

Product Name: TK31N60X

Package Name: TO-247

1. Thermal tests

Test Item	Test Condition	Failure Size / Sample Size
Heat resistance (Flow)	Peak : 260 deg.C Immersion time : 10 s (Up to 1.5mm from the Root shall be immersed) Once	0 / 32
Heat resistance (Iron)	Temperature of the iron tip : 400 deg.C Time : 3 s Once	0 / 32
Temperature cycling	- 55 deg.C(30 min) to 150 deg.C(30 min) 100 cycles	0 / 50
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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
Lead integrity	Weight = 10 N 0 deg. to 90 deg. to 0 deg. Bend , 3times	0 / 11
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-	-	-
-	-	-

3. Life tests

Test Item	Test Condition	Failure Size / Sample Size
Steady state operation	Ta = 25 deg.C, PD = 2.5W *1 ,1000 h	0 / 30
High temp. gate bias	Ta = 150 deg.C, VGS = 30V ,1000 h	0 / 30
High temp. reverse bias	Ta = 150 deg.C, VDS = 480V ,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
Pressure cooker test	Ta = 121 deg.C(203kPa)(Unsaturated) ,96 h	0 / 20

(*1)Using heat sink.

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

Product Name	Estimated failure rate
TK31N60X	4.5 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.

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Product Name: TK31N60X

Package Name: TO-247

1.Flow

Number: Only once

Solder temperature : 260 deg.C maximum

Soldering time : Within 10 seconds

Preheat : 150 deg.C , 60 to 120 seconds

NOTE: Apply up to stopper part or point 1.5 mm or more far from the body of device.

If the double-wave method is used, keep the total dwell time for a first bath and a second bath within 10 seconds.

Preheating conditions are based on the surface temperature of the PWB by the solder mounting side.

(When the PWB surface by the device side is preheated, its condition should not exceed the maximum storage temperature of a device.)

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.

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