iS065C06CE

Silicon-Carbide Schottky Barrier Diode

Datasheet

1. Product Information

1.1 Features

- Zero Reverse Recovery
- Temperature-Independent Switching Behavior
- Positive Temperature Coefficient Device Suitable for Parallel Connection Application
- Junction Temperature Range from -55℃ to 175℃
- Suitable for High Power/Temperature Application
- High Surge Current Ruggedness and High Reliability

1.2 Package Type

TO220A-2L

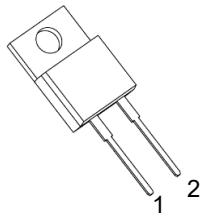
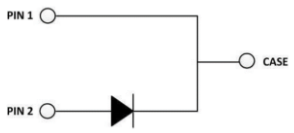
1.3 Quick Reference

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Limiting Values						
P_{tot}	Total Power Dissipation	T_C = 25 ℃	-	-	91	W
I_F	Forward Current	T_C = 25 ℃	-	-	20	A
		T_C = 135 ℃	-	-	10	
		T_C = 155 ℃	-	-	6	
Static Characteristics						
V_{RRM}	Peak Repetitive Reverse Voltage	T_C = 25 ℃	650	-	-	V
V_F	Forward Voltage	T_C = 25 ℃, I_F = 6 A	-	1.30	1.50	
		T_C = 175 ℃, I_F = 6 A	-	1.55	1.80	

2. Ordering Code & Marking Information

Ordering Code	Marking Information
iS065C06CE	iS065C06C XXXXX X : Date Code

3. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Cathode(-)		
2	Anode(+)		

4. Limiting Values

Symbol	Parameter		Rating	Unit
V_{DC}	DC Reverse Voltage	T_C = 25 ℃	650	V
I_F	Continuous Forward Current	T_C = 25 ℃	20	A
		T_C = 135 ℃	10	
		T_C = 155 ℃	6	
I_{FRM}	Surge Repetitive Current	T_C = 25 ℃, t_p = 10 ms, half sine wave D = 0.1	35	A
I_{FSM}	Surge Non-Repetitive Current	T_C = 25 ℃, t_p = 10 ms, half sine pulse	48	A
P_D	Total Power Dissipation	T_C = 25 ℃	91	W
T_{stg}	Storage Temperature		- 55 ~ 175	℃
T_j	Operation Junction Temperature		- 55 ~ 175	℃
$R_{th(j-c)}$	Thermal Resistance- Junction to Case		1.64	℃ / W

5. Electrical Characteristics (T_C = 25 °C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
V_{DC}	DC Blocking Voltage	I_R = 100 uA	650	-	-	V
V_F	Forward Voltage	I_F = 6 A, T_C = 25 ℃		1.30	1.50	
		I_F = 6 A, T_C = 175 ℃	-	1.55	1.80	
I_R	Reverse Current	V_R = 650 V, T_C = 25 ℃	-	1	20	μA
		V_R = 650 V, T_C = 175 ℃	-	5	50	
Dynamic Characteristics						
C	Total Capacitance	V_R = 0 V, f = 1 MHz	-	310	-	pF
		V_R = 200 V, f = 1 MHz	-	33	-	
		V_R = 400 V, f = 1 MHz	-	28	-	
Q_C	Total Capacitance Charge	V_R = 400 V	-	17	-	nC
E_C	Capacitance Stored Energy	V_R = 400 V	-	2.6	-	μJ

