# Reliability Tests Report

**Product Name:** SSM3K09FU  
**Package Name:** USM

## 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 | 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  
4 times | 0 / 32 |
| Heat resistance | Peak : 260 deg.C  
Immersion time : 10 s  
Once | 0 / 32 |
| Heat resistance | Temperature of the iron tip : 400 deg.C  
Time : 3 s  
Once | 0 / 32 |
| - 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>
</tr>
</thead>
</table>
| Solderability | Solder bath : Sn-Ag-Cu  245 deg.C , 5 s ,once (using Flux)  
Solder bath : Sn-Pb  230 deg.C , 5 s ,once (using Flux) | 0 / 11 |

## 3. Life tests

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Condition</th>
<th>Failure Size / Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Ta = 25 deg.C, PD = 150mW ,1000 h</td>
<td>0 / 30</td>
</tr>
<tr>
<td>-</td>
<td>Ta = 150 deg.C, VGS = 16V ,1000 h</td>
<td>0 / 30</td>
</tr>
<tr>
<td>-</td>
<td>Ta = 150 deg.C ,1000 h</td>
<td>0 / 30</td>
</tr>
<tr>
<td>-</td>
<td>Ta = 85 deg.C, RH = 85% ,1000 h</td>
<td>0 / 30</td>
</tr>
<tr>
<td>-</td>
<td>Ta = 121 deg.C (203kPa)(Unsaturated) ,96 h</td>
<td>0 / 20</td>
</tr>
</tbody>
</table>

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### Estimated Failure Rate

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Estimated failure rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSM3K09FU</td>
<td>0.4 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 $T_j = 55$ degree C and no application of surge and so on.

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Heat-resistant Mounting Conditions

Product Name: FSSM3K09FU
Package Name: USM

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.

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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.

Fig.1. Example of Heat-resistant Temperature Profile
Moisture Absorption Control Level (Moisture Sensitivity Level)

Product Name: SSM3K09FU
Package Name: USM

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.

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