



iS065C10CE

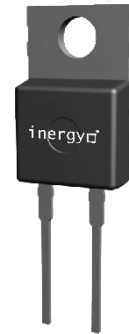
Silicon-Carbide Schottky Barrier Diode

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°C to 175°C
- Suitable for High Power/Temperature Application
- High Surge Current Ruggedness and High Reliability



1.2 Package Type

TO220A-2L

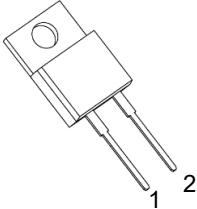
1.3 Quick Reference

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Limiting Values						
P_{tot}	Total Power Dissipation	$T_C = 25\text{ °C}$	-	-	120	W
I_F	Forward Current	$T_C = 25\text{ °C}$	-	-	30	A
		$T_C = 135\text{ °C}$	-	-	15	
		$T_C = 155\text{ °C}$	-	-	10	
Static Characteristics						
V_{RRM}	Peak Repetitive Reverse Voltage	$T_C = 25\text{ °C}$	650	-	-	V
V_F	Forward Voltage	$T_C = 25\text{ °C}, I_F = 10\text{ A}$	-	1.30	1.50	
		$T_C = 175\text{ °C}, I_F = 10\text{ A}$	-	1.55	1.80	

2. Ordering Code & Marking Information

Ordering Code	Marking Information
iS065C10CE	<div style="display: flex; align-items: center; justify-content: center;"> <div style="background-color: black; color: white; padding: 5px; margin-right: 10px;"> iS065C10C XXXXX </div> X : Date Code </div>

3. Pin Description

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

4. Limiting Values

Symbol	Parameter		Rating	Unit
V_{DC}	DC Reverse Voltage	$T_C = 25\text{ }^\circ\text{C}$	650	V
I_F	Continuous Forward Current	$T_C = 25\text{ }^\circ\text{C}$	30	A
		$T_C = 135\text{ }^\circ\text{C}$	15	
		$T_C = 155\text{ }^\circ\text{C}$	10	
I_{FRM}	Surge Repetitive Current	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ ms}$, half sine wave $D = 0.1$	54	A
I_{FSM}	Surge Non-Repetitive Current	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ ms}$, half sine pulse	80	
P_D	Total Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	120	W
T_{stg}	Storage Temperature		- 55 ~ 175	$^\circ\text{C}$
T_j	Operation Junction Temperature		- 55 ~ 175	
$R_{\theta JC}$	Thermal Resistance- Junction to Case		1.24	$^\circ\text{C} / \text{W}$

5. Electrical Characteristics ($T_C = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
V_{DC}	DC Blocking Voltage	$I_R = 100\text{ }\mu\text{A}$	650	-	-	V
V_F	Forward Voltage	$I_F = 10\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$	-	1.30	1.50	
		$I_F = 10\text{ A}$, $T_C = 175\text{ }^\circ\text{C}$	-	1.55	1.80	
I_R	Reverse Current	$V_R = 650\text{ V}$, $T_C = 25\text{ }^\circ\text{C}$	-	1	30	μA
		$V_R = 650\text{ V}$, $T_C = 175\text{ }^\circ\text{C}$	-	3	80	
Dynamic Characteristics						
C	Total Capacitance	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$	-	556	-	pF
		$V_R = 200\text{ V}$, $f = 1\text{ MHz}$	-	55	-	
		$V_R = 400\text{ V}$, $f = 1\text{ MHz}$	-	45	-	
Q_C	Total Capacitance Charge	$V_R = 400\text{ V}$	-	29	-	nC
E_C	Capacitance Stored Energy	$V_R = 400\text{ V}$	-	4.3	-	μJ

