

# SiC10A120T

## SILICON CARBIDE SCHOTTKY DIODE

**Voltage** **1200 V** **Current** **10 A**

### Features

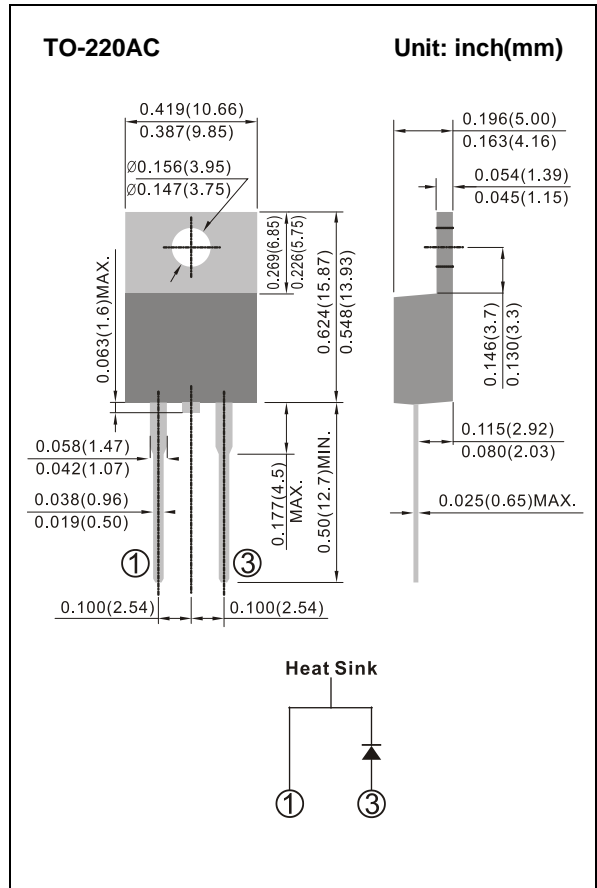
- Temperature Independent Switching Behavior
- Low Conduction and Switching Loss
- High Surge Current Capability
- Positive Temperature Coefficient on  $V_F$
- Fast Reverse Recovery

### 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



## SiC10A120T

### 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 Blocking 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	$\mu\text{A}$
		$V_R=1200\text{V}$ , $T_J=175^\circ\text{C}$	-	10	500	$\mu\text{A}$
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

