# Fast Switching Rectifier Die

# NGTD5R65F2

$V_{RRM}$ = 650 V
$I_F$ = Limited by $T_{J(max)}$

Fast switching low Vf rectifier die for free−wheeling applications.

### Features

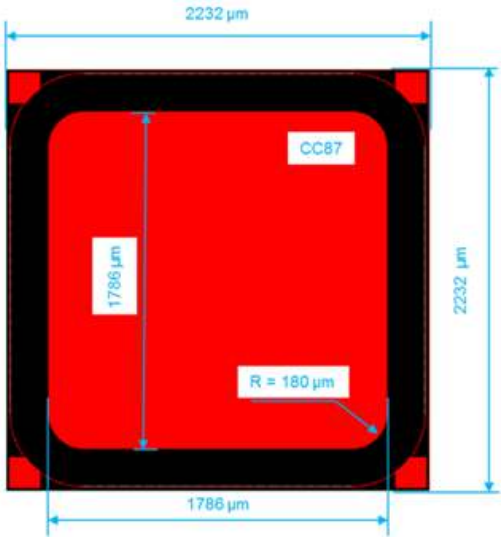
- Fast Switching
- Low Vf

### Typical Applications

- Industrial Motor Control
- Solar PV Inverters

### DIODE DIE


### DIE OUTLINE




### MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Reverse Voltage | $V_{RRM}$ | 650 | V |
| Max Forward Conduction Current | $I_F$ | (Note 1) | A |
| Maximum Junction Temperature | $T_J$ | 175 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
1. Depending on thermal properties of assembly.

### MECHANICAL DATA

| Parameter | Value | Unit |
|---|---|---|
| Die Size | 2232 x 2232 | µm² |
| Die Thickness | 10 | mils |
| Wafer Size | 150 | mm |
| Top Pad Size (Anode) | 1786 x 1786 | µm² |
| Top Metal (Anode) | 4 µm AlSi | |
| Back Metal (Cathode) | 2 µm TiNiAg | |
| Max Possible Chips per Wafer | 2681 | |
| Passivation Frontside | Oxide−Nitride | |
| Reject Ink Dot Size | 25 mils | |
| Recommended Storage Environment: In original container, in dry nitrogen, or temperature of 18−28°C, 30−65%RH | Type: Bare Wafer in Jar Storage time: < 36 months | Type: Die on tape in ring−pack Storage time: < 3 months |

### ORDERING INFORMATION

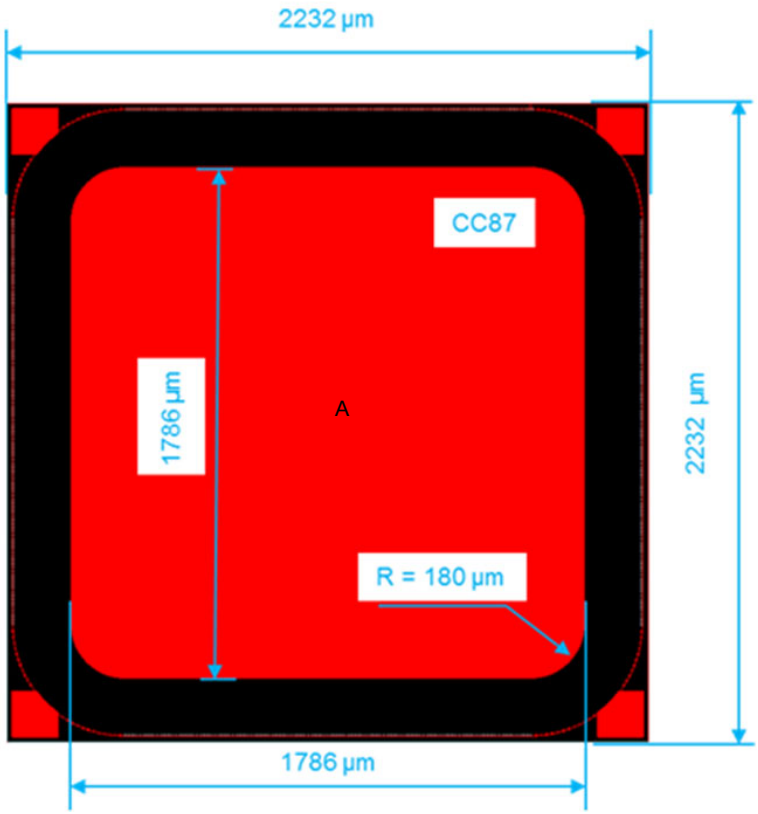
| Device | Inking? | Shipping |
|---|---|---|
| NGTD5R65F2WP | Yes | Bare Wafer in Jar |
| NGTD5R65F2SWK | Yes | Sawn Wafer on Tape |

**ELECTRICAL CHARACTERISTICS** ($T_J$ = 25°C, unless otherwise specified)

| Parameter | Test Conditions | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **STATIC CHARACTERISTICS** | | | | | | |
| Forward Voltage | $I_F$ = 20 A, $T_J$ = 25°C | $V_F$ | | 1.1 | 1.3 | V |
| Reverse Voltage | $I_R$ = 300 μA, $T_J$ = 25°C | $V_R$ | 650 | | | V |
| Reverse Current | $V_R$ = 650 V, $T_J$ = 25°C | $I_R$ | −1.0 | | 1.0 | μA |

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.

## DIE LAYOUT




A = Anode pad
All dimensions in μm

**Further Electrical Characteristic**

Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.

## ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS**:
**Technical Library:** www.onsemi.com/design/resources/technical−documentation
**onsemi Website:** www.onsemi.com

**ONLINE SUPPORT**: www.onsemi.com/support
**For additional information, please contact your local Sales Representative at** www.onsemi.com/support/sales