



SiC10A120T

SILICON CARBIDE SCHOTTKY DIODE

Voltage 1200 V **Current** 10 A

Features

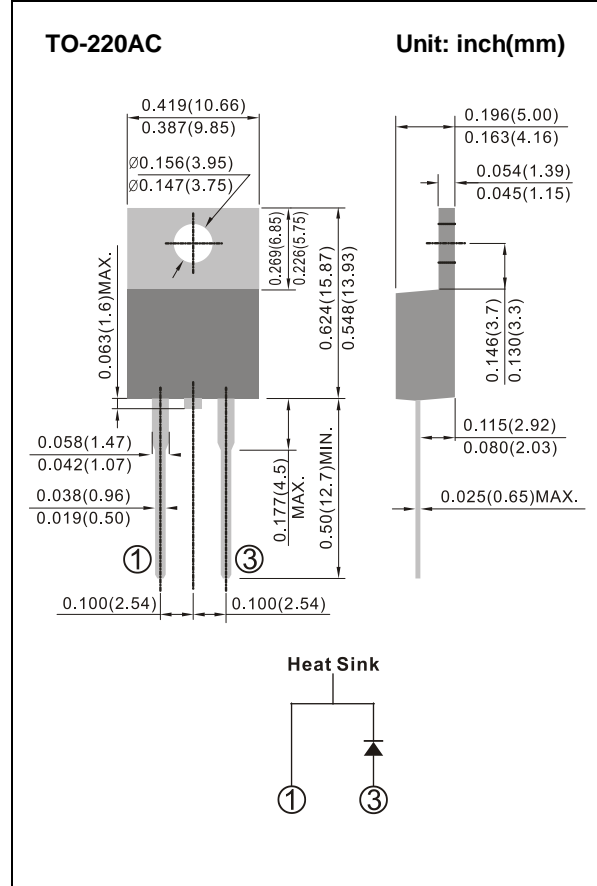
- Temperature Independent Switching Behavior
- Low Conduction and Switching Loss
- High Surge Current Capability
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery

Mechanical Data

- Case: Molded plastic, TO-220AC
- Marking: 10A120T

Benefits

- High Frequency Operation
- Higher System Efficiency
- Environmental Protection
- Parallel Device Convenience
- Hard Switching & High Reliability
- High Temperature Application



Maximum Ratings

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNITS
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	$T_J=25^\circ\text{C}$	1200	V
Maximum RMS Voltage	V_{RSM}	$T_J=25^\circ\text{C}$	1200	V
Maximum DC Blocking Voltage	V_R	$T_J=25^\circ\text{C}$	1200	V
Continuous Forward Current	$I_{F(AV)}$	$T_C=25^\circ\text{C}$	27.5	A
		$T_C=125^\circ\text{C}$	15	A
		$T_C=150^\circ\text{C}$	10	A
Repetitive Peak Forward Surge Current ($T_P=10\text{ms}$, Half Sine Wave, $D=0.1$)	I_{FRM}	$T_C=25^\circ\text{C}$	75	A
		$T_C=125^\circ\text{C}$	58	A



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Maximum Ratings

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNITS
Non-Repetitive Peak Forward Surge Current ($T_P=10\text{mS}$, Half Sine Wave)	I_{FSM}	$T_C=25^\circ\text{C}$	108	A
		$T_C=125^\circ\text{C}$	98	A
Non-Repetitive Peak Forward Surge Current ($T_P=10\mu\text{S}$, Pulse)		$T_C=25^\circ\text{C}$	383	A
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	123	W
		$T_C=125^\circ\text{C}$	41	W
Operating Junction Temperature	T_J		175	$^\circ\text{C}$
Storage Temperature	T_{STG}		-55 to 175	$^\circ\text{C}$
Thermal Resistance Junction to Case	$R_{\theta JC}$		1.2	$^\circ\text{C/W}$

Electrical Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
DC Blanking Voltage	V_{DC}	$I_R=100\mu\text{A}$, $T_J=25^\circ\text{C}$	1200	-	-	V
Forward Voltage	V_F	$I_F=10\text{A}$, $T_J=25^\circ\text{C}$	-	1.5	1.8	V
		$I_F=10\text{A}$, $T_J=175^\circ\text{C}$	-	2.3	2.5	V
Reverse Current	I_R	$V_R=1200\text{V}$, $T_J=25^\circ\text{C}$	-	1	100	μA
		$V_R=1200\text{V}$, $T_J=175^\circ\text{C}$	-	10	500	μA
Total Capacitive Charge	Q_C	$I_F=10\text{A}$, $di/dt=300\text{A}/\mu\text{S}$, $V_R=400\text{V}$, $T_J=25^\circ\text{C}$	-	38	-	nC
Total Capacitance	C	$V_R=1\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$	-	650	-	pF
		$V_R=400\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$	-	62	-	pF
		$V_R=800\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$	-	55	-	pF



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TYPICAL CHARACTERISTIC CURVES

