

SCH40120DN

40A, 1200V SiC Schottky Barrier Diode

Features

- Low Forward Voltage Drop: $V_F=1.6V$ (typical @ $I_F=20A$)
- Reverse Voltage: $V_{RRM}=1200V$
- Avalanche Energy Rated
- High Surge Capability
- Low Power Loss and High Efficiency
- Silicon Carbide Substrate

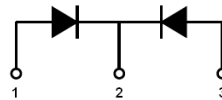
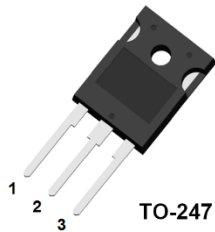
Applications

- Switching Power Supply
- Solar Inverter
- Power Factor Correction
- Uninterruptible Power Supply

Description

The SCH40120DN is a SiC schottky barrier diode. It is base on silicon carbide material, and its switching behavior is independent with temperature. The device has superfast recovery property and lower forward voltage drop, it can be used in switching power supply, solar inverter, PFC and UPS.

Package Type & internal Circuit



1. Anode 2.Cathode 3.Anode

Absolute Maximum Ratings per diode at $T_C=25^{\circ}C$ unless otherwise noted

Symbol	Parameter		Ratings	Unit
V_{RRM}	Peak Repetitive Reverse Voltage		1200	V
V_{RWM}	Working Peak Reverse Voltage		1200	V
V_R	DC Blocking Voltage		1200	V
$I_{F(AV)}$	Average Rectified Forward Current	per diode at $T_C=125^{\circ}C$	20	A
I_{FSM}	Non-repetitive Peak Surge Current	$t_p=10ms$, half sine wave	120	A
		$t_p=200us$, square wave	480	A
P_D	Power Dissipation		240	W
T_J	Operating Junction Temperature Range		-55~+175	$^{\circ}C$
T_{STG}	Storage Temperature Range		-55~+175	$^{\circ}C$

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th(J-C)}$	Thermal Resistance, Junction to case	0.62	$^{\circ}C/W$

Electrical Characteristics per diode at $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage Drop	$I_F=20\text{A}$	-	1.6	1.90	V
		$I_F=20\text{A}, T_C=125^\circ\text{C}$	-	-	2.5	V
I_R	Reverse Leakage Current	$V_R=1200\text{V}$	-	-	200	μA
C	Total Capacitance	$V_R=0\text{V}, f=1\text{MHz}$	-	1350	-	pF
		$V_R=400\text{V}, f=1\text{MHz}$	-	95	-	
		$V_R=800\text{V}, f=1\text{MHz}$	-	78	-	
Q_C	Total Capacitive Charge	$V_R=800\text{V}, I_F=20\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	60	-	nC

