Qualification, Upscreening and Lot Acceptance Tests

The quality of electronic components will be more costly, the later a fault is detected. It is therefore desirable, to identify as early as possible the probable causes of failure. To achieve this, there are a variety of standardized stress test methods concerned to the relevant application. In addition, there are customer specific requirements.

The combination of these tests leads to the three procedures of quality assurance:

- Qualification
- Upscreening
- Lot Acceptance Test

Hitest has a long experience with national and international standards and with customer specific requirements.

We work inter alia according to MIL-STD, NASA-STD, ESCC, DIN, IEC, JEDEC, and AEC-Q.

Electrical Measurements

An important element in all procedures is the electrical test of the components. Hitest develops before the start of the stress tests according to the requirements the test program and the necessary hardware to conduct the tests. Electrical tests are performed before, during and after the stress tests. There are often precise time windows for the electrical tests.

Qualifications

Example: Automotive Industry

For microelectronic components that are used in the automotive industry in some cases a qualification after AEC-Q 100 is required.

Hitest develops the hardware and the test programs, runs the stress tests of groups A, B, C, E, F, G, evaluates the results and prepare the necessary documentation for certification.

Among others the necessary stress tests include:

- Preconditioning
- HAST or Autoclave
- Temperature Cycling
- HTOL, HTSC, ELFR
- ESD, Latch Up
- Package Testing

In addition to the complete qualification individual tests are also possible.

Upscreenings

Frequently, standard components are used in applications, where they work beyond the data sheet limits. In such cases, the components often have to pass an upscreening procedure.

Hitest runs Upscreenings specifically for the aviation and aerospace by the principle of the following steps:

- Development of the test program and the necessary test hardware
- Initial Electrical test at low temperature, room temperature and high temperature
- Thermal shock test
- Dynamic Burn In
- Final Electrical Test at low temperature, room temperature and high temperature
- Outgoing inspection
- Documentation

The temperatures can be in the range of -85° C to +250° C.

Additional test steps are also possible.

Lot Acceptance Tests

In some cases, any production lot of a component has to pass a release procedure before it is released for further processing.

Hitest performs Lot Acceptance Tests after two approaches:

As part of an Upscreening a sample of a production batch are subjected to a series of standardized stress tests and then electrically tested. Hitest develops the test program and the necessary test hardware and performs stress tests.

The stress tests include, for example:

- Preconditioning
- HAST or Autoclave
- Life Test
- Radiation Test
- ESD, Latch Up
- DPA

Often a lot acceptance test is carried out if components in the operation have failed. Hitest analyzed together with the user the failure of the components and creates a scenario to reproduce it. By this, we develop a test, to which a sample from each production lot of the component will be subject.

On us you can rely

We work in accordance with the requirements of DIN EN ISO 9001:2008. Our quality is documented, and the results are available even after 10 years.

Put your trust in us

Our employees have many years of experience in the implementation of demanding projects at national and international level.

We guarantee reliable, traceable and documented measurements at the highest level of quality.

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