

Product Name: TC74VHC165FK

Package Name: US16

1. Thermal tests

| Test Item | Test Condition | Failure Size / Sample Size |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 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 |
| Heat resistance (Iron) | Temperature of the iron tip : 400 deg.C Time : 3 s Once | 0 / 32 |
| Temperature cycling | - 65 deg.C(30 min) to 150 deg.C(30 min) 300 cycles | 0 / 50 |
| - | - | - |

2. Mechanical tests

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

| Test Item | Test Condition | Failure Size / Sample Size |
|----------------------------------|---------------------------------------------|----------------------------|
| Steady state operation | Ta = 125 deg.C, VCC = 5.5V ,1000 h | 0 / 30 |
| High temp. storage | Ta = 150 deg.C ,1000 h | 0 / 30 |
| High temp. high humidity storage | Ta = 85 deg.C, RH = 85% ,1000 h | 0 / 30 |
| High temp. high humidity bias | Ta = 85 deg.C, RH = 85%, VCC = 5.5V ,1000 h | 0 / 30 |
| Pressure cooker test | Ta = 121 deg.C(203kPa)(Unsatuated) ,96 h | 0 / 20 |
| - | - | - |

Estimated Failure Rate

| Product Name | Estimated failure rate |
|--------------|------------------------|
| TC74VHC165FK | 1.6 Fit or less |

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.

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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For detailed reliability test information, please contact your Toshiba sales representative.

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1.Reflow

Number: 2 times maximum

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.



Fig.1 Example of Heat-resistant Temperature Profile

2.Others

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

Always solder the Product in accordance with the heat-resistance 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)

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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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