

# 650V SiC Schottky Diode

## FEATURES

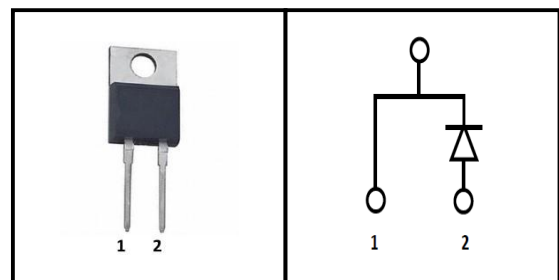
- Low Conduction and Switch Loss
- Positive Temperature Coefficient on VF
- Temperature Independent Switching Behavior
- Fast Reverse Recovery
- High Surge Current Capability
- Pb-free lead plating

## 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

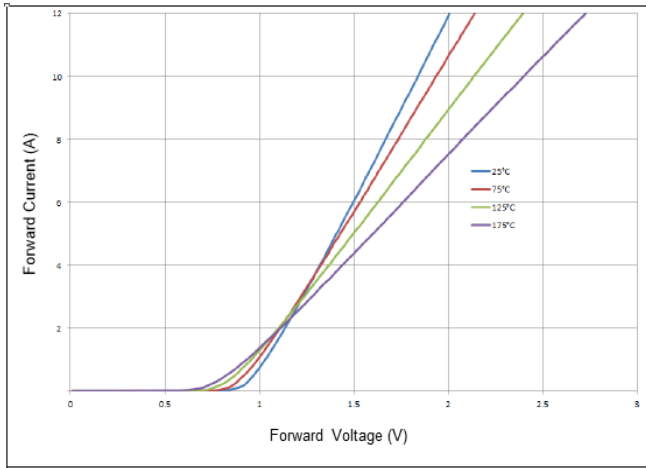
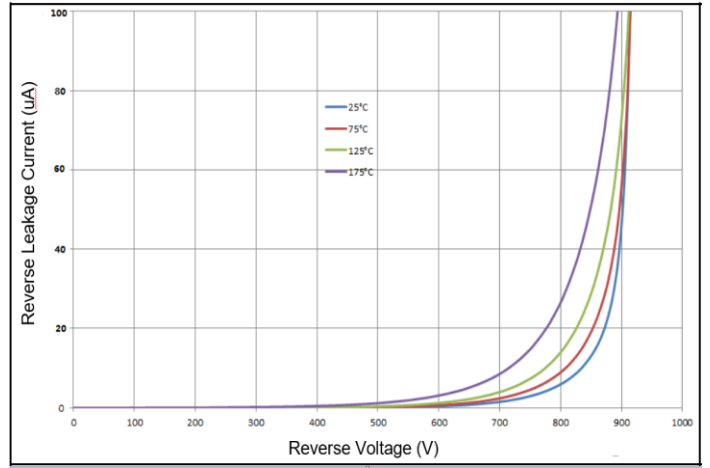
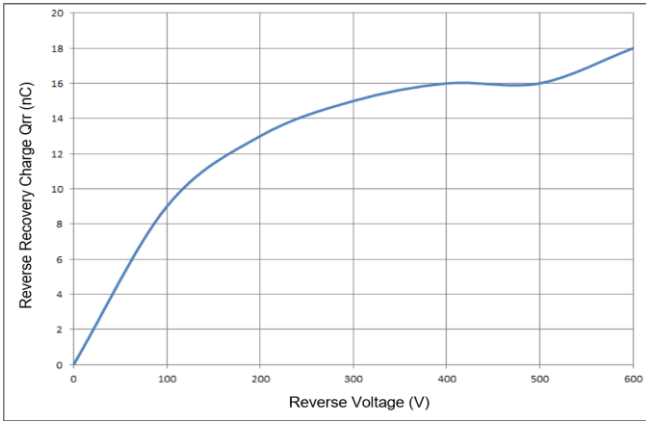
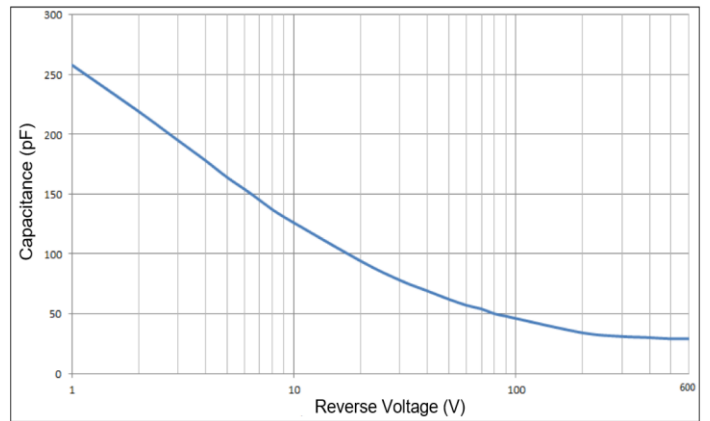
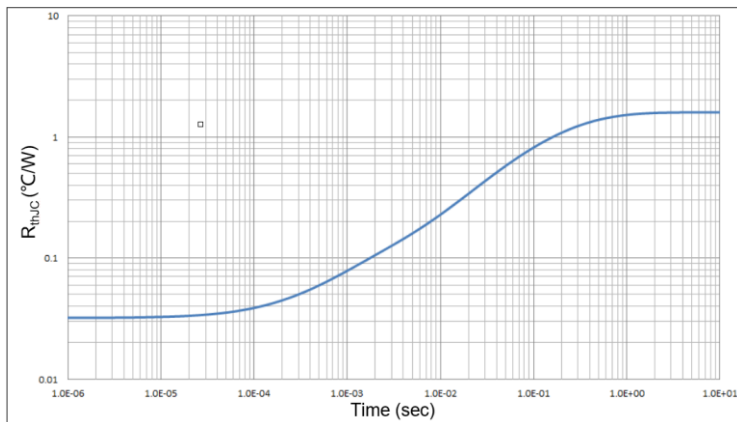


