

1200V SiC Schottky Diode

Features

- Zero Forward Recovery Voltage
- Zero Reverse Recovery Current
- Excellent Surge Current Capability
- Temperature Independent Switching
- Positive Temperature Coefficient on V_F
- High Frequency Operation

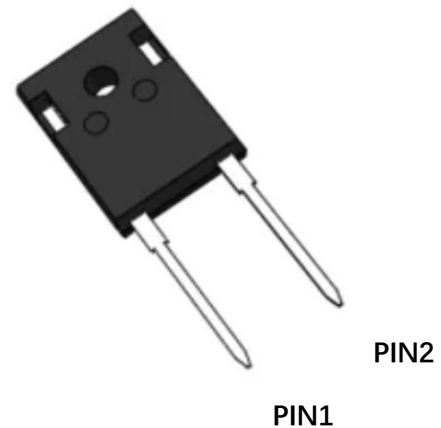
Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- High Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Application

- Parallel Devices Without Thermal Runaway
- Power Factor Correction
- DC-AC Inverters
- DC-DC Inverters

Parameter	Value	Unit
V_{RRM}	1200	V
I_F ($T_C=145^\circ\text{C}$)	60	A
Q_C	306	nC



TO247-2L



Maximum ratings at $T_j=25^{\circ}\text{C}$, Unless otherwise specified

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		1200	V
Forward Current	I_F	$T_C=25^{\circ}\text{C}$ $T_C=145^{\circ}\text{C}$	155 60	A
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	450	A
Power Dissipation	P_{tot}	$T_C=25^{\circ}\text{C}$, $T_j=175^{\circ}\text{C}$	535	W
Operating and Storage Temperature	T_j , T_{stg}		-55 to +175	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Thermal Resistance from Junction to Case	$R_{th(j-c)}$	-	0.28	-	$^{\circ}\text{C/W}$

Electrical Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
DC Blocking Voltage	V_{DC}	$T_j=25^{\circ}\text{C}$, $I_D=500\mu\text{A}$	1200			V
Forward Voltage	V_F	$I_F=60\text{A}$, $T_j=25^{\circ}\text{C}$		1.45	1.61	V
		$I_F=60\text{A}$, $T_j=175^{\circ}\text{C}$		1.88		V
Reverse Current	I_R	$V_R=1200\text{V}$, $T_j=25^{\circ}\text{C}$			150	μA
		$V_R=1200\text{V}$, $T_j=175^{\circ}\text{C}$			400	μA
Total Capacitive Charge	Q_C	$V_R=1000\text{V}$, $T_j=25^{\circ}\text{C}$		306		nC
Total Capacitance	C	$T_j=25^{\circ}\text{C}$				
		$V_R=1\text{V}$, $f=1\text{MHz}$		4960		pF
		$V_R=400\text{V}$, $f=1\text{MHz}$		240		
		$V_R=800\text{V}$, $f=1\text{MHz}$		174		