6. Typical Characteristics (cont.)

Fig 1. Power Capability

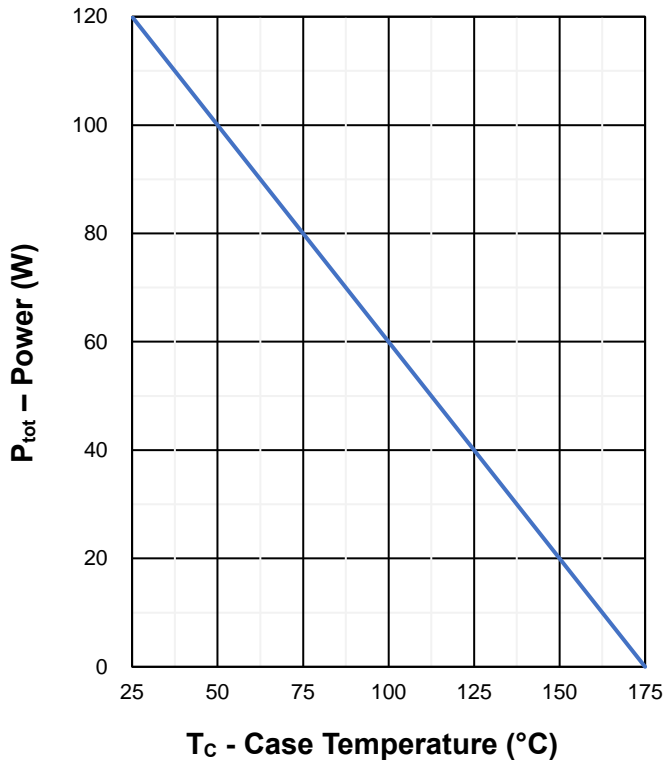


Fig 2. Current Capability

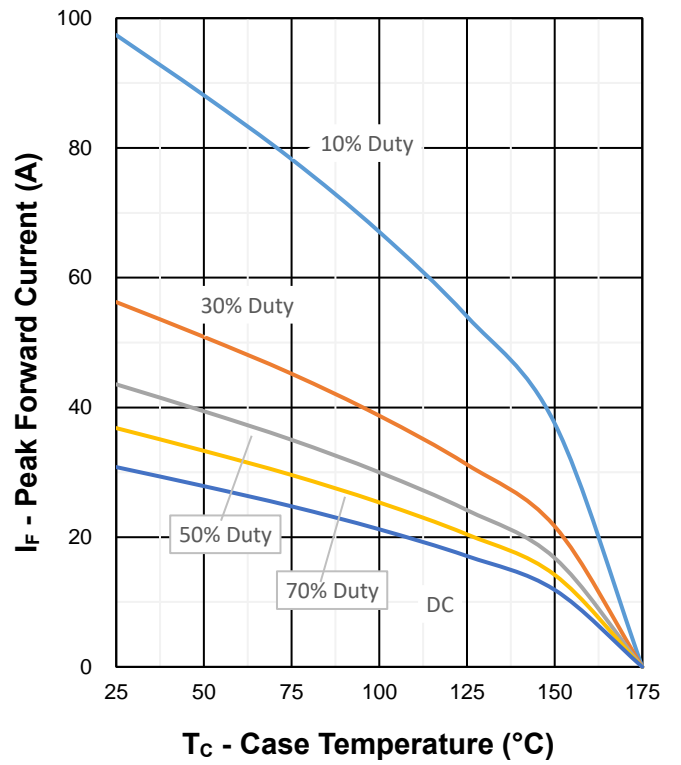


Fig 3. Forward Characteristics

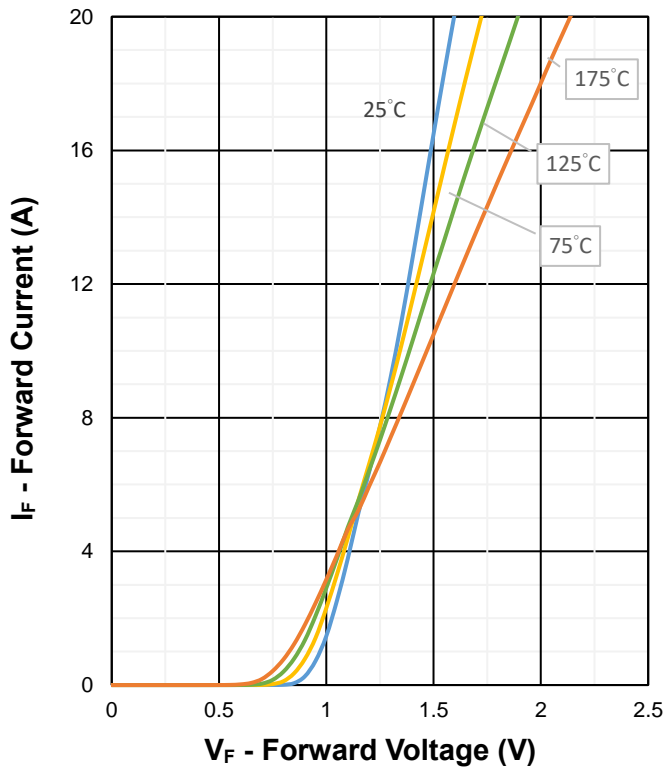
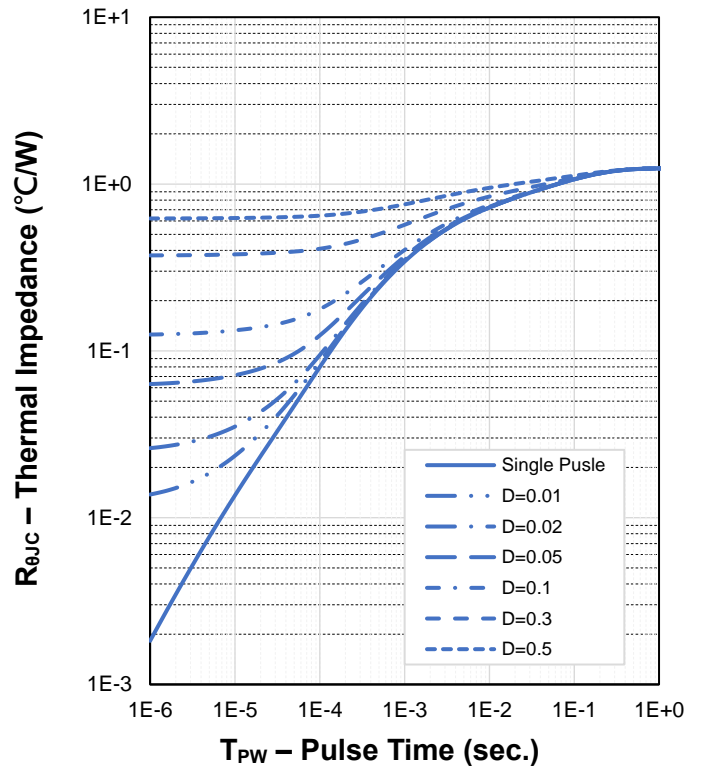