6. Typical Characteristics (cont.)

Fig 1. Power Capability

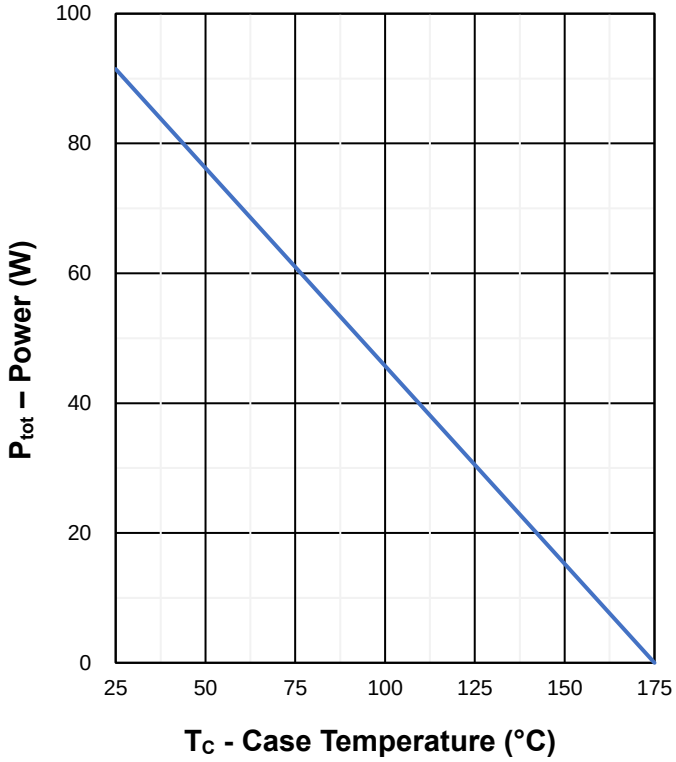


Fig 2. Current Capability

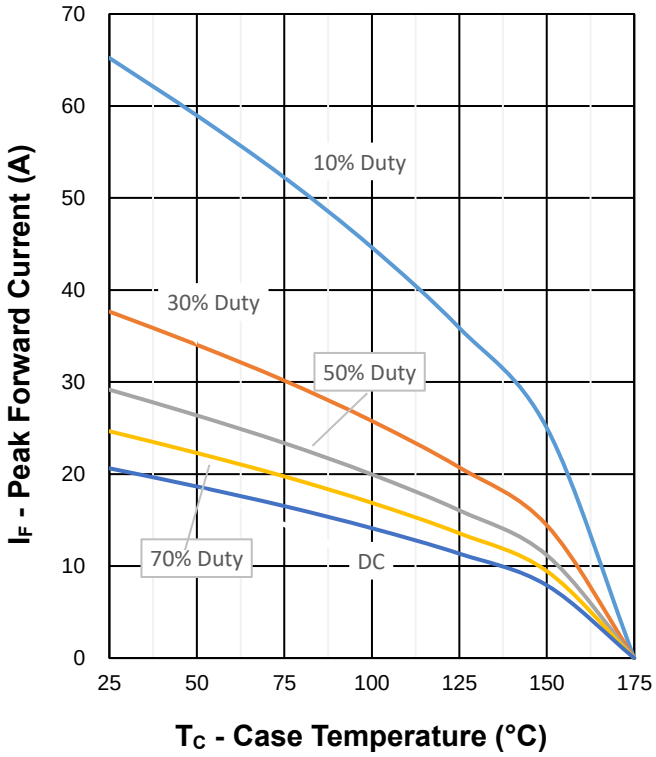


Fig 3. Forward Characteristics

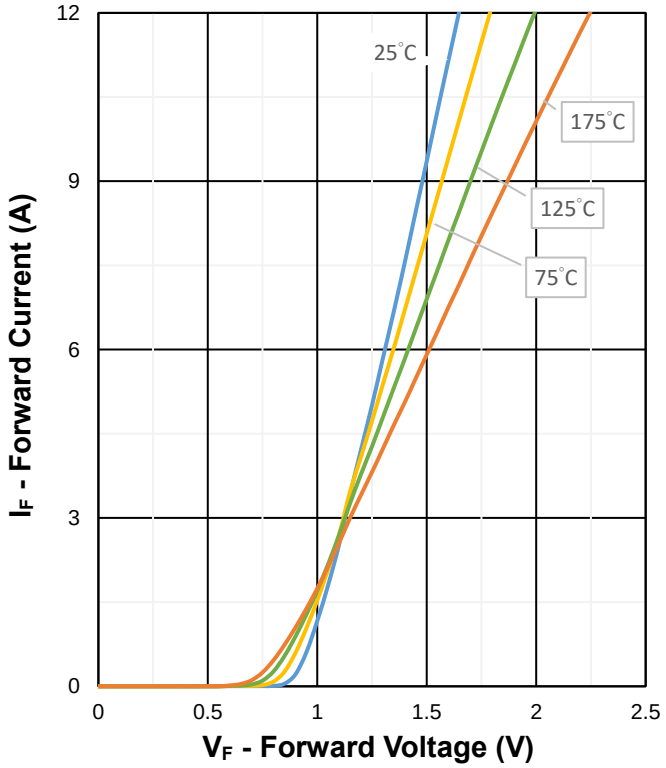
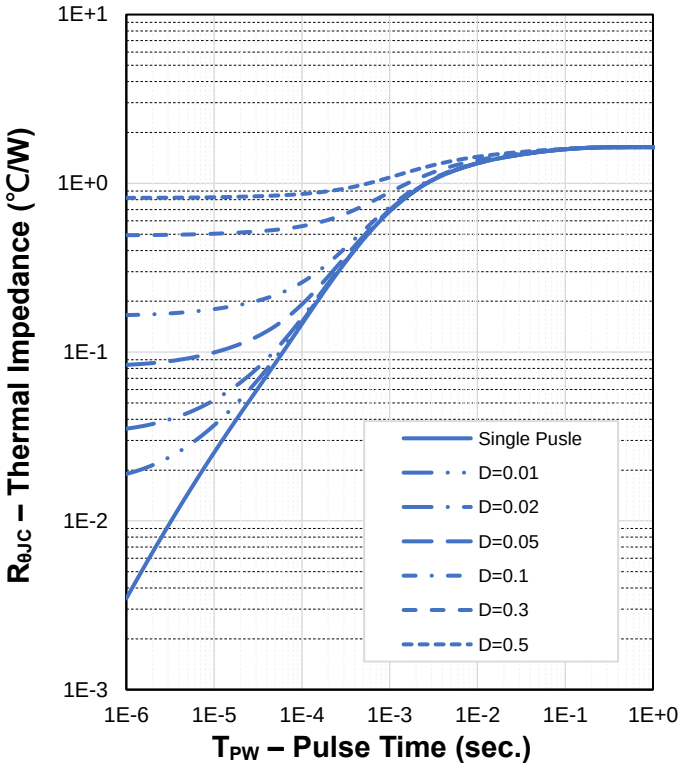