Typical Performance

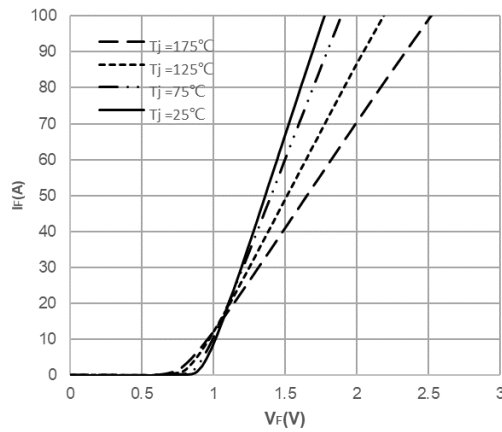


Fig1. Forward Characteristics

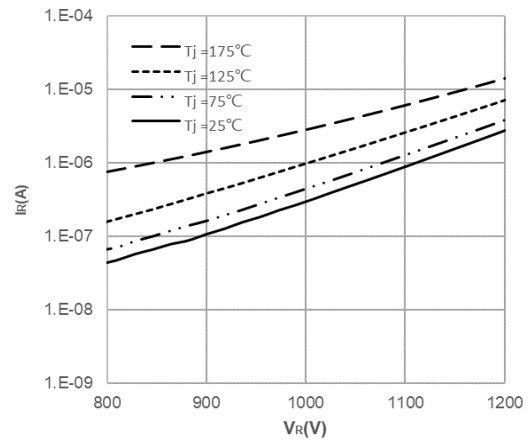


Fig2. Reverse Characteristics

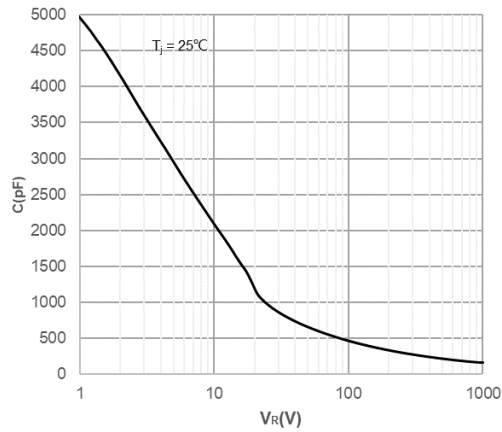


Fig3. Capacitance vs. Reverse Voltage

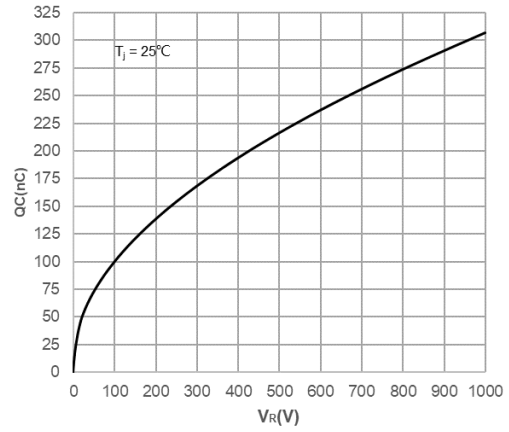
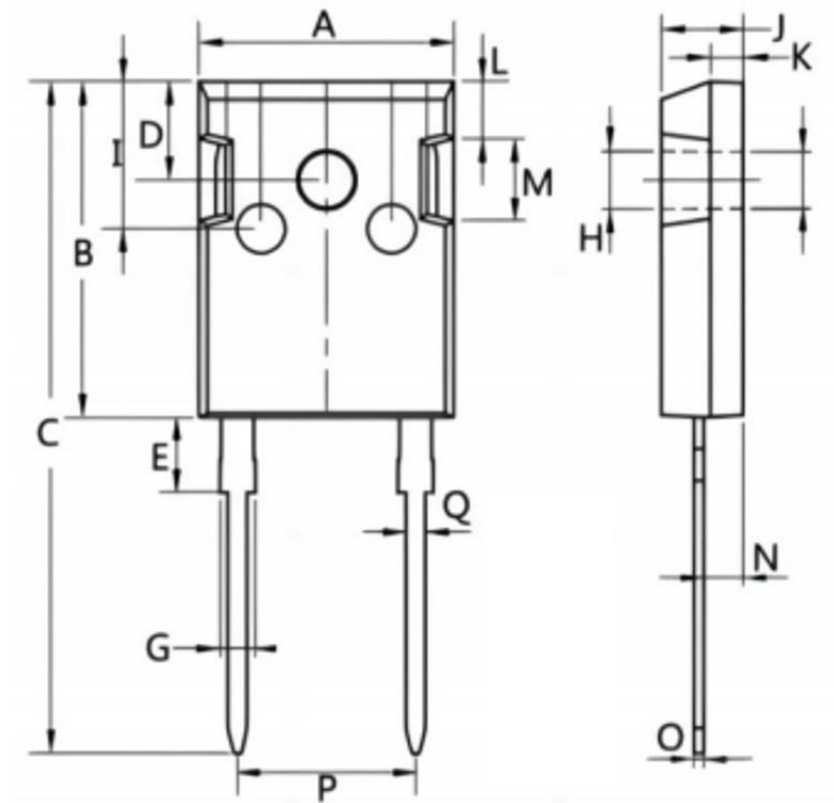


Fig4. Recovery Charge vs. Reverse Voltage

TO-247-2L Package Dimensions



Dim.	Min.	Max.
A	15.51	15.71
B	20.40	20.50
C	40.5	42
D	5.80	6.15
E	4.25	4.40
G	2.05	2.15
H	3.62	4.59
I	8.15	8.60
J	4.95	5.05
K	1.96	1.99
L	3.65	3.8
M	4.50	5.05
N	2.30	2.85
O	0.59	0.61
P	Typ 10.8	
All Dimensions in millimeter		