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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

Applications

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

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

Die Information

Wafer Diameter 6 inch
 Die Size 3,080 x 3,080 μm (include S/L)

Metallization

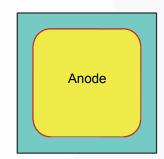
 $\begin{array}{cc} \cdot \; \text{Top} & \quad \text{Ti} \, / \, \text{TiN} \, / \, \text{Al} \; 4 \mu \text{m} \\ \cdot \; \text{Back} & \quad \text{Ti} / \, \text{NiV} \, / \text{Ag} \end{array}$

Die ThicknessBonding Pad Size

· Anode 2500 × 2500 μm

• Recommended Wire Bond (Note 1)

· Anode 15mil × 2



Electrical Characteristics on Wafer T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
V_R	Reverse Blocking Voltage	$I_R = 200 \mu A, T_C = 25 {}^{\circ}C$	1230	-	-	V
V _F	Forward Voltage	I _F = 20 A, T _C = 25 °C	1.22	-	1.723	V
I _R	Reverse Current	$V_R = 1230 \text{ V}, T_C = 25 ^{\circ}\text{C}$	-	-	200	μА

Typ. 200μm

Notes:

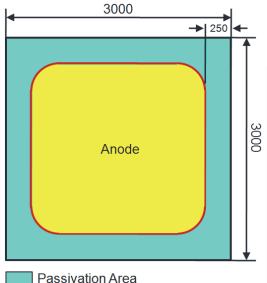
- 1. Based on TO-247 package of Fairchild
- 2. Tested 100% on wafer
- 3. -F: sawn-on-film frame packing based on wafer tested

For Additional Product Information and Electrical Characteristics on Package

Refer to the FFSH40120ADN_F155 product datasheet



Cross Section





Passivation Anode N- Epi N+ Substrate Cathode

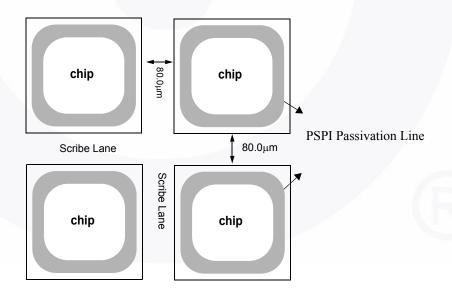
Passivation Information

- Passivation Material: Polyimide (PSPI)

- Passivation Type : Local Passivation

- Passivation Thickness: 90KA

The Configuration of chips (Based on 6 inch wafer)







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Definition of Terms

Datasheet Identification	Product Status	Definition		
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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.		
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.		

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