

# Silicon Carbide (SiC) Schottky Diode – EliteSiC, 20 A, 1200 V, D1, Die

## PCFFS20120AF

### 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.

### 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

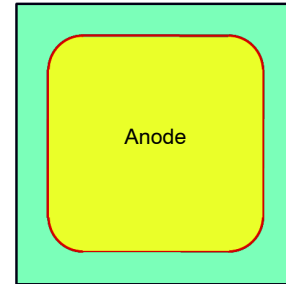
- General Purpose
- SMPS, Solar Inverter, UPS
- Power Switching Circuits

### Die Information

- Wafer Diameter: 6 inch
- Die Size: 3,080 x 3,080  $\mu\text{m}$  (Include S/L)
- Metallization
  - ♦ Top: Ti / TiN / Al 4  $\mu\text{m}$
  - ♦ Back: Ti/ NiV / Ag
- Die Thickness: Typ. 200  $\mu\text{m}$
- Bonding Pad Size
  - ♦ Anode: 2500 x 2500  $\mu\text{m}$
- Recommended Wire Bond (Note 1)
  - ♦ Anode: 15 mil x 2

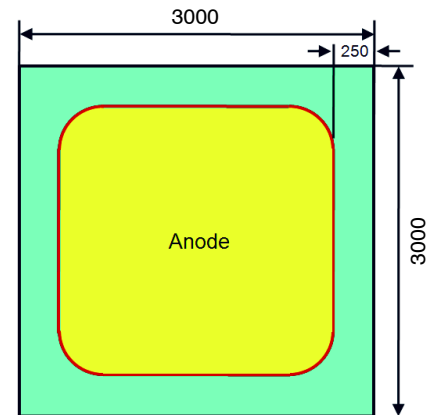
### NOTE:

1. Based on TO-247 package of onsemi



### DIE LAYOUT

(Dimension:  $\mu\text{m}$ , Except S/L)

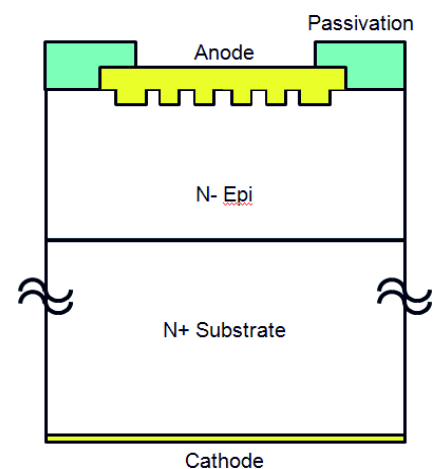


Passivation Area

### Passivation Information

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

### CROSS SECTION



### ORDERING INFORMATION

| Part Number  | Package | Die Size                                             |
|--------------|---------|------------------------------------------------------|
| PCFFS20120AF | N/A     | 3,080 x 3,080 $\mu\text{m}$<br>(Include Scribe Lane) |

# PCFFS20120AF

## ELECTRICAL CHARACTERISTICS ON WAFER ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter                | Test Condition                                      | 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   | $\mu\text{A}$ |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

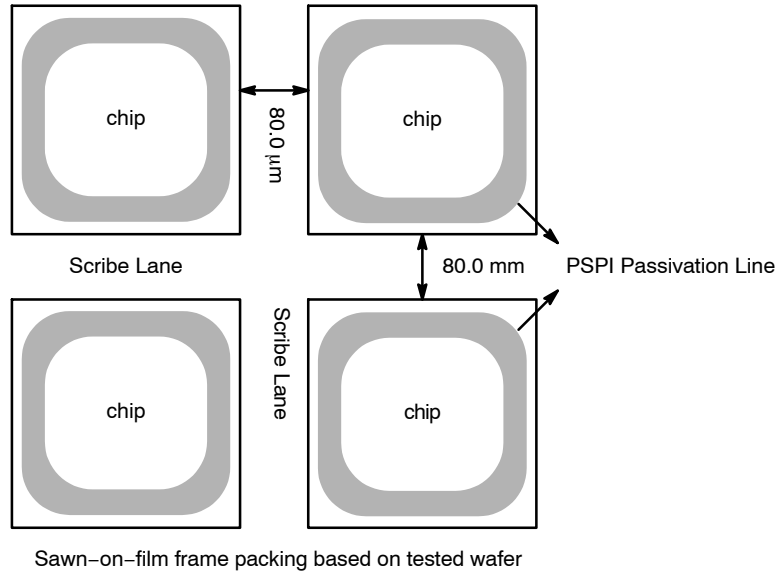
2. Tested 100% on wafer

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.

## The Configuration of Chips (Based on 6 Inch Wafer)



Sawn-on-film frame packing based on tested wafer

**Figure 1. The Configuration of Chips** (Based on 6 Inch Wafer)

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