_F	Forward voltage	$I_F=5A$	-	1.17	-	V	Figure 1
		$I_F=10A$, Tc=25°C	-	1.37	1.6	V	
		$I_F=10A$, Tc=175°C	-	1.66	-	V	
I_R	Reverse current	$V_R=650V$, Tc=25°C	-	5	60	uA	Figure 2
		$V_R=650V$, Tc=175°C		12			
Q_C	Total capacitive charge	$V_R=400V$	-	30	-	nC	Figure 6
C	Total capacitance	$V_R=1V$, f=1MHZ	-	455	-	pF	Figure 5
		$V_R=200V$, f=1MHZ	-	57	-	pF	
		$V_R=400V$, f=1MHZ	-	56	-	pF	
E_C	Capacitance Stored Energy	$V_R=400V$	-	4.8	-	uJ	Figure 7

Electrical Characteristic Curves

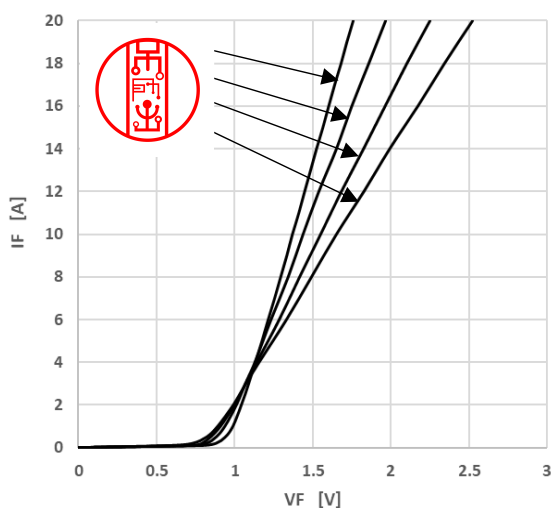


Figure 1 Forward Characteristics

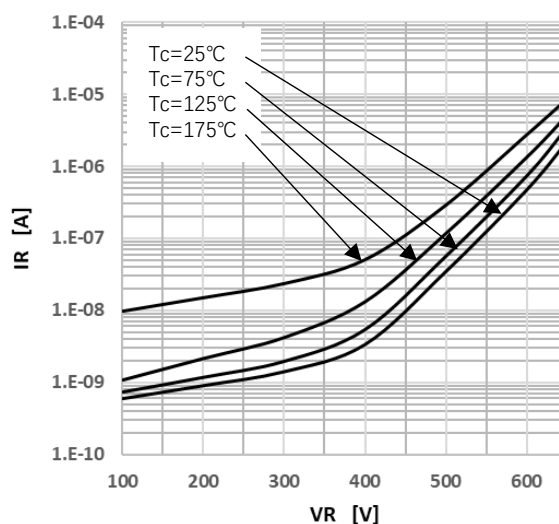


Figure 2 Reverse Characteristics

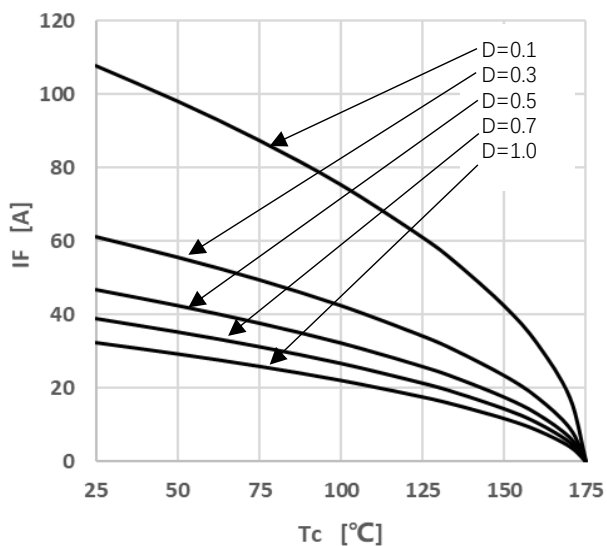


Figure 3 Peak Forward Current Derating

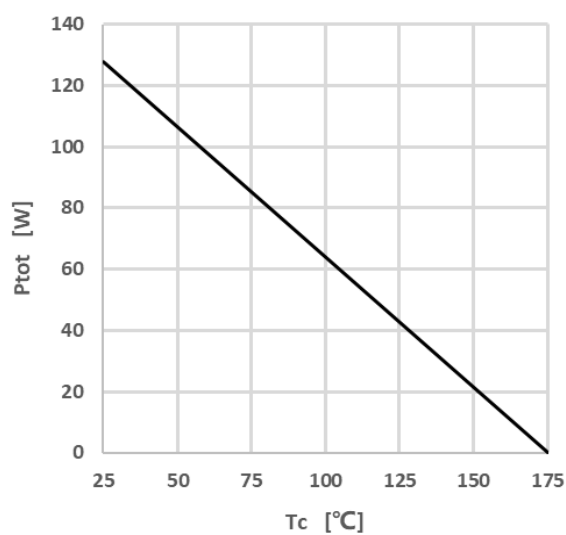
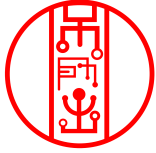


