

Silicon Carbide Schottky Diode Chip

V_{RRM}	=	1200	V
$I_{F(AVG)}$	=	50	A
Q_C	=	143	nC

Features

- 1200-Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- Positive Temperature Coefficient on V_F
- Temperature-Independent Switching Behavior

Chip Outline



Part Number	Die Size	Anode	Cathode
H3D50120L	6.13×3.98 mm ²	Al	Ni/Ag

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{DC}	DC Blocking Voltage	1200	V		
$I_{F(AVG)}$	Average Forward Current	50	A	$T_C \leq 135^\circ\text{C}$	1
I_{FSM}	Non-Repetitive Forward Surge Current	350	A	$T_C = 25^\circ\text{C}$, $t_p = 8.3\text{ms}$, Half Sine Wave	1
T_J	Operating Junction Temperature	-55 to 175	$^\circ\text{C}$		
1. Assumes Thermal Resistance of 0.3 $^\circ\text{C}/\text{W}$ or less					

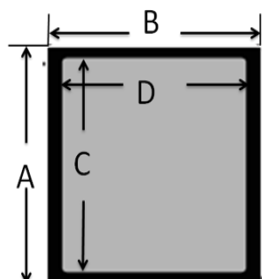
Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.6 2.25	1.8 2.7	V	$I_F = 50A$, $T_J = 25^\circ C$ $I_F = 50A$, $T_J = 175^\circ C$	Fig.1
I_R	Reverse Current	30 100	150 1000	μA	$V_R = 1200V$, $T_J = 25^\circ C$ $V_R = 1200V$, $T_J = 175^\circ C$	Fig.2
C	Total Capacitance	3100 220 180	/	pF	$V_R = 0V$, $T_J = 25^\circ C$, $f = 1MHz$ $V_R = 400V$, $T_J = 25^\circ C$, $f = 1MHz$ $V_R = 800V$, $T_J = 25^\circ C$, $f = 1MHz$	Fig.3
Q_C	Total Capacitive Charge	143	/	nC	$V_R = 800V$, $I_F = 50A$ $di/dt = 200A/\mu s$, $T_J = 25^\circ C$	Fig.4

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	6.13×3.98	mm ²
Anode Pad Opening	5.4×3.2	mm ²
Thickness	350±50	μm
Wafer Size	100	mm
Anode Metallization (Al)	4	μm
Cathode Metallization (Ni/Ag)	1.6	μm
Frontside Passivation	Polyimide	

