

1200V SiC Schottky Diode

FEATURES

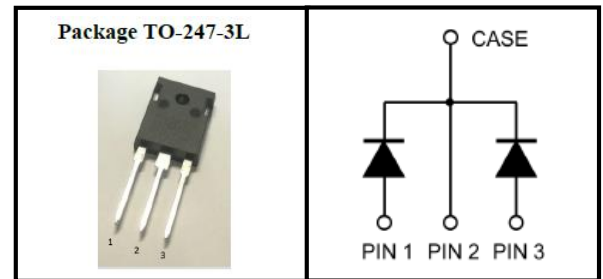
- Low Conduction and Switching Loss
- Positive Temperature Coefficient on VF
- Temperature Independent Switching Behavior
- Fast Reverse Recovery
- High Surge Current Capability
- Pb-free lead plating

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
C2S120E040B	TO-247-3L	C2S120E040B

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	$T_J = 25^\circ\text{C}$	1200	V
Peak Reverse Surge Voltage	V_{RSM}	$T_J = 25^\circ\text{C}$	1200	V
DC Blocking Voltage	V_R	$T_J = 25^\circ\text{C}$	1200	V
Continuous Forward Current	I_F	$T_J \leq 135^\circ\text{C}$	20*	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}	0.62	$^\circ\text{C}/\text{W}$

*Per Leg

Specifications $T_J = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Value		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$	1.53	1.7	V
		$I_F = 20\text{A}, T_J = 175^\circ\text{C}$	2.2	2.5	V
Reverse Current	I_R	$V_R = 1200\text{V}, T_J = 25^\circ\text{C}$	2	20	μA
		$V_R = 1200\text{V}, T_J = 175^\circ\text{C}$	20	100	μA
Total Capacitive Charge	Q_C	$I_F = 20\text{A}, di/dt = 200\text{A}/\mu\text{s}$ $V_R = 1200\text{V}, T_J = 25^\circ\text{C}$	70	--	nC
Total Capacitance	C	$V_R = 0\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	1260	--	pF
		$V_R = 400\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	80	--	
		$V_R = 800\text{V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	73	--	