Device Marking and Package Information		
Device	Package	Marking
C2S065H006B	TO-220-2L	C2S065H006B

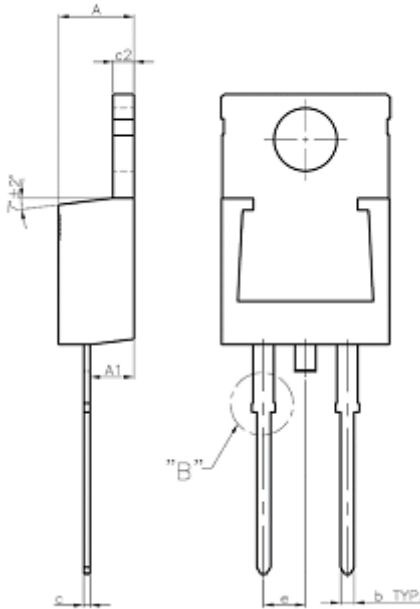
Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ , unless otherwise noted				
Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	$T_J = 25^\circ\text{C}$	650	V
Peak Reverse Surge Voltage	$V_{RSM}$	$T_J = 25^\circ\text{C}$	650	V
DC Blocking Voltage	$V_R$	$T_J = 25^\circ\text{C}$	650	V
Continuous Forward Current	$I_F$	$T_J \leq 135^\circ\text{C}$	6	A
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C = 25^\circ\text{C}$ , $T_P = 8.3\text{ms}$ Half Sine Wave	60	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	$R_{thJC}$	1.6	$^\circ\text{C}/\text{W}$