Chip Dimensions



Symbol	Dimension
A	6.13mm
B	3.98mm
C	5.4mm
D	3.2mm

Typical Performance

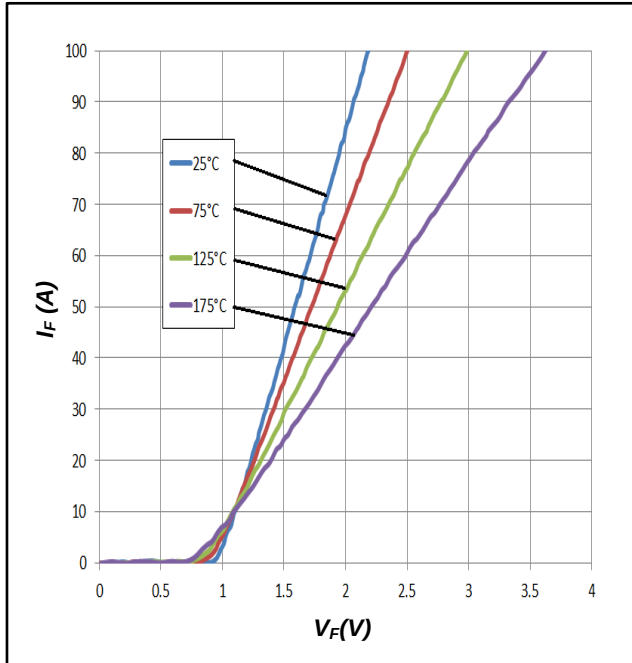


Figure 1. Forward Characteristics

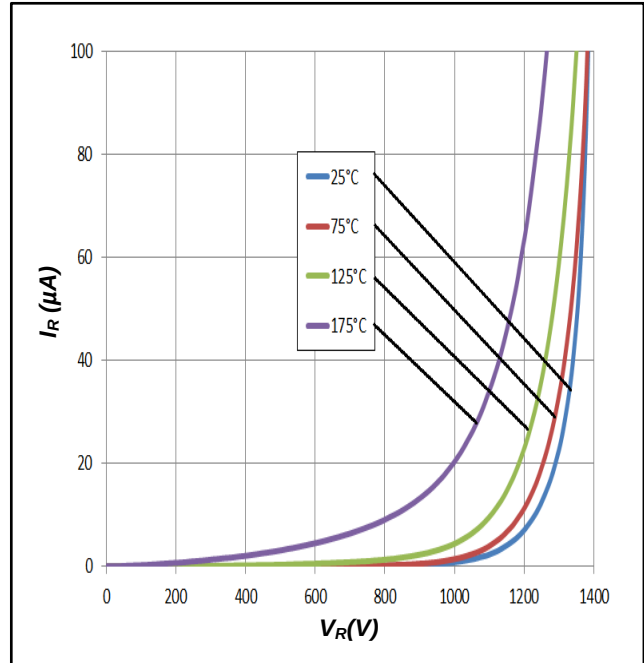


Figure 2. Reverse Characteristics

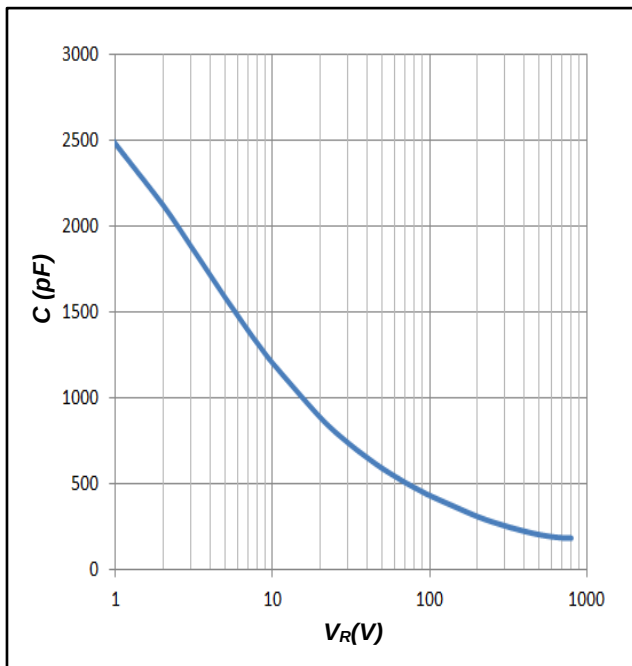


Figure 3. Total Capacitance vs. Reverse Voltage

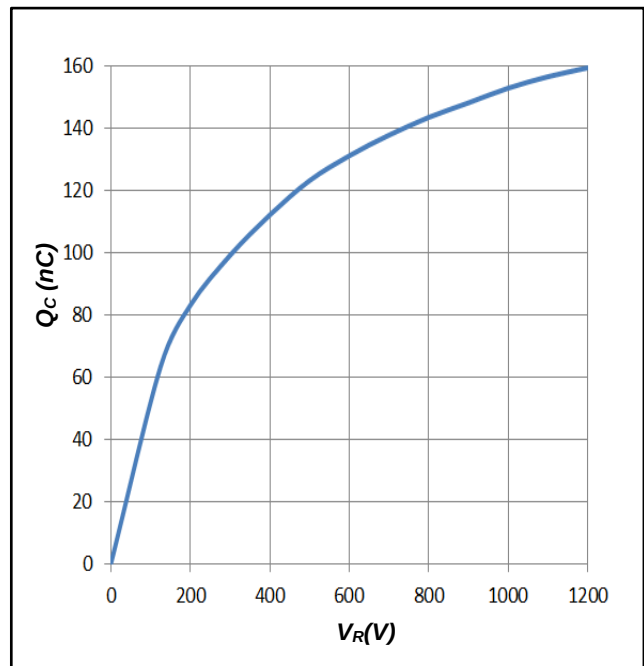


Figure 4. Total Capacitance Charge vs. Reverse Voltage