Fig 4. Transient Thermal Impedance



6. Typical Characteristics

Fig 5. Reverse Characteristics

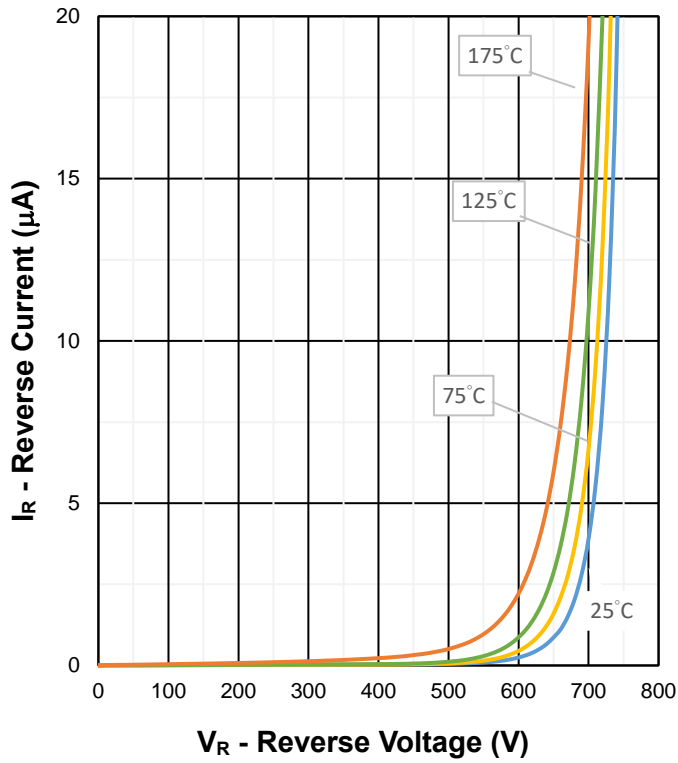


Fig 6. Capacitance vs. Reverse Voltage

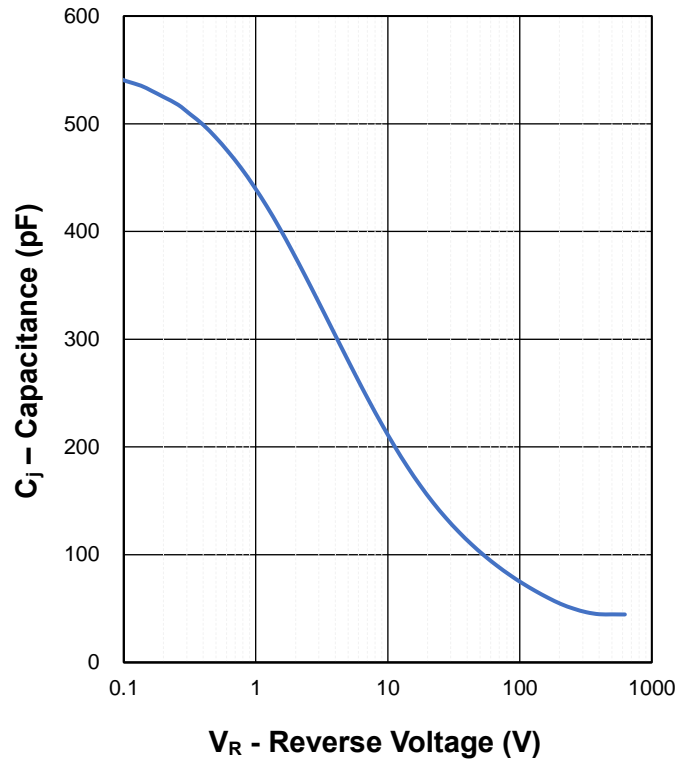