Figure 4 Power Dissipation



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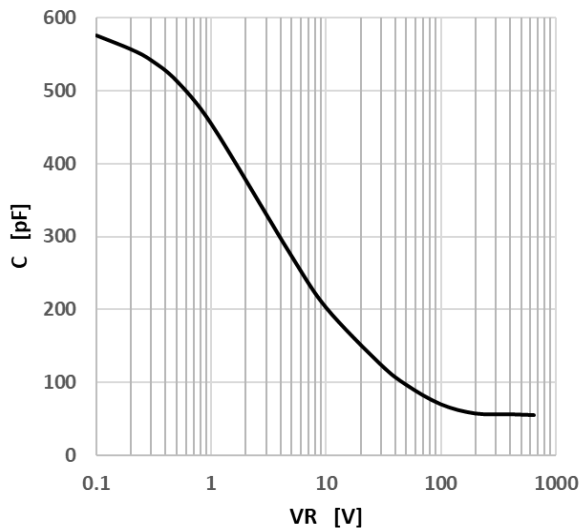


Figure 5 Capacitance vs. Reverse Voltage

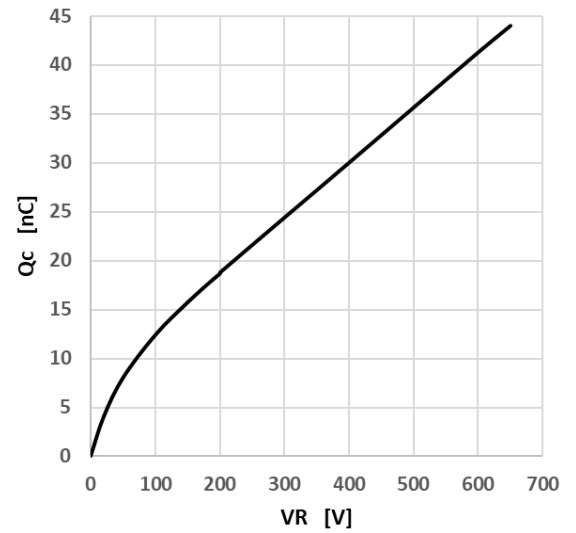


Figure 6 Capacitance Charge vs. Reverse Voltage

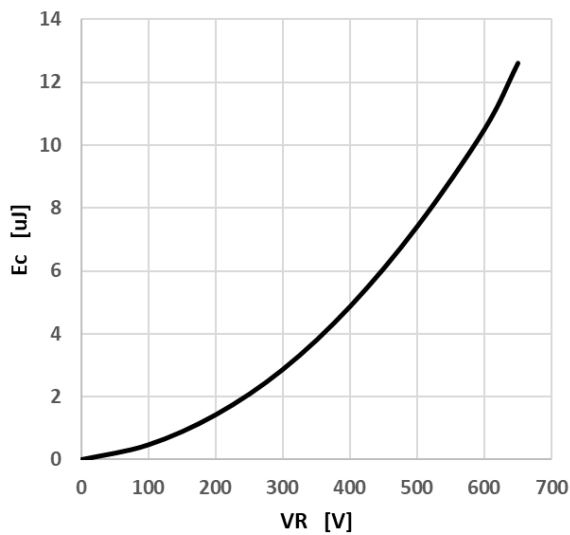


Figure 7 Capacitance Stored Energy

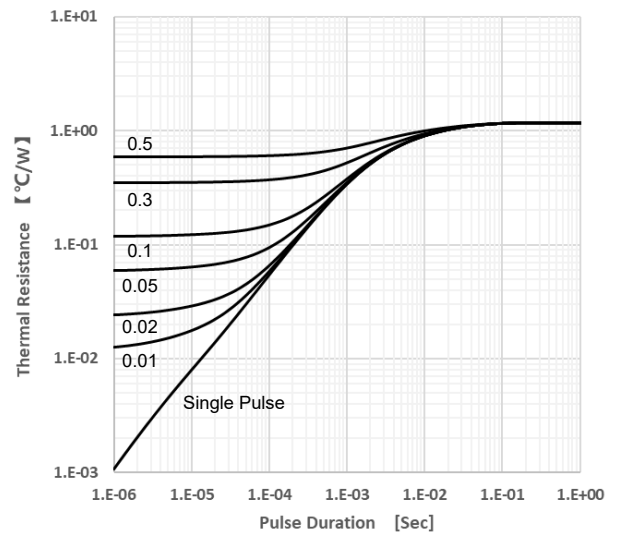


Figure 8 Transient Thermal Impedance