Device Performances

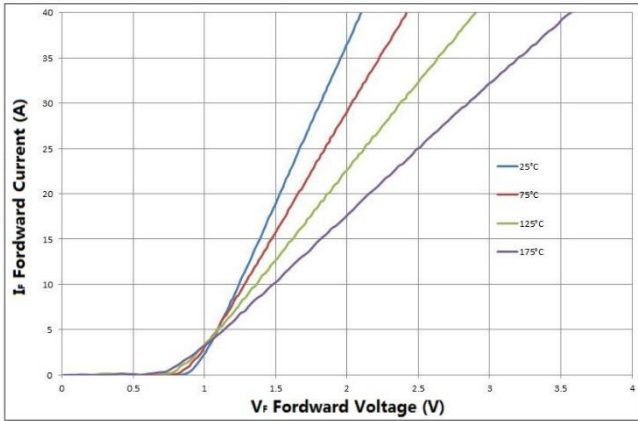


Fig. 1 Forward Characteristics

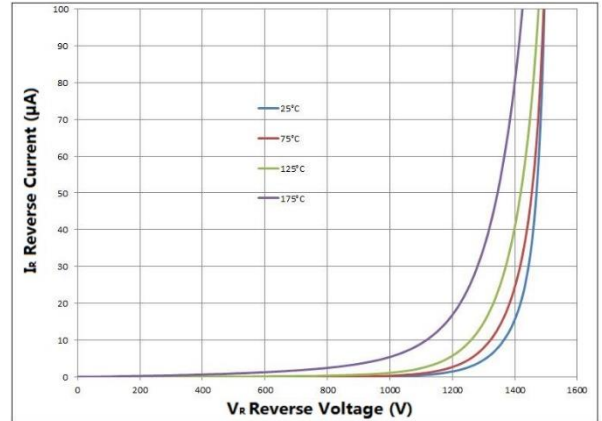


Fig. 2 Reverse Characteristics

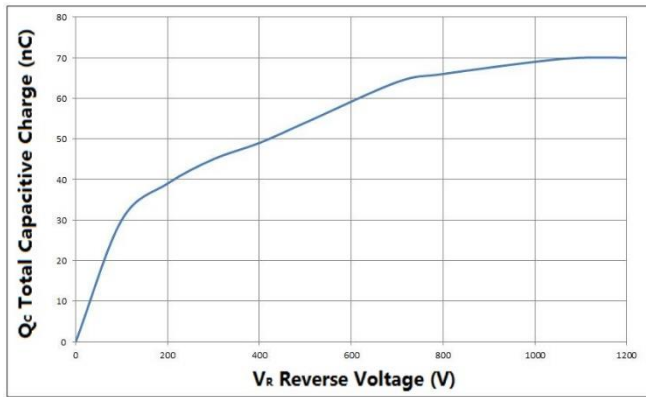


Fig. 3 Total Capacitance Charge vs. Reverse Voltage

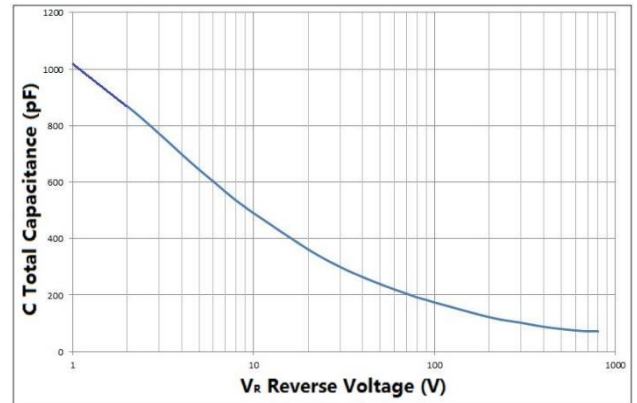


Fig. 4 Total Capacitance vs. Reverse Voltage

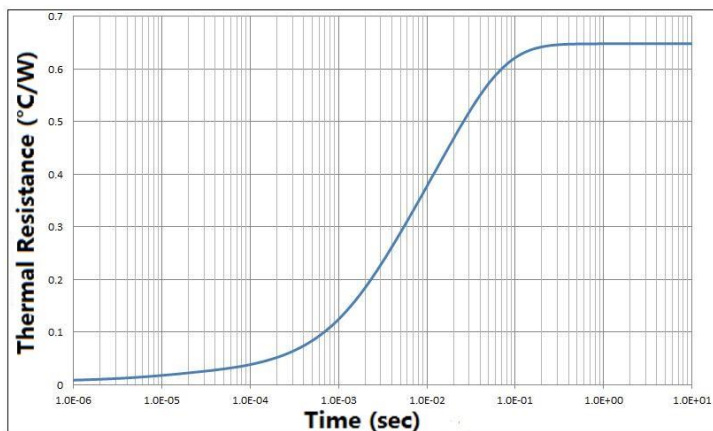
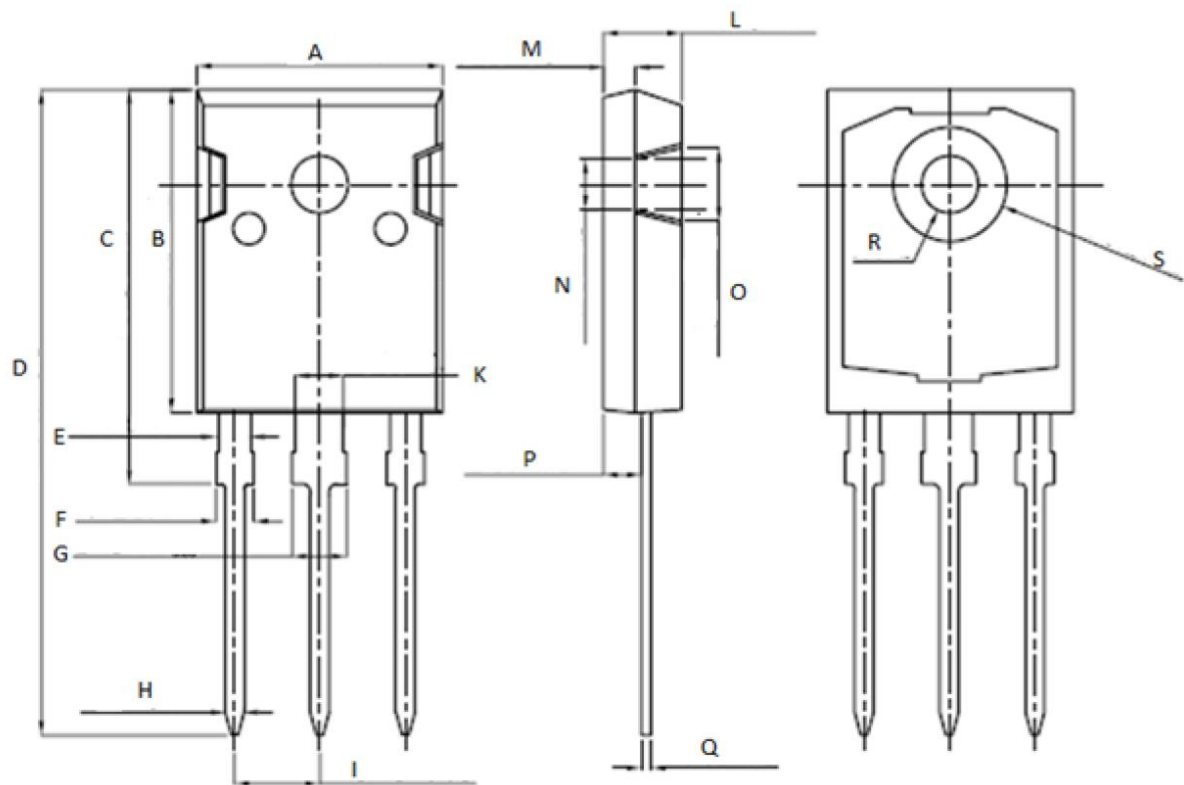


Fig. 5 Transient Thermal Impedance

TO-247



Unit: mm		
Symbol	Min.	Max.
A	15.95	16.25
B	20.85	21.25
C	20.95	21.35
D	40.5	40.9
E	1.9	2.1
F	2.1	2.25
G	3.1	3.25
H	1.1	1.3
I	5.40	5.50

Unit: mm		
Symbol	Min.	Max.
K	2.90	3.10
L	4.90	5.30
M	1.90	2.10
N	4.50	4.70
O	5.40	5.60
P	2.29	2.49
Q	0.51	0.71
R	φ 3.5	φ 3.7
S	φ 7.1	φ 7.3

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