Fig 7. Capacitance Charge

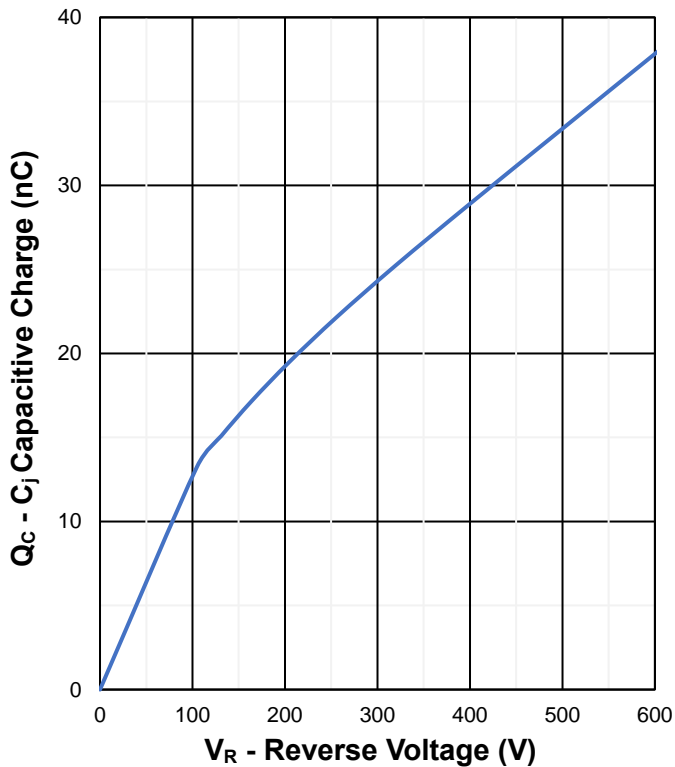
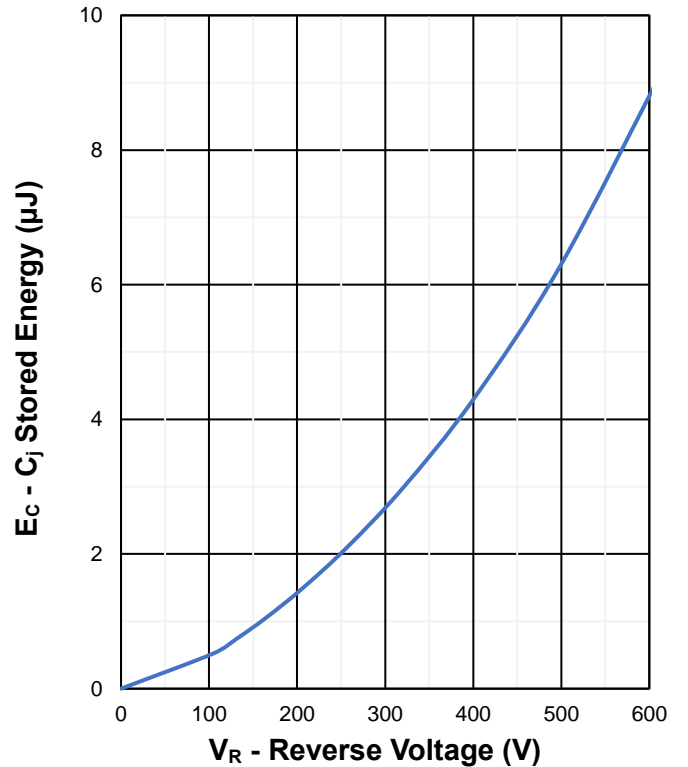


Fig 8. Capacitance Stored Energy



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