

SSC2065-T7

650V Silicon Carbide Schottky Diode

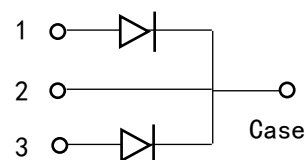
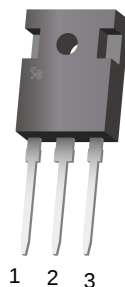
Features

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

V_{RRM}	650V
I_F	10/20A (TC=154°C)
Q_C	30/60nC

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
SSC2065-T7	TO-247-3

Thermal Characteristics (Per Leg)

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
$R_{th(j-c)}$	Thermal resistance (Junction to case)	1.15	-	°C/W	Figure 8



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

Symbol	Parameter		Value	Unit	Note
V _{RRM}	Repetitive peak reverse voltage		650	V	
I _F	Continuous forward current	T _c =25°C	32 / 64	A	Figure 3
		T _c =135°C	15 / 30	A	
		T _c =154°C	10 / 20	A	
I _{FSM}	Non-repetitive forward surge current	T _c =25°C, t _p =10ms, Half sine pulse	92 / 184	A	
		T _c =110°C, t _p =10ms, Half sine pulse	88 / 176	A	
I _{FRM}	Repetitive Peak Forward Surge Current	T _c =25°C, t _p =10ms, Half sine pulse	85 / 170	A	
∫ i ² dt	i ² t value	T _c =25°C, t _p =10ms	40 / 169	A ² S	
		T _c =110°C, t _p =10ms	38 / 154	A ² S	
P _{tot}	Power Dissipation	T _c =25°C	130 / 260	W	Figure 4
		T _c =110°C	56 / 112	W	
		T _c =150°C	21 / 42	W	
T _j , T _{stg}	Operating and Storage Temperature		-55 to +175	°C	

Electrical Characteristics (T_c=25°C unless otherwise noted) (Per Leg)

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, T _c =25°C	-	1.37	1.6	V	
		I _F =10A, T _c =175°C		1.66		V	
I _R	Reverse current	V _R =650V, T _c =25°C	-	5	60	uA	Figure 2
		V _R =650V, T _c =175°C		12		uA	
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	-	4.9	-	uJ	Figure 7

Electrical Characteristic Curves (Per Leg)

