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September 2016



PCFFS20120AF

Silicon Carbide Schottky Diode

1200 V, 20 A

Features

- Max Junction Temperature 175 °C
- Avalanche Rated 200 mJ
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery / No Forward Recovery

Description

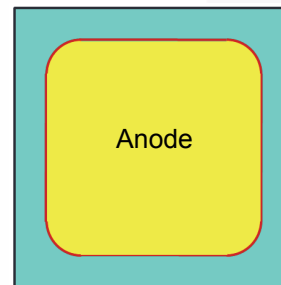
SiC Schottky Diode has no switching loss, provides improved system efficiency against Si diodes by utilizing new semiconductor material - Silicon Carbide, enables higher operating frequency, and helps increasing power density and reduction of system size/cost. Its high reliability ensures robust operation during surge or over-voltage conditions

Applications

- General Purpose
- SMPS, Solar Inverter, UPS
- Power Switching Circuits

Die Information

- Wafer Diameter 6 inch
- Die Size 3,080 x 3,080 μm (include S/L)
- Metallization
 - Top Ti / TiN / Al 4μm
 - Back Ti / NiV / Ag
- Die Thickness Typ. 200μm
- Bonding Pad Size
 - Anode 2500 x 2500 μm
 - Anode 15mil x 2



Electrical Characteristics on Wafer $T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_R	Reverse Blocking Voltage	$I_R = 200 \mu\text{A}, T_C = 25^\circ\text{C}$	1230	-	-	V
V_F	Forward Voltage	$I_F = 20 \text{ A}, T_C = 25^\circ\text{C}$	1.22	-	1.723	V
I_R	Reverse Current	$V_R = 1230 \text{ V}, T_C = 25^\circ\text{C}$	-	-	200	μA

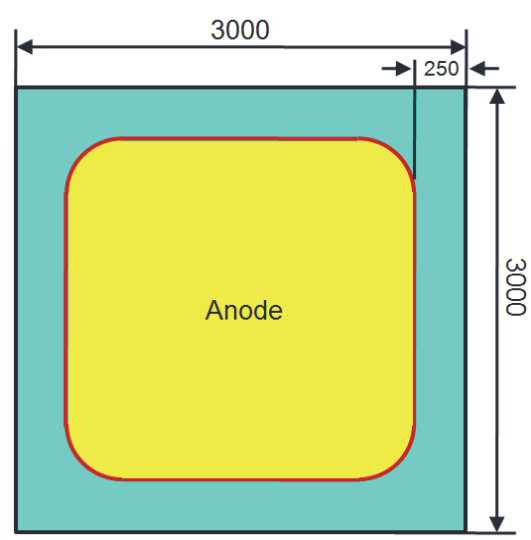
Notes:

1. Based on TO-247 package of Fairchild
2. Tested 100% on wafer
3. -F: sawn-on-film frame packing based on wafer tested

For Additional Product Information and Electrical Characteristics on Package

Refer to the [FFSH40120ADN_F155](#) product datasheet

Die Layout (Dimension : μm , except S/L)

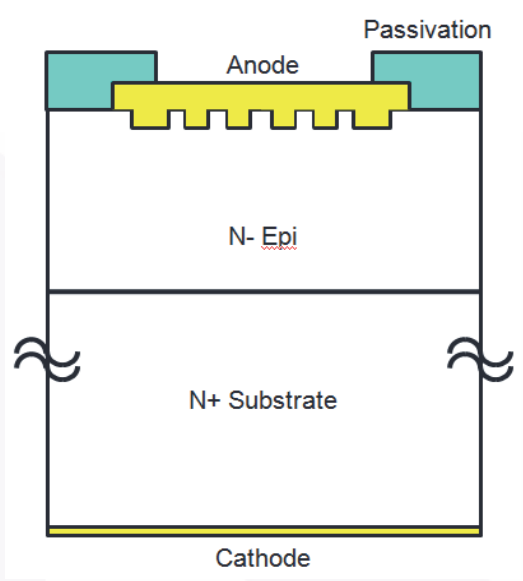


Passivation Area

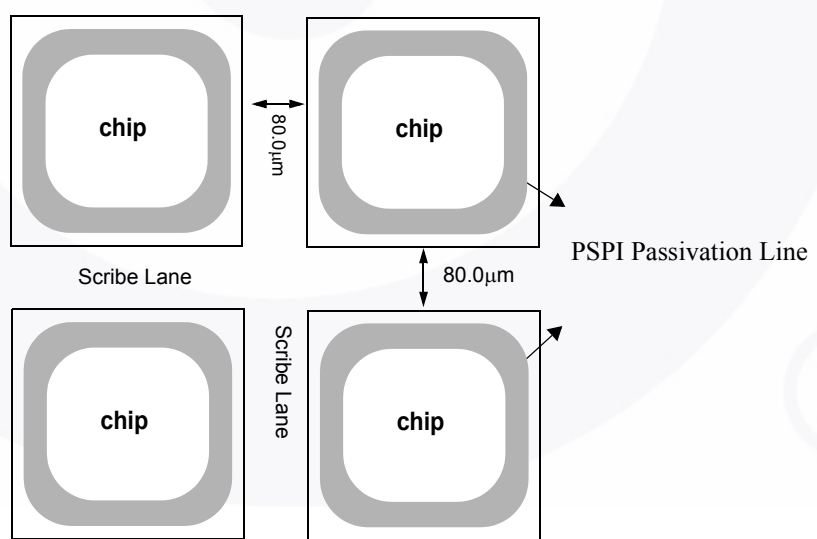
Passivation Information

- Passivation Material: Polyimide (PSPI)
- Passivation Type : Local Passivation
- Passivation Thickness : 90KA

Cross Section








The Configuration of chips (Based on 6 inch wafer)





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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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