



# SiC05A120S

## SILICON CARBIDE SCHOTTKY DIODE

**Voltage**

**1200 V**

**Current**

**5 A**

### Features

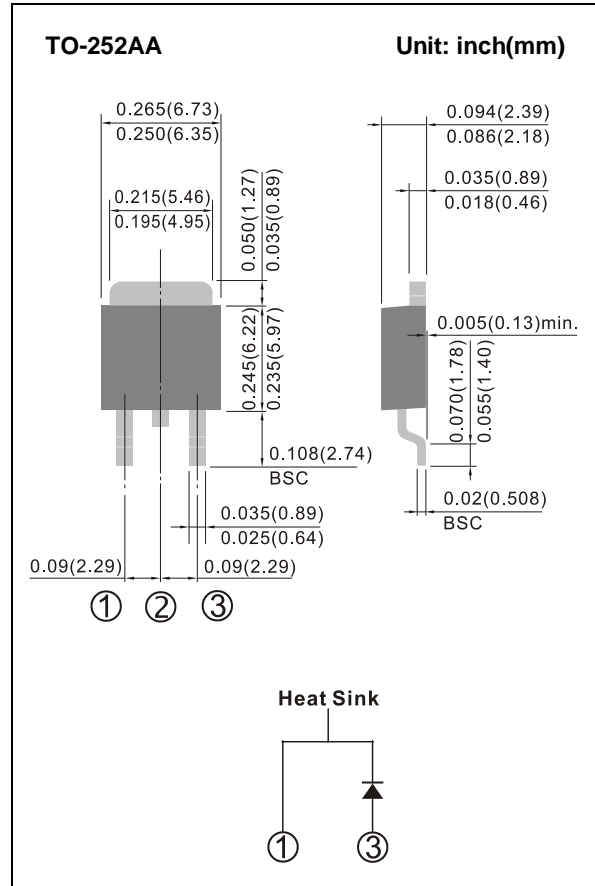
- Temperature Independent Switching Behavior
- Low Conduction and Switching Loss
- High Surge Current Capability
- Positive Temperature Coefficient on  $V_F$
- Fast Reverse Recovery

### Mechanical Data

- Case: Molded plastic, TO-252AA
- Marking: 05A120S

### 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	$V_{RRM}$	$T_J=25^{\circ}C$	1200	V
Maximum RMS Voltage	$V_{RSM}$	$T_J=25^{\circ}C$	1200	V
Maximum DC Blocking Voltage	$V_R$	$T_J=25^{\circ}C$	1200	V
Continuous Forward Current	$I_{F(AV)}$	$T_C=25^{\circ}C$	16	A
		$T_C=125^{\circ}C$	9	A
		$T_C=156^{\circ}C$	5	A
Repetitive Peak Forward Surge Current ( $T_P=10mS$ , Half Sine Wave, $D=0.1$ )	$I_{FRM}$	$T_C=25^{\circ}C$	23	A
		$T_C=125^{\circ}C$	17	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)	$I_{FSM}$	$T_C=25^\circ\text{C}$	54	A
		$T_C=125^\circ\text{C}$	49	A
Non-Repetitive Peak Forward Surge Current ( $T_P=10\mu\text{S}$ , Pulse)		$T_C=25^\circ\text{C}$	406	A
Power Dissipation	$P_D$	$T_C=25^\circ\text{C}$	93	W
		$T_C=125^\circ\text{C}$	30	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	$R_{\theta JC}$		1.6	$^\circ\text{C/W}$

## 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	$V_F$	$I_F=5\text{A}$ , $T_J=25^\circ\text{C}$	-	1.6	1.8	V
		$I_F=5\text{A}$ , $T_J=175^\circ\text{C}$	-	2.4	2.7	V
Reverse Current	$I_R$	$V_R=1200\text{V}$ , $T_J=25^\circ\text{C}$	-	1	100	$\mu\text{A}$
		$V_R=1200\text{V}$ , $T_J=175^\circ\text{C}$	-	17	500	$\mu\text{A}$
Total Capacitive Charge	$Q_C$	$I_F=5\text{A}$ , $di/dt=300\text{A}/\mu\text{S}$ , $V_R=400\text{V}$ , $T_J=25^\circ\text{C}$	-	13	-	nC
Total Capacitance	C	$V_R=1\text{V}$ , $T_J=25^\circ\text{C}$ , $f=1\text{MHz}$	-	250	-	pF
		$V_R=400\text{V}$ , $T_J=25^\circ\text{C}$ , $f=1\text{MHz}$	-	26	-	pF
		$V_R=800\text{V}$ , $T_J=25^\circ\text{C}$ , $f=1\text{MHz}$	-	22	-	pF



