

# 650V SiC Schottky Diode

## FEATURES

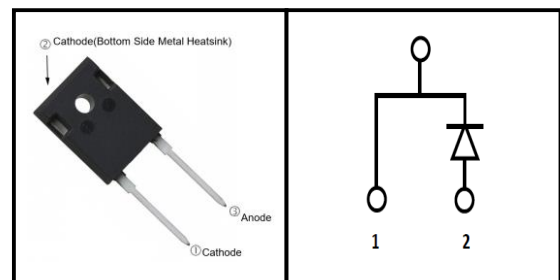
- Low Conduction and Switch Loss
- Positive Temperature Coefficient on VF
- Temperature Independent Switching Behavior
- Fast Reverse Recovery
- High Surge Current Capability
- Pb-free lead plating

## BENEFITS

- Higher System Efficiency
- Parallel Device Convenience
- High Temperature Application
- High Frequency Operation
- Hard Switching & High Reliability
- Environmental Protection

## APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- Solar/ Wind Renewable Energy
- Power Inverters
- Motor Drives

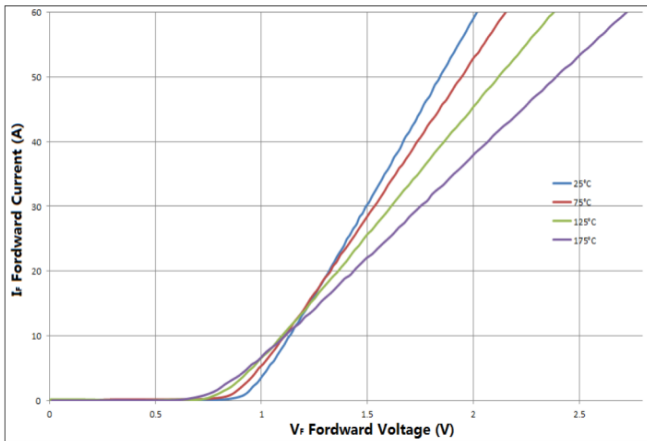
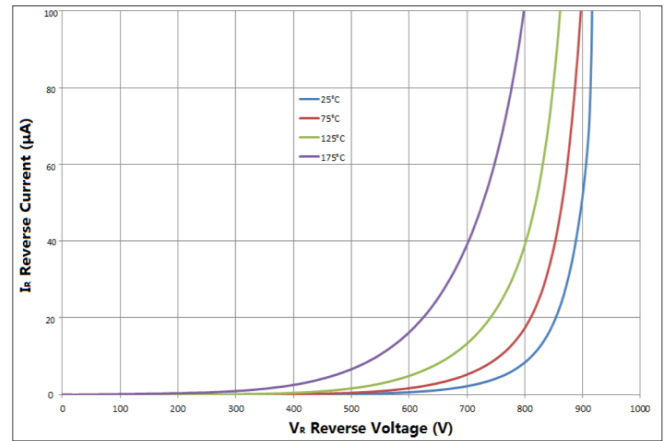
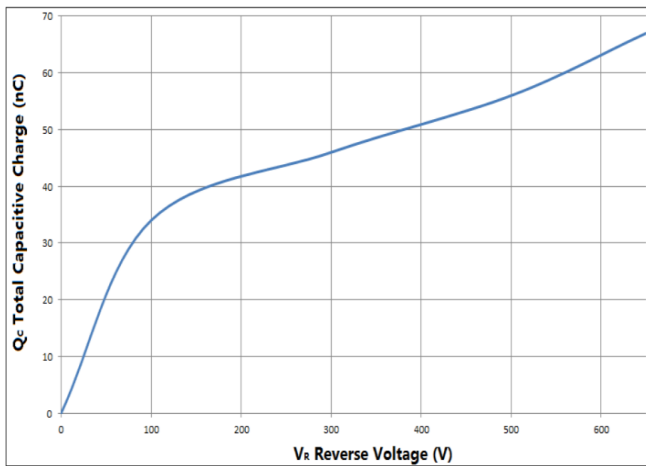
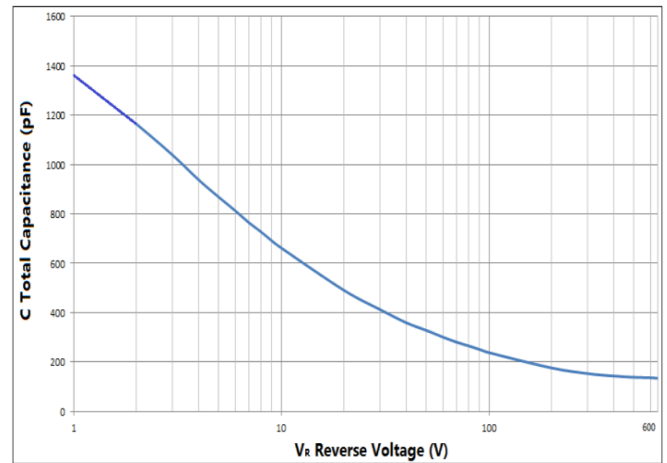
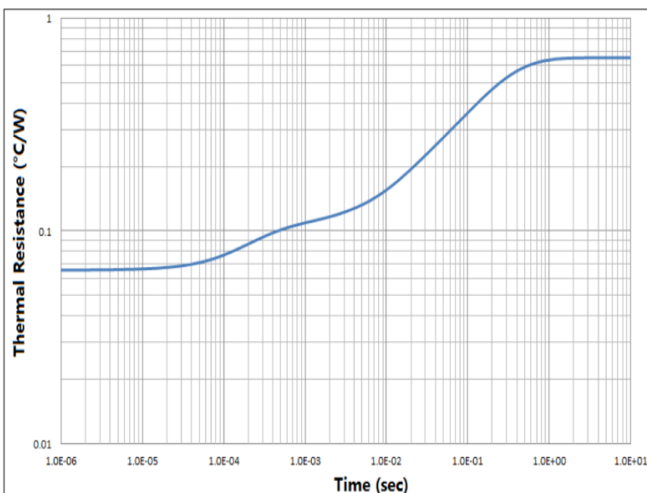