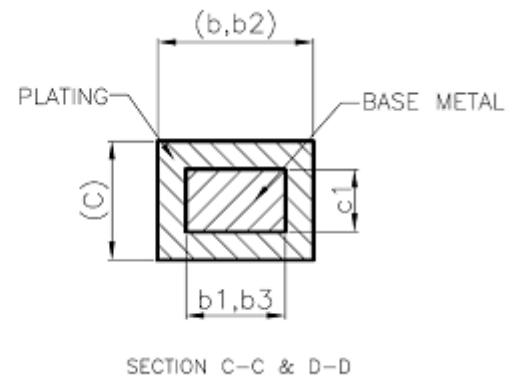
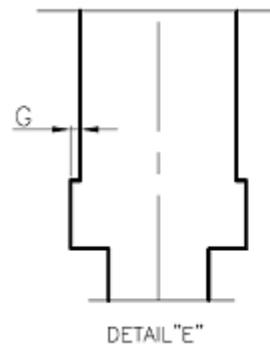
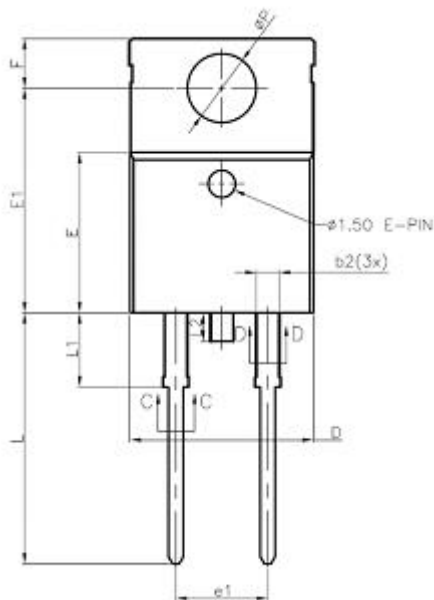
<b>Specifications</b> $T_J = 25^\circ\text{C}$ , unless otherwise noted					
Parameter	Symbol	Test Conditions	Value		Unit
			Typ.	Max.	
Forward Voltage	$V_F$	$I_F = 6\text{A}, T_J = 25^\circ\text{C}$	1.4	1.65	V
		$I_F = 6\text{A}, T_J = 175^\circ\text{C}$	1.75	2.3	V
Reverse Current	$I_R$	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	1	20	$\mu\text{A}$
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	5	100	$\mu\text{A}$
Total Capacitive Charge	$Q_C$	$I_F = 6\text{A}, di/dt = 200\text{A}/\mu\text{s}$ $V_R = 650\text{V}, T_J = 25^\circ\text{C}$	18	--	nC
Total Capacitance	C	$V_R = 0\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	300	--	pF
		$V_R = 200\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	34	--	
		$V_R = 400\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	18	--	


**Fig. 1 Forward Characteristics**

**Fig. 2 Reverse Characteristics**

**Fig. 3 Total Capacitance Charge vs. Reverse Voltage**

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

**Fig. 5 Thermal characteristic curve**

## TO-220-2L



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.470	—	4.670	0.176	—	0.184
A1	2.520	—	2.820	0.099	—	0.111
b	0.710	0.813	0.910	0.028	0.032	0.036
b1	0.710	—	0.910	0.028	—	0.036
b2	1.170	1.270	1.370	0.046	0.050	0.054
b3	1.170	—	1.370	0.046	—	0.054
c	0.279	—	0.483	0.011	—	0.019
c1	0.279	—	0.432	0.011	—	0.017
c2	1.170	—	1.370	0.046	—	0.054
D	10.010	—	10.310	0.394	—	0.406
E	8.763	8.890	9.017	0.345	0.350	0.355
E1	12.294	12.446	12.548	0.484	0.490	0.494
e	—	2.54 BSC	—	—	0.100 BSC	—
e1	4.980	—	5.180	0.196	—	0.204
F	2.642	2.743	2.946	0.104	0.108	0.116
G	0.000	—	0.127	0.000	—	0.005
L	13.700	—	14.10	0.539	—	0.555
L1	4.04	4.11	4.19	0.159	0.162	0.165
L2	—	—	1.60	—	—	0.063
#P	3.790	—	3.890	0.149	—	0.153



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