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Reliability Tests Report

Product Name: TC358860XBG
Package Name: P-TFBGA65

1. Thermal tests

Test Item	Test Condition	Failure Size / Sample Size
Resistance to Soldering Heat for Packages	Reflow peak temperature and moisture soak conditionsare specified per package type. 3 times	0 / 32
Temperature Cycling	-55deg.C (20min) to 25deg.C to 125deg.C (20min) to 25deg.C 700 cycles	0 / 32
–	–	-
–	–	-

2. Mechanical tests

Test Item	Test Condition	Failure Size / Sample Size
–	–	-
–	–	-
–	–	-
–	–	-
–	–	-

3. Life tests

Test Item	Test Condition	Failure Size / Sample Size
High Temperature Operating Life	Ta=125deg.C, Max operating voltage ,1000h	0 / 32
High Temperature Storage Life	Ta=150deg.C ,1000h	0 / 32
High Temperature High Humidity Bias	Ta=85deg.C, RH=85%, Max operating voltage ,1000h	0 / 32
UHAST	Ta=110deg.C, RH=85%, 122kPa ,264h	0 / 32
-	–	-
-	–	-

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Estimated Failure Rate

Product Name	Estimated Failure Rate
TC358860XBG	1 Fit or less

Note)
This failure rate was calculated on the assumption that the device operated normally at Tj = 60 deg.C, under normal environmental conditions without any surge, etc.
This calculation was performed at development stage using data from the same technology with the reported device above.

The Estimated Failure Rate contained herein represents the result of our internal product reliability tests, and is provided for your reference only.
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Heat-resistant Mounting Conditions

Product Name: TC358860XBG
Package Name: P-TFBGA65

1.Reflow

Number: 3 times maximum
Peak : 260 deg.C
Reflow zone : 255 deg.C within 30 seconds, 217 deg.C 60 to 150 seconds
Preheat : 150 to 200 deg.C , 60 to 120 seconds
NOTE: All temperatures refer to the balls.

The heat-resistant temperature profile is shown in Fig.1.
The temperatures in this profile are the maximum guaranteed temperatures that the device endures.
Select the temperatures for a pre-heat and a heat most suitable for your solder paste type, etc. within the conditions described in Fig.1.

This package is dry-packed in a moisture barrier bag. After opening the bag, keep the devices at or lower than 30deg.C/ 60%RH and complete a final reflow process within 168hours.

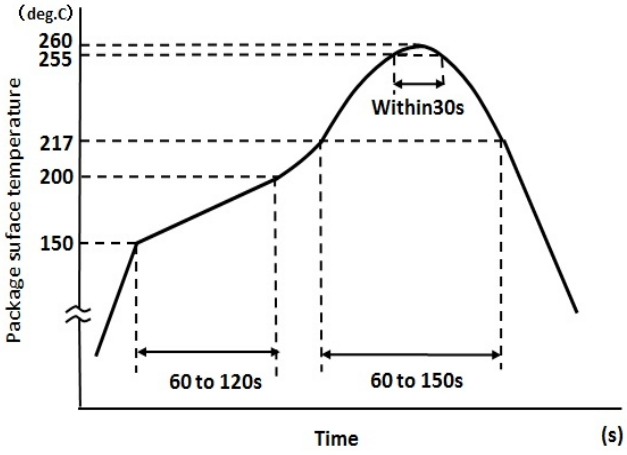

Fig.1 Example of Heat-resistant Temperature Profile

2.Others

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

The information above is just the heat-resistance mounting conditions set.
It does not provide a warranty for possibility of mounting.

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Moisture Absorption Control Level (Moisture Sensitivity Level)

Product Name : **TC358860XBG**
Package Name : **P-TFBGA65**

Always store the Product under moisture sensitivity level equivalent to level 3 (JEDEC J-STD-020 Moisture Sensitivity Level). In the event the Product is stored otherwise, the applicable warranty, if any, is void.

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Report No. SC006216

ESD Sensitivity (HBM)

1. Part Number TC358860XBG

2. Test Method C=100pF, R=1.5kohm, Discharge = 1 time
[Referred Standard: JEDEC JESD22 A-114B]
Common Pin : Power pin(s)
Voltage Level : +2000V,-2000V

3. Test Result

Voltage Level	Sample Size	Number of Failures
+2000V	3	0
-2000V	3	0

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Report No. SH002294

Storage Condition for Moisture-Proof Packing

1. Part Number and Package Type

Part Number : TC358860XBG

Package Type : P-TFBGA65

2. Storage Precautions

Observe the following the precautions for storage of this product.

1) Do not toss or drop device packing. The aluminum laminated bag may be damaged, resulting in a loss in air tightness.

2) Keep the devices in the sealed bag at a temperature range between 5 °C and 30 °C and at a relative humidity of 85% or lower. Use the devices within a shelf life of 24 months from the sealed date printed in the barcode label attached on each pack.

3) If the above storage period has been exceeded, or if the indicator shows the following conditions when the sealed moisture-barrier bag is opened, bake the devices under the conditions described in 4)

Conditions of indicator's display for need baking.
- The case of 1 part humidity indicator : The 30% spot is pink.
- The case of 3 parts humidity indicator : The 10% spot is not completely brown and 5% spot is light green.

The floor life of the devices stored at a temperature between 5 °C to 30 °C and a relative humidity of 60% or lower after opening the sealed bag is printed on the moisture-barrier bag. If the floor life has been exceeded, or if the devices have been stored at a higher humidity environment even within the floor life, bake the devices before mounting.

4) Follow the baking procedures below appropriate to the packing types.
Baking is allowed only 1 time. The moisture-barrier bag itself is not heat-resistant.
Be sure to remove the devices from the bag prior to baking.

(a) Tray
If the tray indicates a "Heatproof" or has a high temperature marking, use the original trays to bake the devices.
If the tray neither indicates "Heatproof" nor has a high temperature marking, remove the devices from the original trays to antistatic heat-resistant carriers.
Then, bake the devices at 125 °C for 20 hours.

(b) Shipping Tube/Tape and Reel
Remove the devices from the original shipping tube or tape and reel to antistatic heat-resistant carriers.
Then, bake the devices at 125 °C for 20 hours.

5) Observe the precautions for handling electrostatic sensitive devices.

6) Do not allow loads to be applied directly to devices while they are in storage.

Always store the Product in accordance with the General Storage conditions forth above.
In the event the Product is stored otherwise, the applicable product warranty, if any, is void.

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