

# NGTD17R120F2

## Fast Switching Rectifier Die

Fast switching low  $V_f$  rectifier die for free-wheeling applications.

### Features

- Fast Switching
- Low  $V_f$

### Typical Applications

- Industrial Motor Control
- Solar PV Inverters

### MAXIMUM RATINGS

| Parameter                      | Symbol    | Value    | Unit |
|--------------------------------|-----------|----------|------|
| Peak Reverse Voltage           | $V_{RRM}$ | 1200     | 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  | 4000 x 4000  | $\mu\text{m}^2$   |
| Die Thickness   | 5.5  | mils  |
| Wafer Size  | 150  | mm  |
| Top Pad Size (Anode)  | 3380 x 3380  | $\mu\text{m}^2$   |
| Top Metal (Anode)   | 4 $\mu\text{m}$ AlSi                                       |   |
| Back Metal (Cathode)  | 2 $\mu\text{m}$ TiNiAg                                     |   |
| Max possible chips per wafer  | 769  |   |
| Passivation frontside   | Oxide-Nitride  |   |
| Reject ink dot size   | 25 mils  |   |
| Recommended storage environment:<br>In original container, in dry nitrogen,<br>or temperature of 18–28°C,<br>30–65%RH | Type: Bare<br>Wafer in Jar<br>Storage time:<br>< 36 months | Type: Die on<br>tape in<br>ring-pack<br>Storage time:<br>< 3 months |

### ORDERING INFORMATION

| Device          | Inking? | Shipping           |
|-----------------|---------|--------------------|
| NGTD17R120F2WP  | Yes     | Bare Wafer in Jar  |
| NGTD17R120F2SWK | Yes     | Sawn Wafer on Tape |

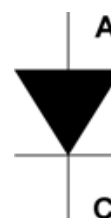


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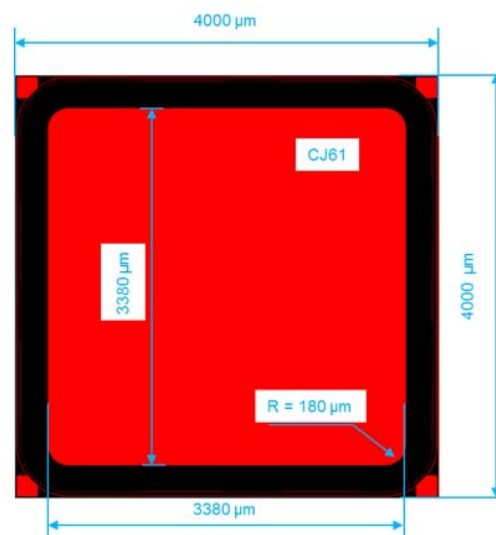
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$V_{RRM} = 1200 \text{ V}$   
 $I_F = \text{Limited by } T_{J(\text{max})}$

### DIODE DIE



### DIE OUTLINE



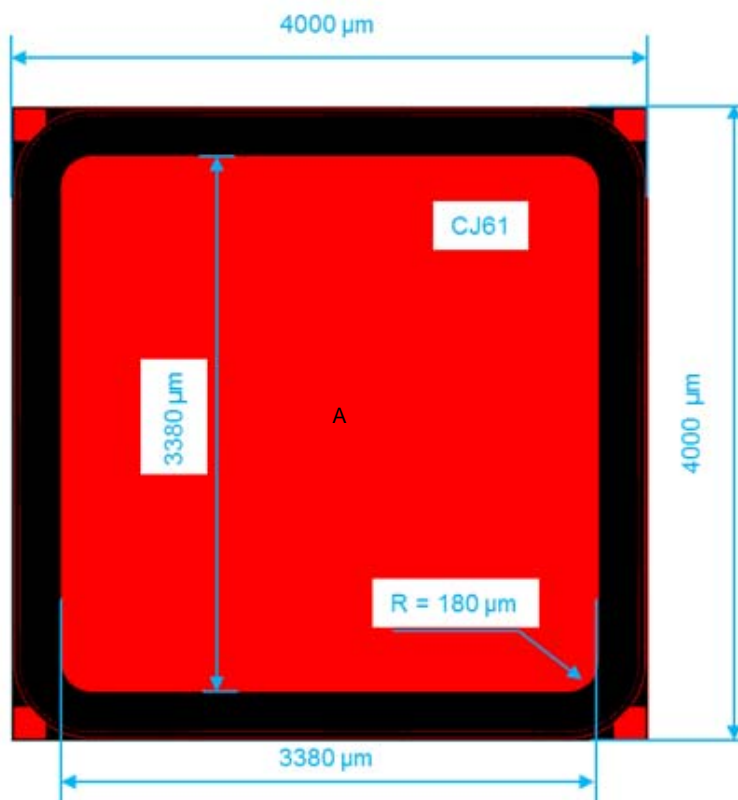
# NGTD17R120F2

## ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

| Parameter                     | Test Conditions   | Symbol | Min  | Typ | Max | Units         |
|-------------------------------|---|--------|------|-----|-----|---------------|
| <b>STATIC CHARACTERISTICS</b> |   |        |      |     |     |               |
| Forward Voltage               | $I_F = 35\text{ A}$ , $T_J = 25^\circ\text{C}$            | $V_F$  |      | 1.8 |     | V             |
| Reverse Voltage               | $I_R = 400\text{ }\mu\text{A}$ , $T_J = 25^\circ\text{C}$ | $V_R$  | 1200 |     |     | V             |
| Reverse Current               | $V_R = 1200\text{ V}$ , $T_J = 25^\circ\text{C}$          | $I_R$  | -1.0 |     | 1.0 | $\mu\text{A}$ |

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.

## DIE LAYOUT



A = Anode pad  
All dimensions in  $\mu\text{m}$

## 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.

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