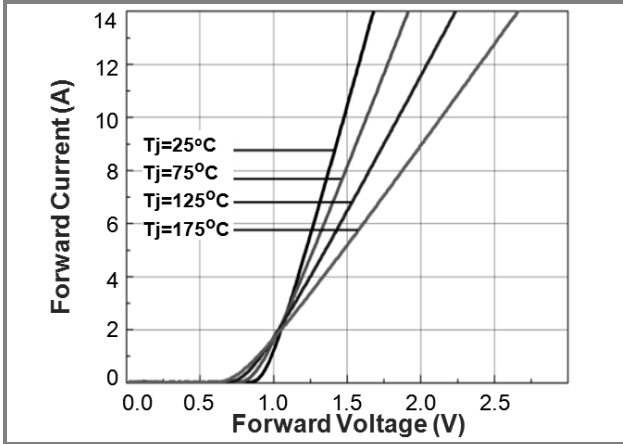


Fig.1 Forward Characteristics

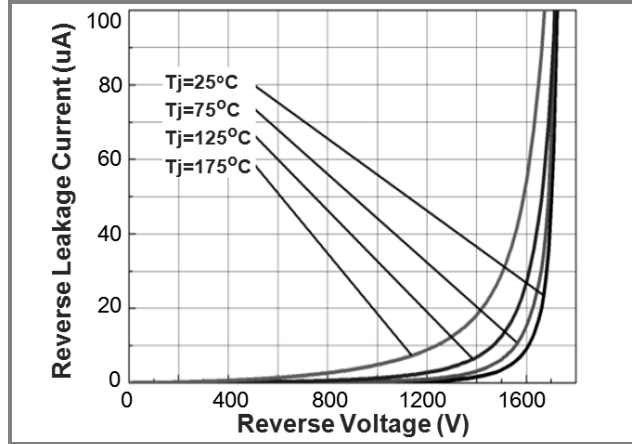


Fig.2 Reverse Characteristics

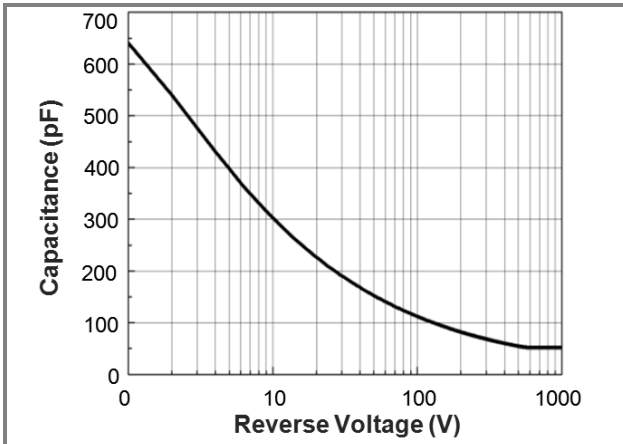


Fig.3 Capacitance vs. Reverse Voltage

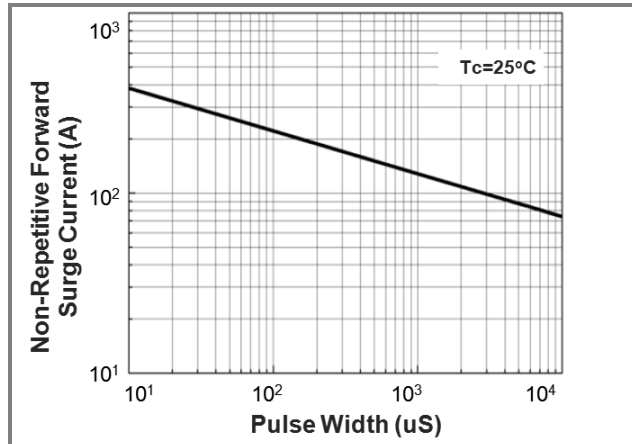


Fig.4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)

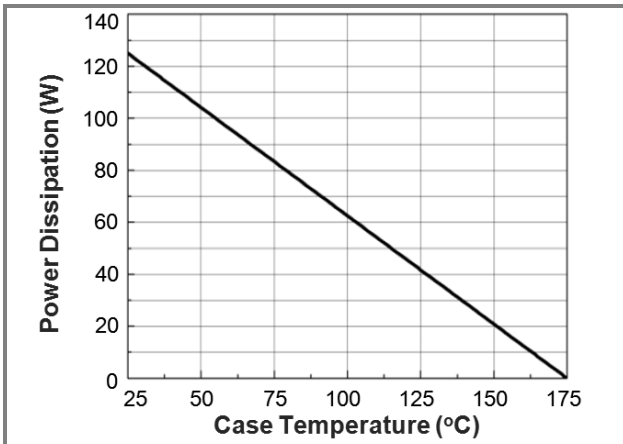


Fig.5 Power Derating

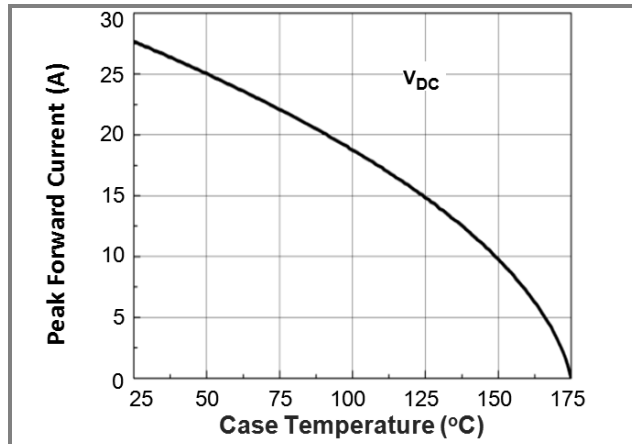


Fig.6 Current Derating



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Part No Packing Code Version

Part No Packing Code	Package Type	Packing type	Marking	Version
SIC10A120T_T0_00001	TO-220AC	50pcs / Tube	10A120T	Halogen free



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