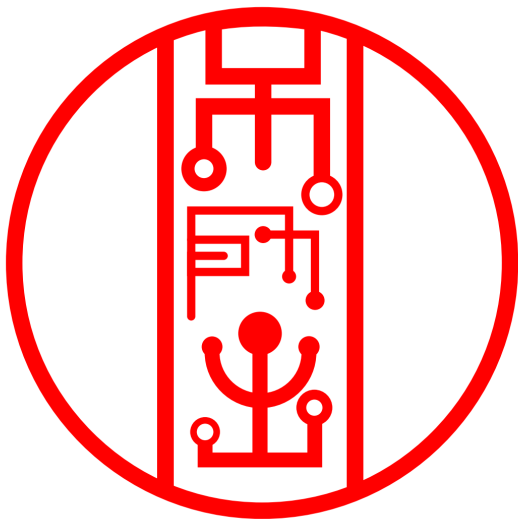


Figure 1 Forward Characteristics

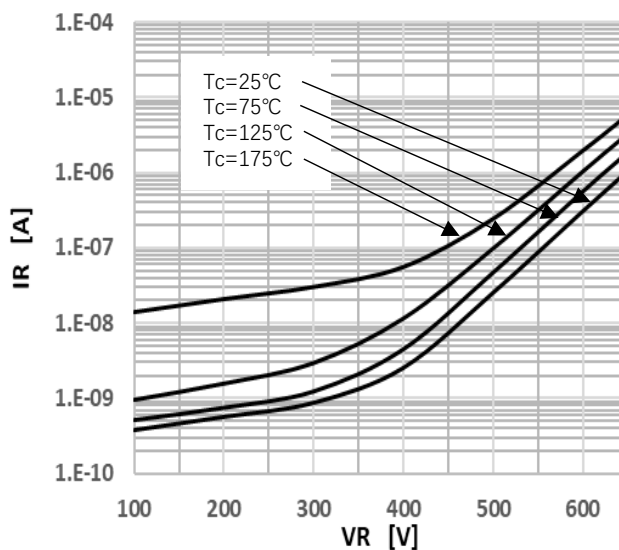


Figure 2 Reverse Characteristics

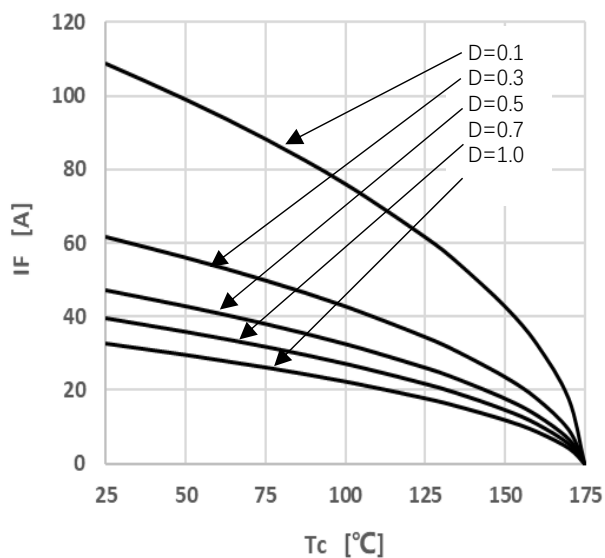


Figure 3 Peak Forward Current Derating

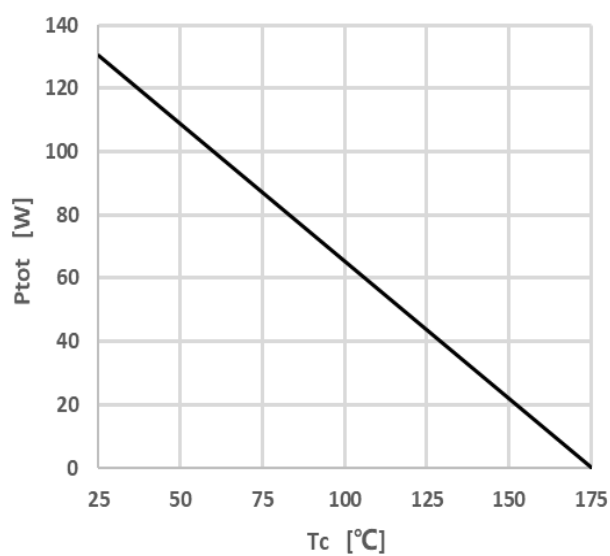


Figure 4 Power Dissipation

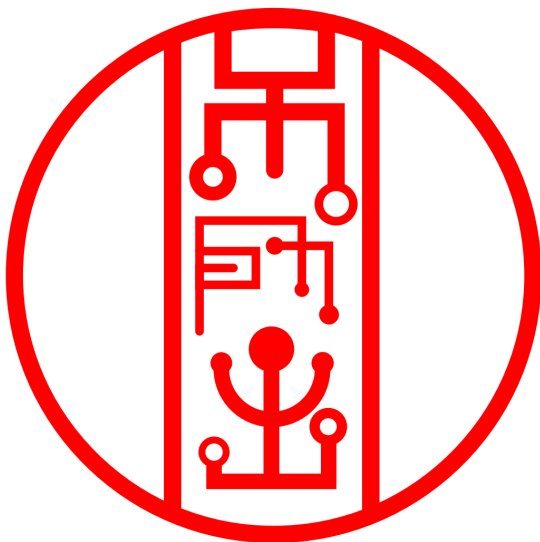


Figure 5 Capacitance vs. Reverse Voltage

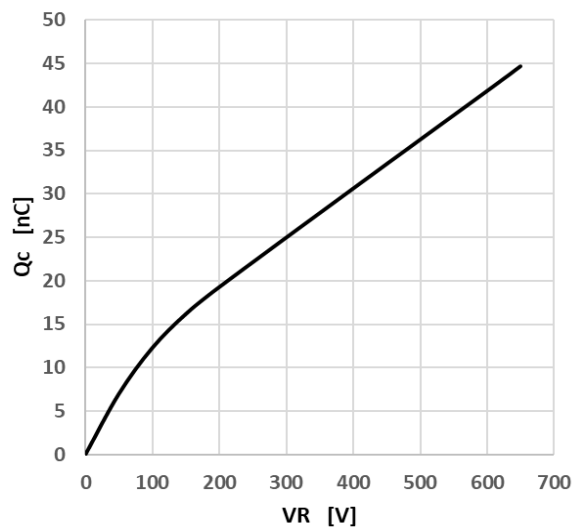


Figure 6 Capacitance Charge vs. Reverse Voltage

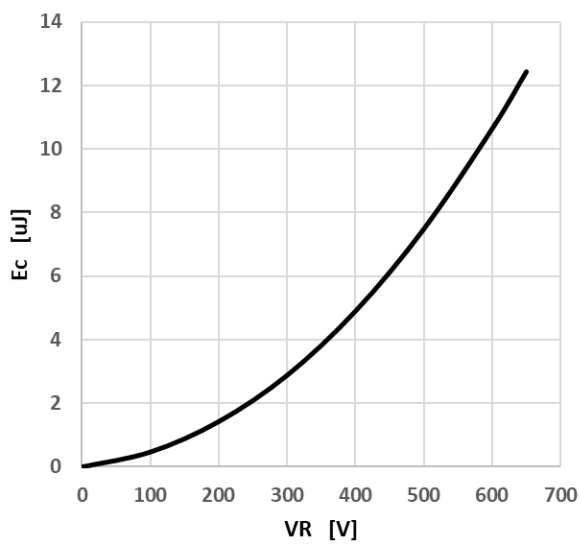


Figure 7 Capacitance Stored Energy

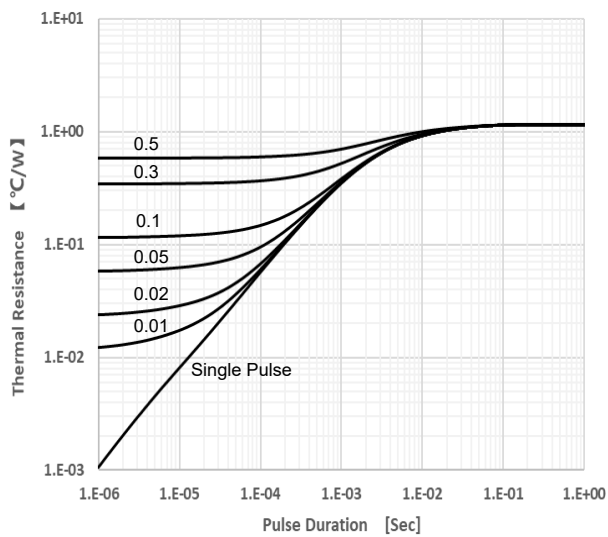
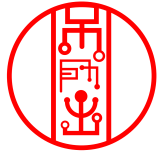


