

40A, 1200V SiC Schottky Barrier Diode

Description

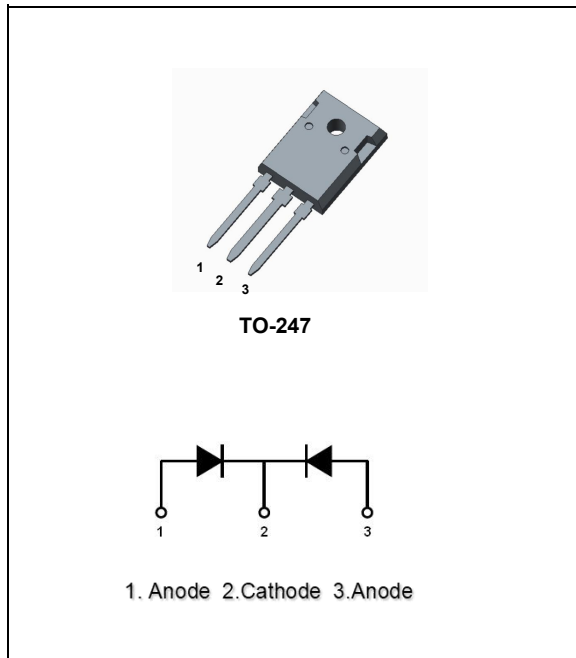
The AKCH40120DN4 is a SiC schottky barrier diode. It is based on silicon carbide material, and its switching behavior is independent with temperature. The device has superfast recovery property and lower forward voltage drop, it can be used in switching power supply, solar inverter, PFC and UPS.

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



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		230	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	0.65	$^\circ C/W$

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

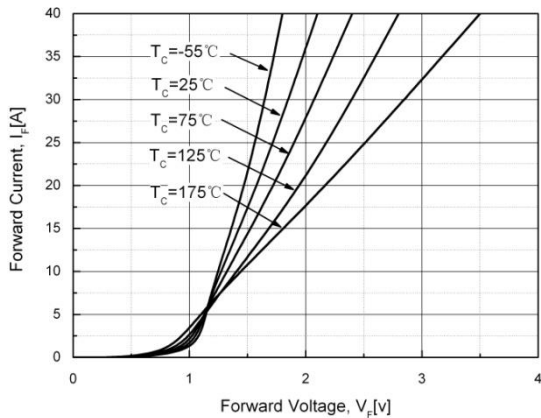


Fig. 2. Typical Characteristics: V_R vs. I_R

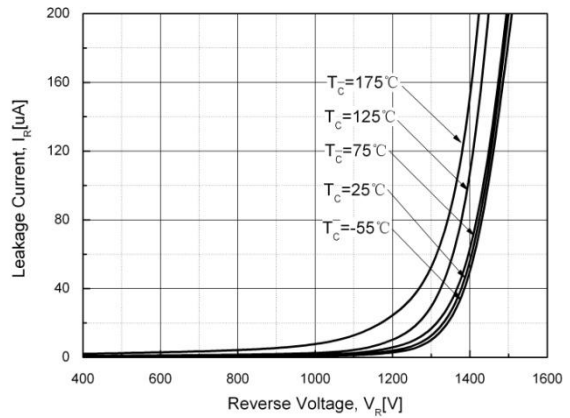


Fig. 3. Typical Characteristics: V_R vs. Q_C

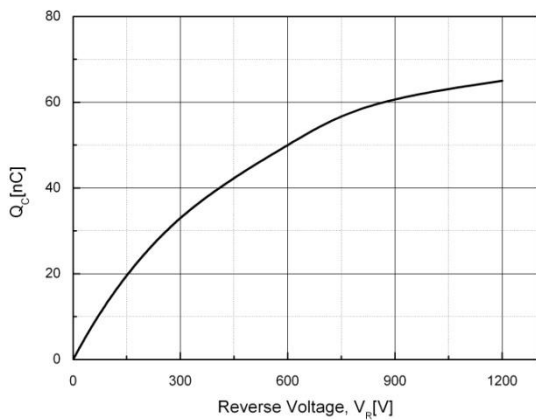
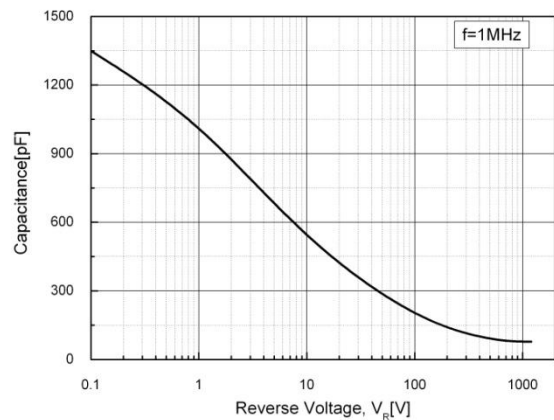


Fig. 4. Typical Characteristics: V_R vs. Capacitance



Package Dimensions

TO-247

(Dimensions in Millimeters)