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## TYPICAL CHARACTERISTIC CURVES

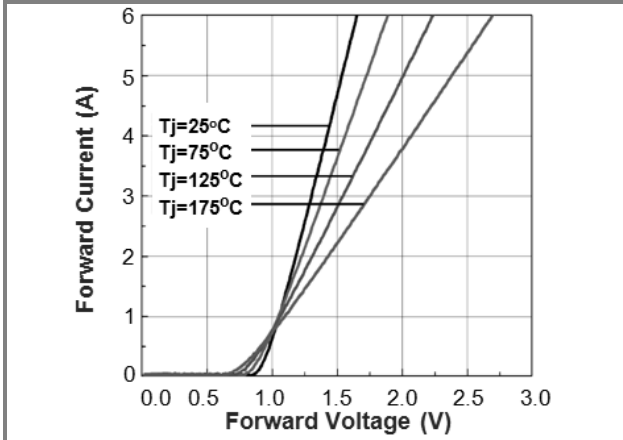


Fig.1 Forward Characteristics

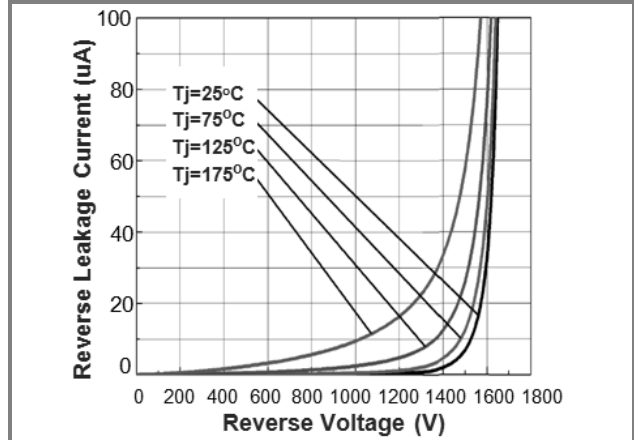


Fig.2 Reverse Characteristics

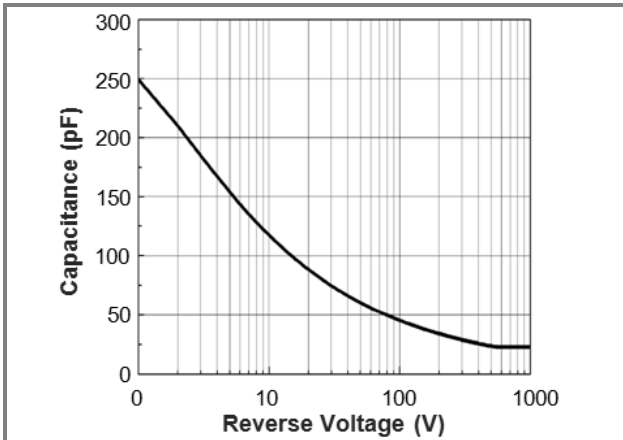


Fig.3 Capacitance vs. Reverse Voltage

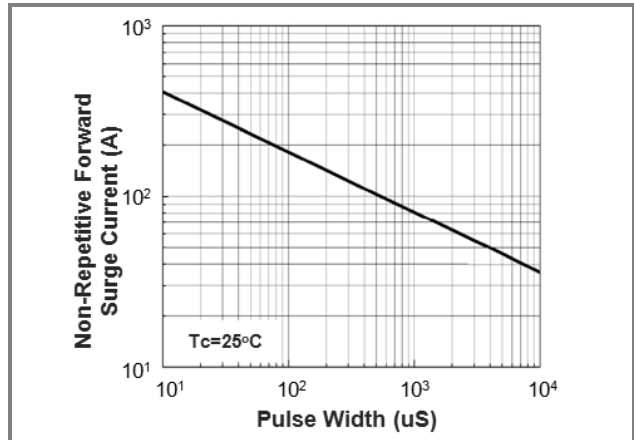


Fig.4 Current Derating