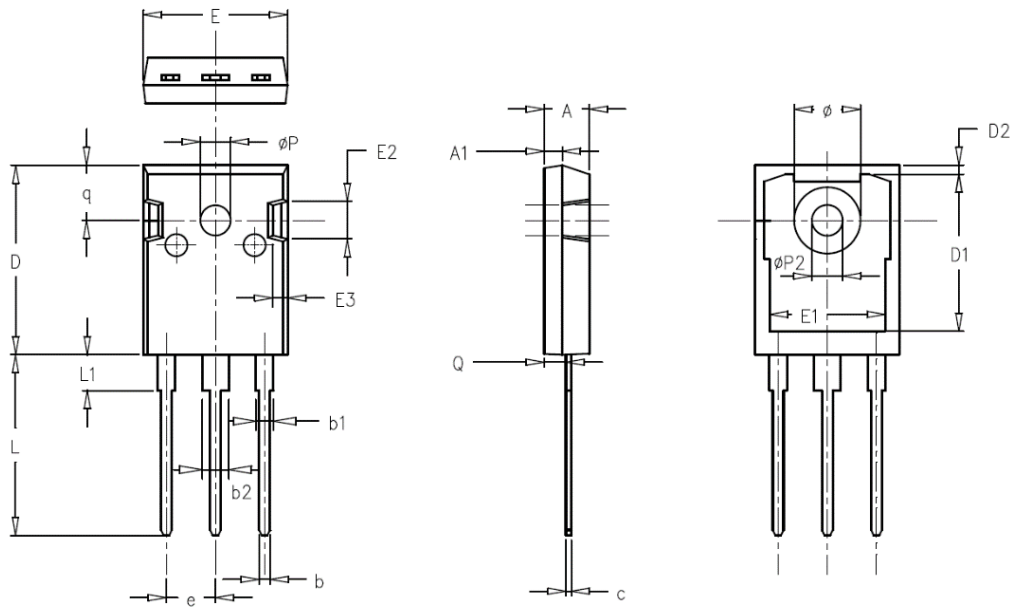
Figure 8 Transient Thermal Impedance



SSC2065-T7

Package Dimensions

To-247-3



SYMBOL	MILLIMETERS			NOTES	SYMBOL	MILLIMETERS			NOTES
	Normal	MIN.	MAX.			Normal	MIN.	MAX.	
A	4.98	4.68	5.36		ØP	3.66	3.45	3.85	
A1	1.99	1.90	2.10		e	5.44	BSC		
Q	2.41	2.30	2.60		q	6.24	5.99	6.58	
c	0.60	0.48	0.72		ØP2	3.45	3.24	3.64	
b	1.20	1.00	1.40		Ø	7.14	7.10	7.30	
b1	2.07	1.90	2.30		D1	16.56	16.10	17.10	
b2	3.07	2.90	3.30		D2	0.98	0.80	1.36	
D	21.10	20.80	21.80		E1	13.30	13.00	13.52	
E	15.98	15.38	16.20		E2	5.64	5.10	6.10	
L	20.28	19.50	20.50		E3	2.33	1.90	2.70	
L1	4.01	3.75	4.35						