Fig 4. Transient Thermal Impedance



6. Typical Characteristics

Fig 5. Reverse Characteristics

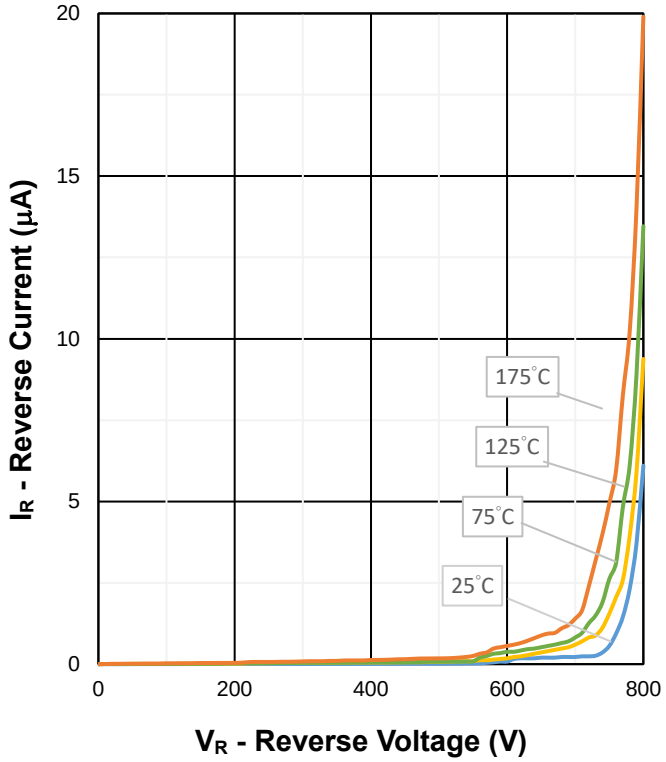


Fig 6. Capacitance vs. Reverse Voltage

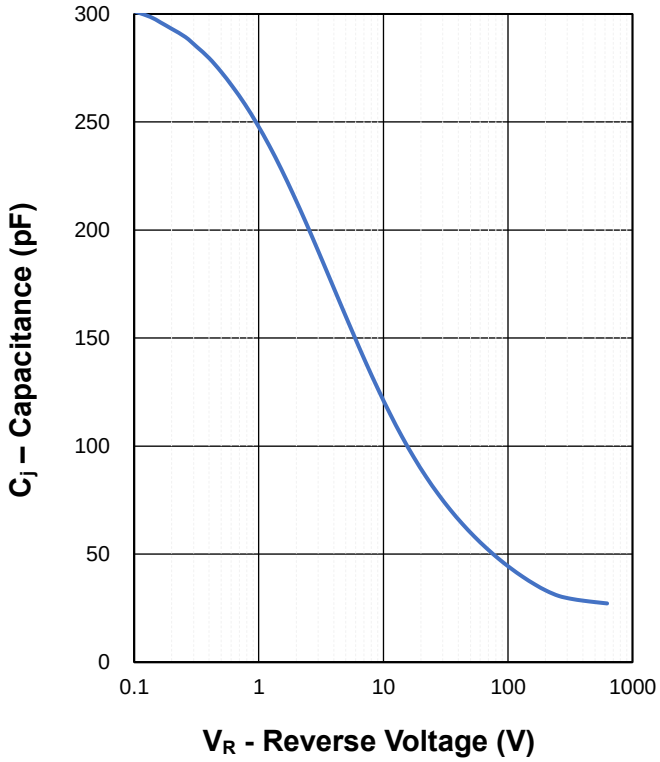