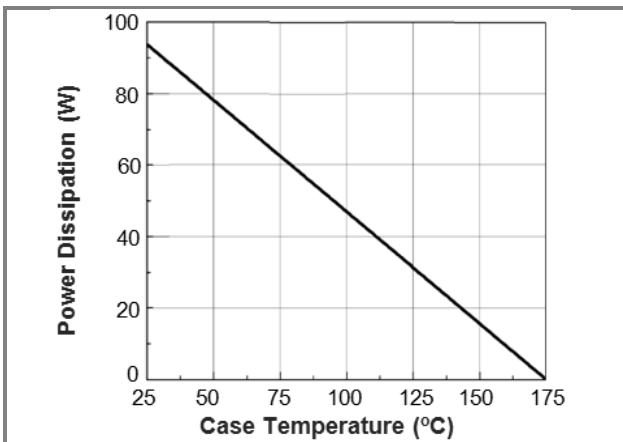


Fig.5 Power Derating

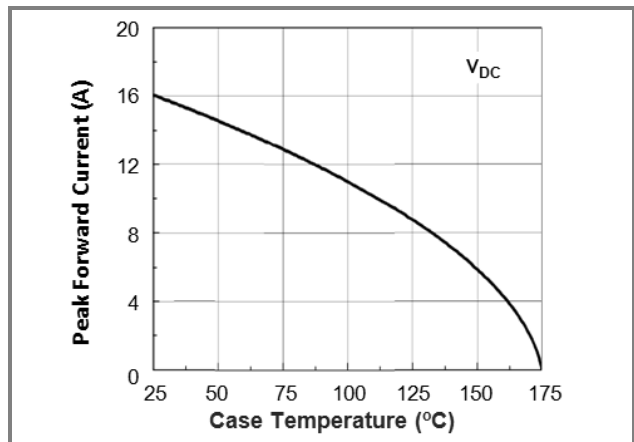


Fig.6 Current Derating

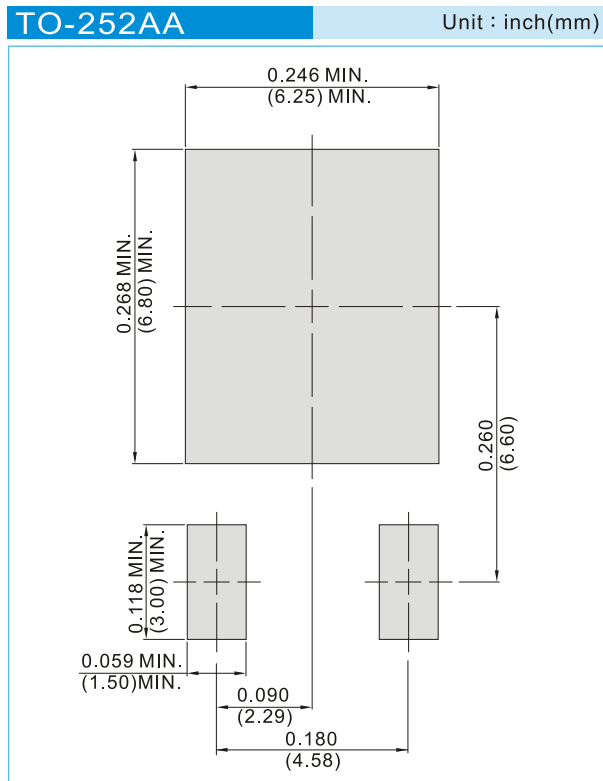


# SiC05A120S

## Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
SIC05A120S_L2_00001	TO-252AA	3,000pcs / 13" reel	05A120S	Halogen free

## Mounting Pad Layout





## SiC05A120S

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