

6A, 1200V SiC Schottky Barrier Diode

Description

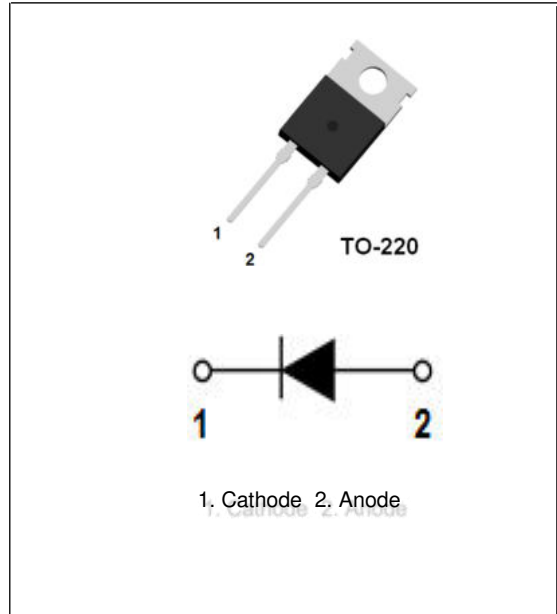
The AKC6120ST is a SiC Schottky Barrier Diode. It is based on silicon carbide material, and its switching behavior is independent of temperature. The device has superfast recovery properties and a lower forward voltage drop, so it can be used in switching power supplies, solar inverters, PFC, and UPS.

Features

- Low Forward Voltage Drop: $V_f=1.55V$ (typical @ $I_f=6A$)
- 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 $T_c=125^\circ C$	6	A
I_{FSM}	Non-repetitive Peak Surge Current	$t_p=10ms$, half sine wave	36	A
		$t_p=200\mu s$, square wave	144	A
P_D	Power Dissipation		140	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	1.07	$^\circ C/W$

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	$I_F=6\text{A}$	-	1.55	1.80	V
		$I_F=6\text{A}, T_C=125^\circ\text{C}$	-	-	2.55	V
I_R	Reverse Leakage Current	$V_R=1200\text{V}$	-	-	200	μA
C	Total Capacitance	$V_R=0\text{V}, f=1\text{MHz}$	-	390	-	pF
		$V_R=400\text{V}, f=1\text{MHz}$	-	28	-	
		$V_R=800\text{V}, f=1\text{MHz}$	-	22	-	
Q_C	Total Capacitive Charge	$V_R=800\text{V}, I_F=6\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	19	-	nC

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

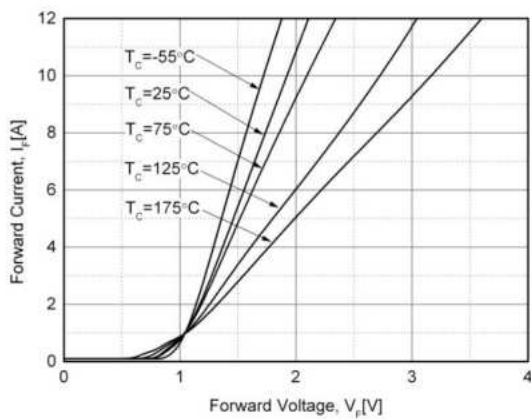


Fig. 2. Typical Characteristics: V_R vs. I_R

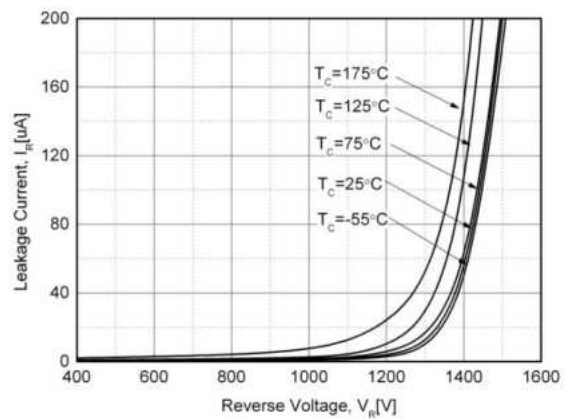


Fig. 3. Typical Characteristics: V_R vs. Q_C

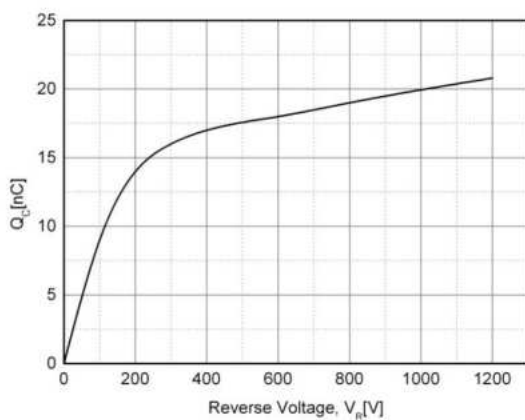
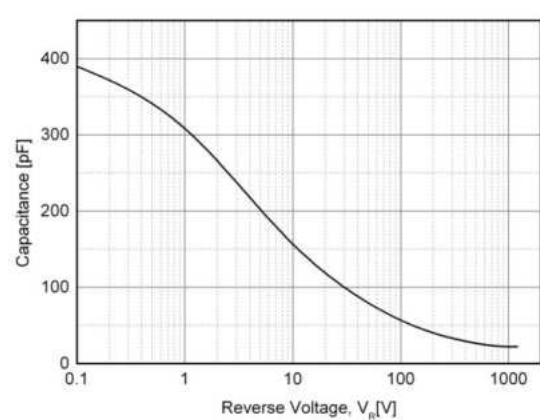


Fig. 4. Typical Characteristics: V_R vs. Capacitance



Package Dimensions

TO-220-2L

(Dimensions in Millimeters)

