

Product Name: TMP89FM42UG

Package Name: LQFP44

1. Thermal tests

Test Item	Test Condition	Failure Size / Sample Size
Resistance to Soldering Heat with Soldering Iron	400deg.C (temperature at soldering iron tip), 3s 2 times	0 / 32
Resistance to Soldering Heat for Packages	Reflow peak temperature and moisture soak conditions are specified per package type. 2 times	0 / 32
Temperature Cycling	-65deg.C (20min) to 25deg.C to 150deg.C (20min) to 25deg.C 300 cycles	0 / 32
-	-	-

2. Mechanical tests

Test Item	Test Condition	Failure Size / Sample Size
Solderability	Solder temperature : 230deg.C for Solder type Sn-37Pb 245deg.C for Solder type Sn-3Ag-0.5Cu Solder immersion time : 5s ,Flux type : non-active flux ,1 time	0 / 22
Lead Integrity (Tension)	Tension : according to relevant specification Maintain the specified tension for 30s	0 / 22
-	-	-
-	-	-
-	-	-

3. Life tests

Test Item	Test Condition	Failure Size / Sample Size
High Temperature Operating Life	Max operating temperature, Max operating voltage ,1000h	0 / 32
High Temperature Storage Life	Max storage temperature ,1000h	0 / 32
High Temperature High Humidity Bias	Ta=85deg.C, RH=85%, Max operating voltage ,1000h	0 / 32
Autoclave (Pressure Cooker)	Ta=127deg.C, RH=100%, 246kPa ,120h	0 / 32
-	-	-
-	-	-

Estimated Failure Rate

Product Name	Estimated Failure Rate
TMP89FM42UG	9 Fit

Note)

This failure rate was calculated on the assumption that the device operated normally at $T_a = 60$ deg.C, under normal environmental conditions without any surge, etc.

Data from the same technology with the reported device above was used for this calculation.

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 temperature : 260 deg.C maximum instantaneously

Heat : 230 deg.C minimum for 30 to 50 seconds

Pre-heat : 150 to 190 deg.C for 60 to 120 seconds

NOTE: All temperatures refer to the package body surface.

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.

Since this package is a dry bag product, from opening to the final reflow should take place within 168hr at 30deg.C/70%RH.

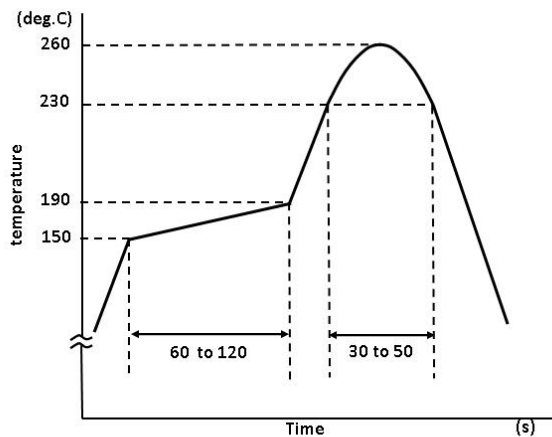


Fig.1 Example of Heat-resistant Temperature Profile

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)

Product Name : TMP89FM42UG

Package Name : LQFP44

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.

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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