



High Reliability Specific Components



Several different applications require the use of highly reliable components. A Specific Component from SGA can be designed for Hi-Rel requirements and manufactured in Hi-Rel production flows according to applicable standards.

Screening in production as well as initial qualification of a component can be selected to meet specific customer requirements.

Applications where safety is number one need components with highly reliable performance. The applications may be various but the components are often referred to as Hi-Rel components.

Several parameters make a component reliable. Assembly alternatives, screening and qualification programs may be best known for standard components.

An ASIC-approach means that everything from electrical design through assembly to screening and qualification can be custom. Such true Specific Component can also be a Hi-Rel component. Experience from design

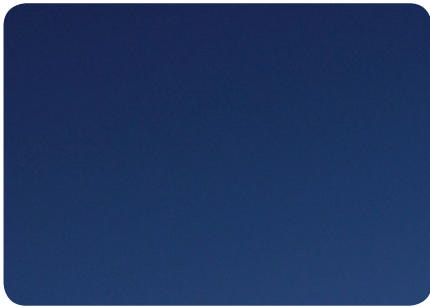
and production of reliable components is then very important.

Process selection

Process selection is a primary task in the design of a Hi-Rel Specific Component. We use proven, stable and established processes that have been used for similar purposes before. Generic qualification data can be used to reduce the complexity of component qualification.

The process selection must also consider design support. Process variations must be well modelled. Simulation models and component layout models should be verified.

specific  *components*



Design methodology

Design for reliability is in essence to design carefully and with margins. Performance simulation must consider process variations and normally also a wide temperature range.

Statistical methods are used to ensure specified performance over the selected operation conditions.

Package selection

Hi-Rel components are often specified to use hermetic packages. SGA offer all type of packages from traditional SBDIL to miniature ceramic carriers. Plastic packages are of course also available. Assembly is truly custom as for any Specific Component.

Qualification program

A qualification program is very much possible to customize. We perform qualifications based on MIL-STD-883 or on similar JEDEC-standards.

Qualification may include package related testing like for example thermal and mechanical shock as well as die related testing like life test. A life test is performed at elevated temperature under application like conditions to emulate expected life time.

Screening program

Screening is a part of the manufacturing flow for the component. We perform screening based on MIL-STD-883 or on similar JEDEC-standards. The screening program can of course be customized according to customer requirements.

Some examples of screening tests are package related tests like hermeticity and temperature cycling and die related tests like electrical test at extreme temperature.

Burn-In is often a part of a screening program. A certain time at elevated temperature under application like conditions is intended to find early failures.

Long term supply

Continuous supply during long time is often important for Hi-Rel components. Replacing a component may be very expensive as the application in that case may need to be qualified again. We have solutions for very long time supply without changes. This may involve storing of wafers and other critical material.

We are also well prepared for minimizing the effects if a redesign is really necessary. A Specific Component can be customized to fit an existing applications without further changes to the application.

Hi-Rel solutions

SGA design and produce highly reliable Specific Components for new or existing applications. We have experience from many different projects where we have continuously supplied Hi-Rel components for many years.

**Contact SGA for
Hi-Rel solutions**

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components

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