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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

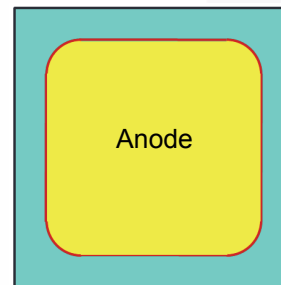
SiC Schottky Diode has no switching loss, provides improved system efficiency against Si diodes by utilizing new semiconductor material - Silicon Carbide, enables higher operating frequency, and helps increasing power density and reduction of system size/cost. Its high reliability ensures robust operation 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 4 μm
 - Back Ti / NiV / Ag
- Die Thickness Typ. 200 μm
- Bonding Pad Size
 - Anode 2500 x 2500 μm
 - Recommended Wire Bond (Note 1)
 - 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

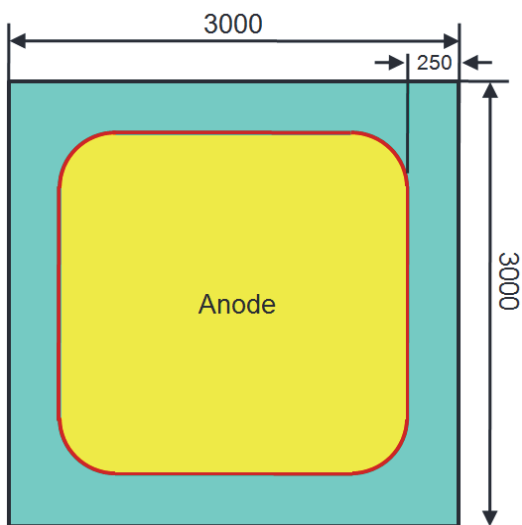
Notes:

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)

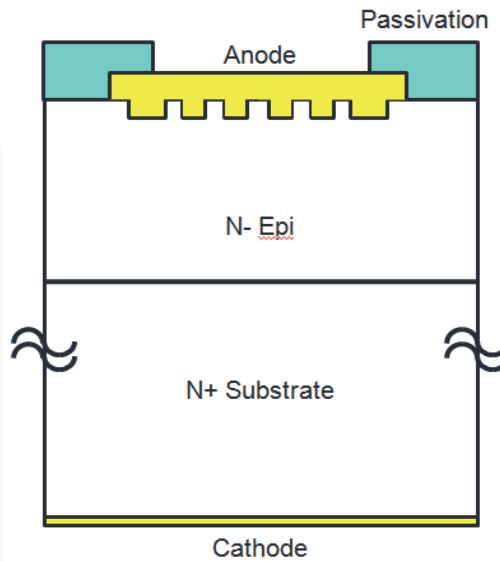


Passivation Area

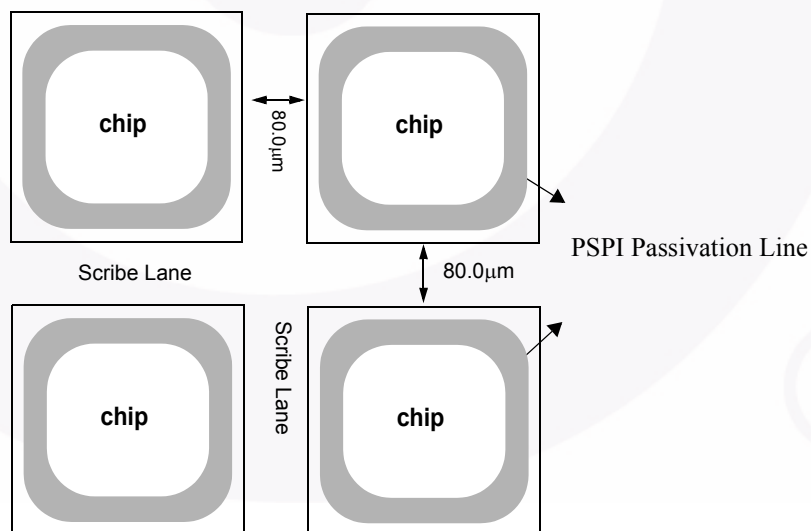
Passivation Information

- 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.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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