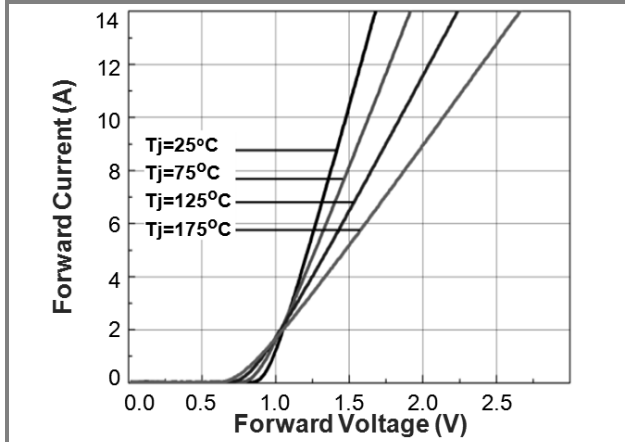


Fig.1 Forward Characteristics

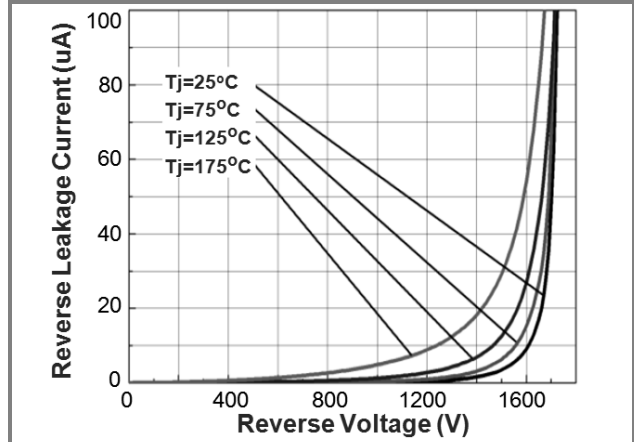


Fig.2 Reverse Characteristics

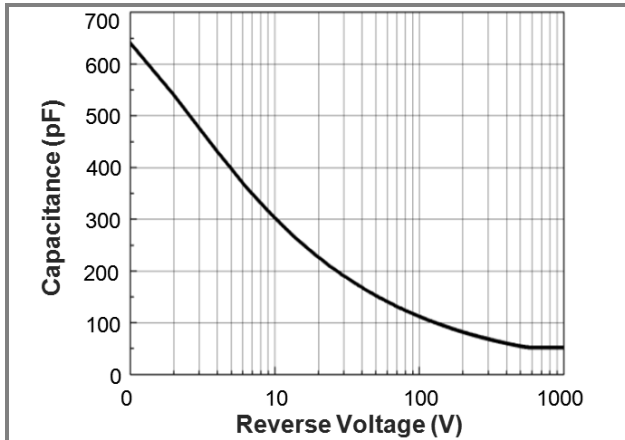


Fig.3 Capacitance vs. Reverse Voltage

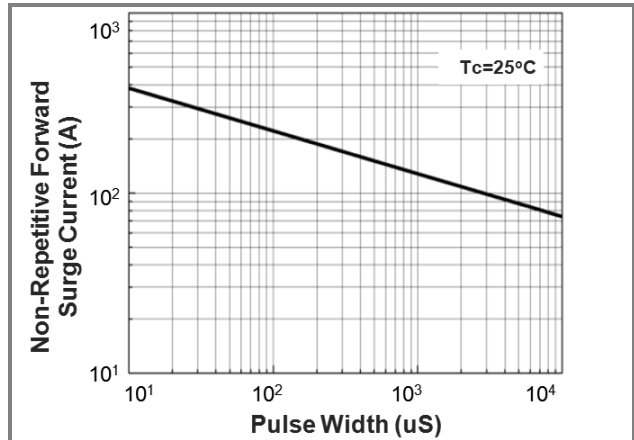


Fig.4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)

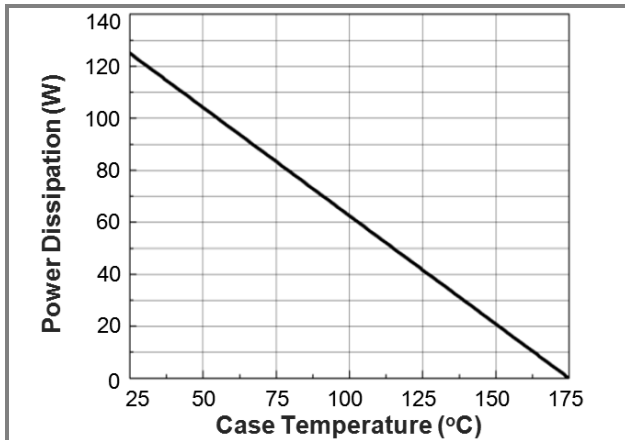


Fig.5 Power Derating

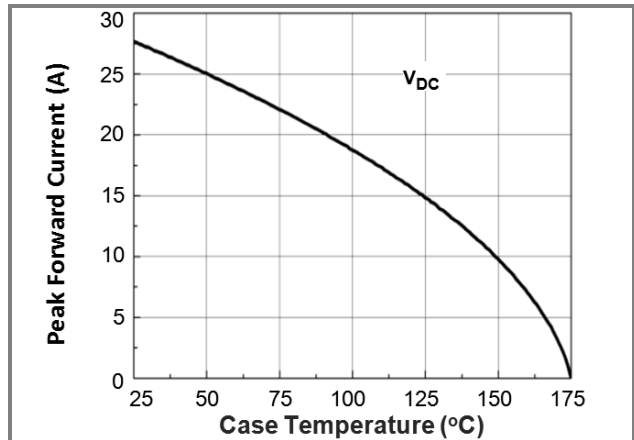


Fig.6 Current Derating



# SiC10A120T

## Part No Packing Code Version

Part No Packing Code	Package Type	Packing type	Marking	Version
SIC10A120T_TO_00001	TO-220AC	50pcs / Tube	10A120T	Halogen free



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