# Reliability Tests Report

**Product Name:** TCR3UG50A  
**Package Name:** WCSP4F

## 1. Thermal tests

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Condition</th>
<th>Failure Size / Sample Size</th>
</tr>
</thead>
</table>
| Heat resistance (Reflow) | Peak : 260 deg.C(a moment)  
Reflow zone : 230 deg.C 30 to 50 s  
Preheat : 180 to 190 deg.C , 60 to 120 s  
2 times | 0 / 32 |
| Temperature cycling | - 55 deg.C(30 min) to 150 deg.C(30 min)  
100 cycles | 0 / 50 |
| | | |

## 2. Mechanical tests

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Condition</th>
<th>Failure Size / Sample Size</th>
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</thead>
<tbody>
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</table>

## 3. Life tests

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Condition</th>
<th>Failure Size / Sample Size</th>
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</thead>
<tbody>
<tr>
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<td>0 / 30</td>
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</tbody>
</table>

The information contained in Reliability Test Report represents the result of our internal reliability tests conducted in accordance with JEITA ED-4701 test standards, and is provided for your reference only.

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For detailed reliability test information, such as test conditions and criteria, please contact your Toshiba sales representative.
### Estimated Failure Rate

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Estimated failure rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCR3UG50A</td>
<td>11 Fit or less</td>
</tr>
</tbody>
</table>

Above estimated value is determined with the standard operation under the general environment:*  

*The general environment here means the conditions of $T_j \leq 55$ degree C and no application of surge and so on.

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Heat-resistant Mounting Conditions

Product Name: FTCR3UG50A
Package Name: FWCSP4F

1. Reflow
Peak: 260 deg.C (a moment)
Reflow zone: 230 deg.C, 30 to 50 seconds
Preheat: 180 to 190 deg.C, 60 to 120 seconds

NOTE: Heat resistant condition are based on the device surface temperature.

An example of a temperature profile is shown in Fig. 1.
This profile has indicated the maximum of a device heat-resistance guarantee.
Please set preheating temperature / heating temperature as the best temperature according
to the kind of solder paste to use, within the limits of Fig. 1.

For the packages allowing mounting twice or more, the mounting should be completed with the
interval from the first to the last mounting being within 2 weeks.

2. Others
We urge you to verify well before mounting to assure enough solder joint strength.

2 times maximum Number

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Always solder the Product in accordance with the heat-resistant mounting conditions set forth above.
In the event the Product is soldered otherwise, the applicable product warranty, if any, is void.
Moisture Absorption Control Level (Moisture Sensitivity Level)

Product Name: TCR3UG50A

Package Name: WCSP4F

Always store the Product under moisture sensitivity level equivalent to level 1 (JEDEC J-STD-020 Moisture Sensitivity Level). In the event the Product is stored otherwise, the applicable warranty, if any, is void.

Always perform reflow soldering in accordance with methods and conditions as specified in applicable engineering documents or specifications provided by Toshiba, or as instructed in writing by your TOSHIBA sales representative.

In the event the Product is soldered otherwise, the applicable product warranty, if any, is void.
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