Device Marking and Package Information		
Device	Package	Marking
C2S065F030B	TO-247-2L	C2S065F030B

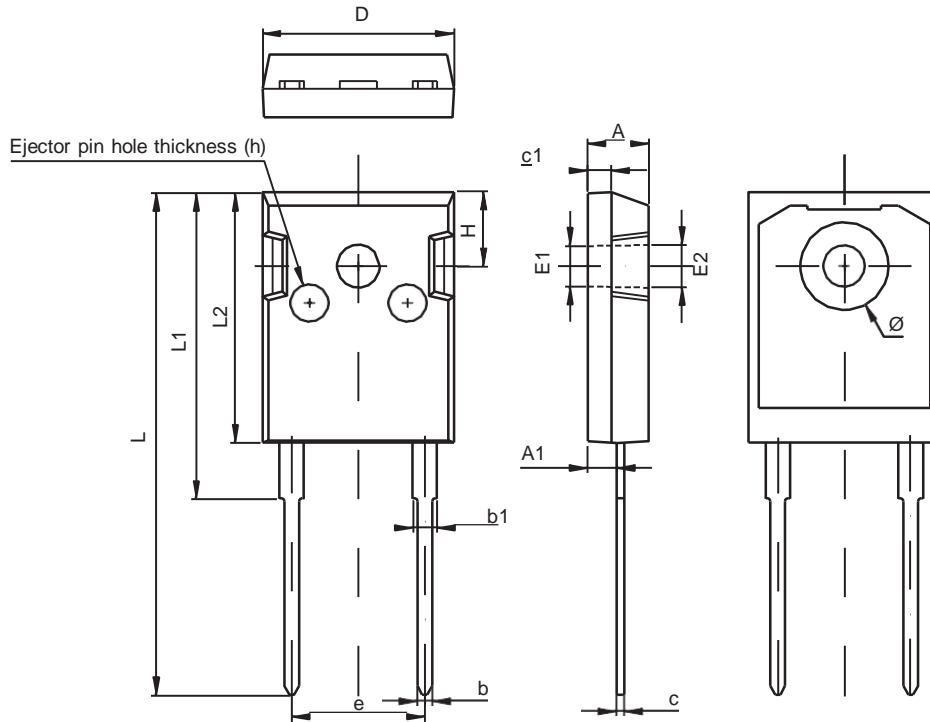
Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ , unless otherwise noted				
Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	$T_J = 25^\circ\text{C}$	650	V
Peak Reverse Surge Voltage	$V_{RSM}$	$T_J = 25^\circ\text{C}$	650	V
DC Blocking Voltage	$V_R$	$T_J = 25^\circ\text{C}$	650	V
Continuous Forward Current	$I_F$	$T_J \leq 135^\circ\text{C}$	30	A
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C = 25^\circ\text{C}$ , $T_P = 8.3\text{ms}$ Half Sine Wave	150	A
Maximum Case Temperature	$T_C$		135	$^\circ\text{C}$
Operating Junction and Storage Temperature	$T_J, T_{stg}$		-55~175	$^\circ\text{C}$

Thermal Resistance			
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{thJC}$	0.65	$^\circ\text{C/W}$

<b>Specifications</b> $T_J = 25^\circ\text{C}$ , unless otherwise noted					
Parameter	Symbol	Test Conditions	Value		Unit
			Typ.	Max.	
Forward Voltage	$V_F$	$I_F = 30\text{A}, T_J = 25^\circ\text{C}$	1.5	1.65	V
		$I_F = 30\text{A}, T_J = 175^\circ\text{C}$	1.77	2.3	V
Reverse Current	$I_R$	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	1.5	20	$\mu\text{A}$
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	15	100	$\mu\text{A}$
Total Capacitive Charge	$Q_C$	$I_F = 30\text{A}, di/dt = 200\text{A}/\mu\text{s}$ $V_R = 650\text{V}, T_J = 25^\circ\text{C}$	67	--	nC
Total Capacitance	C	$V_R = 0\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	1800	--	pF
		$V_R = 200\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	176	--	
		$V_R = 400\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	144	--	

**Typical Characteristics**  $T_J = 25^{\circ}\text{C}$ , unless otherwise noted

**Fig. 1 Forward Characteristics**

**Fig. 2 Reverse Characteristics**

**Fig. 3 Total Capacitance Charges.  
Reverse Voltage**

**Fig. 4 Total Capacitance vs. Reverse Voltage**

**Fig. 5 Transient Thermal Impedance**

# TO-247-2



## TO-247-2L DIMENSIONS

SYMBOL	DIMENSIONS IN MILLIMETERS		DIMENSIONS IN INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 Ref.		0.138 Ref.	
E2	3.600 Ref.		0.142 Ref.	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
$\varnothing$	7.100	7.300	0.280	0.287
e	10.900 Typ.		0.429 Typ.	
H	5.980 Typ.		0.235 Typ.	
h	0.000	0.300	0.000	0.012

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