Fig 7. Capacitance Charge

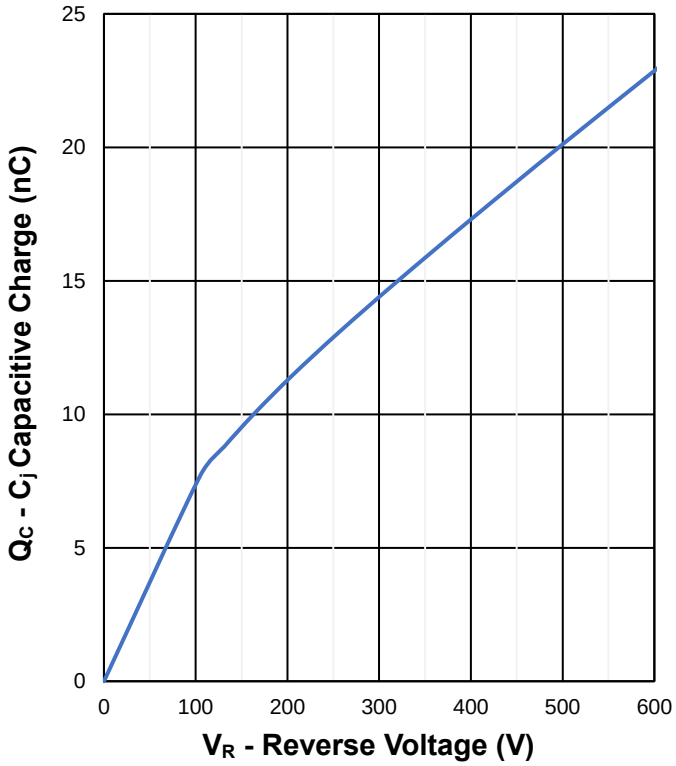
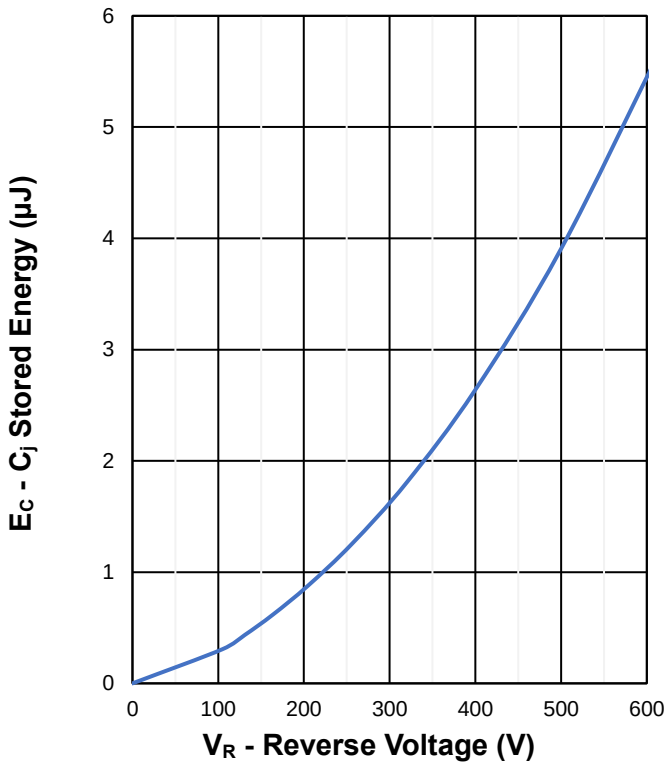


Fig 8. Capacitance Stored Energy



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