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

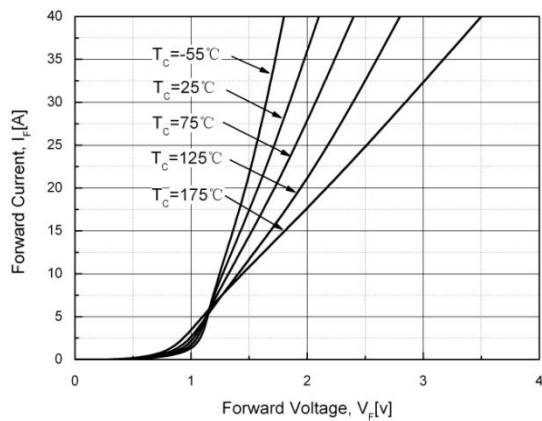


Fig. 2. Typical Characteristics: V_R vs. I_R

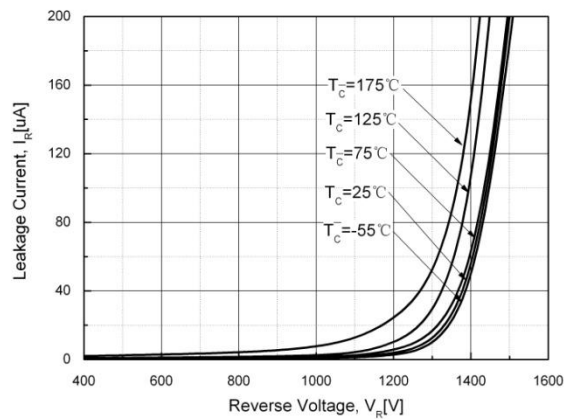


Fig. 3. Typical Characteristics: V_R vs. Q_C

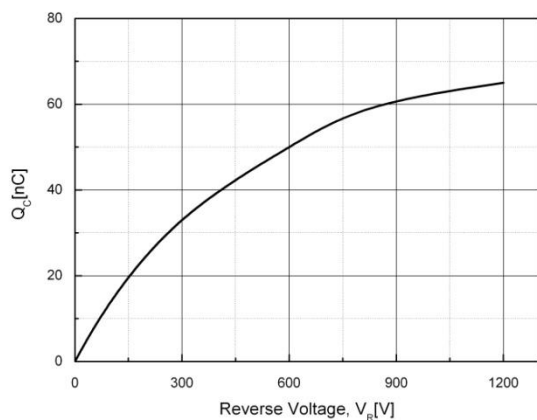
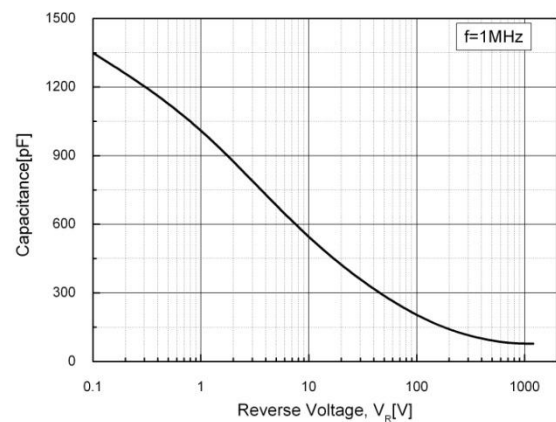


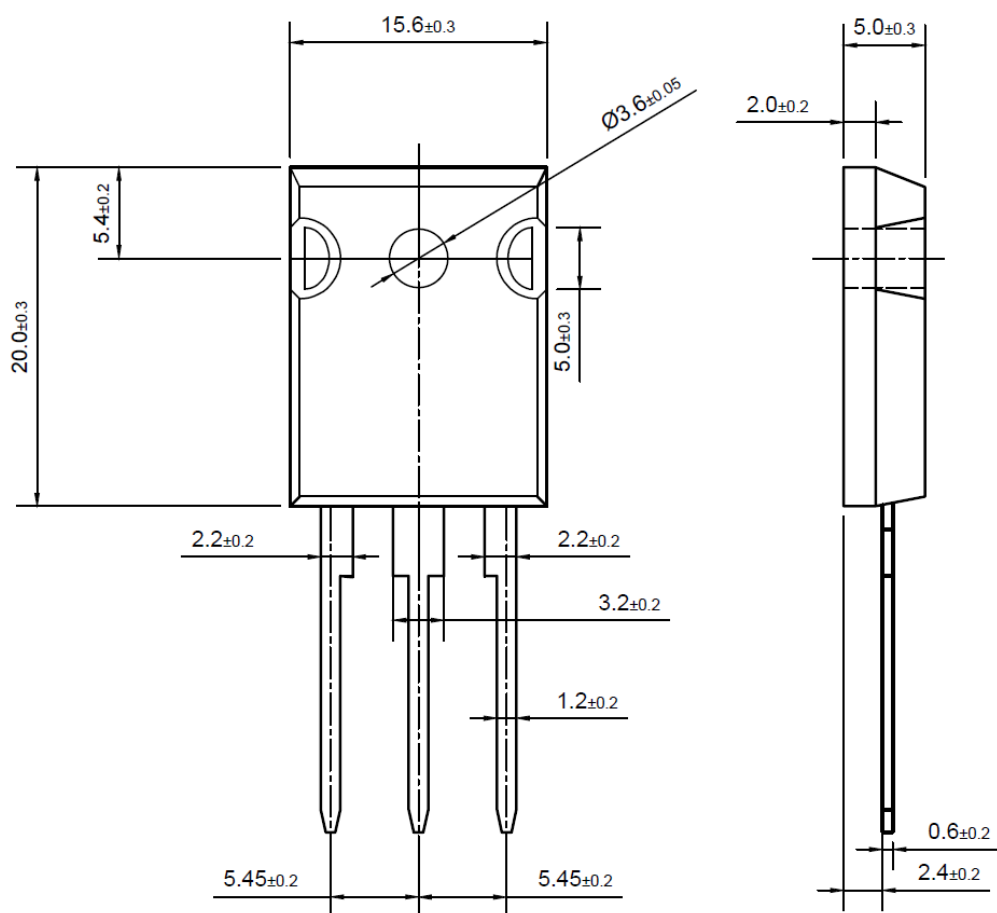
Fig. 4. Typical Characteristics: V_R vs. Capacitance



Package Dimensions

TO-247

(Dimensions in Millimeters)



DISCLAIMER:

The products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any product can reasonably be expected to result in a personal injury. Seller's customers using or selling seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.

Sunnychip reserves the right to change the specifications and circuitry without notice at any time. Sunnychip does not consider responsibility for use of any circuitry other than circuitry entirely included in a Sunnychip product.  is a registered trademark of Sunnychip Semiconductor Co., Ltd.