Quality Book
To Our Customers,

In today’s highly competitive environment, we recognize quality is a differentiator and customer satisfaction is essential to the success of our company. At Skyworks, we are committed to implementing and maintaining quality systems across the entire company, from the product development cycle to manufacturing operations and post-sales services.

We invite you to learn more about our processes as we strive to deliver the industry’s highest quality products and solutions. This deep-rooted commitment translates into significant, sustainable value for your business.

Sincerely,

David J. Aldrich
President and Chief Executive Officer

Kenneth J. Huening
Vice President, Quality
Skyworks Solutions

Skyworks Solutions, Inc. is an innovator of high performance analog semiconductors. Leveraging core technologies, Skyworks supports automotive, broadband, wireless infrastructure, energy management, GPS, industrial, medical, military, wireless networking, smartphone, and tablet applications. The Company’s portfolio includes amplifiers, attenuators, circulators, demodulators, detectors, diodes, directional couplers, front-end modules, hybrids, infrastructure RF subsystems, isolators, lighting and display solutions, mixers, modulators, optocouplers, optoisolators, phase shifters, PLLs/synthesizers/VCOs, power dividers/combiners, power management devices, receivers, switches, and technical ceramics.

Headquartered in Woburn, Massachusetts, USA, Skyworks is worldwide with engineering, manufacturing, sales and service facilities throughout Asia, Europe, and North America. For more information, please visit Skyworks’ Web site at: www.skyworksinc.com.

New products are continually being introduced at Skyworks. For the latest product information, visit our Web site at www.skyworksinc.com, contact your local sales office, or email us at sales@skyworksinc.com.

The Skyworks Advantage

- Broad front-end module and precision analog product portfolio
- Market leadership in key product segments
- Solutions for all air interface standards, including CDMA, GSM / GPRS / EDGE, LTE, WCDMA, and WLAN
- Engagements with a diverse set of top-tier customers
- Strategic partnerships with all leading baseband suppliers
- Analog, RF, and mixed-signal design capabilities
- Access to all key process technologies:
  - GaAs HBT, pHEMT, BiCMOS, SiGe, CMOS and RF CMOS, and Silicon
- World-class manufacturing capabilities and scale
- Unparalleled level of customer service and technical support
- Commitment to technology innovation

“We utilize world-class quality methodologies and practices and continuously drive improvement to achieve perfect quality.”
Today’s Marketplace Demands Perfect Quality. Skyworks is Committed to Achieving It!

In today’s highly competitive environment, we recognize that quality is a differentiator and make it the thread of our system that runs across business processes throughout the entire company, from various stages of the product life cycle to manufacturing operations and post-sales services.

We have established an environment that empowers individuals to focus on continuous improvement and foster growth through a commitment to total customer satisfaction.

Quality Policy
Skyworks has adopted a simple, yet powerful quality policy that guides business decisions day-in and day-out.

Quality Policy
At Skyworks, we are committed to the never ending quest for perfect quality.
- No Field Failures
- No Customer Returns
- No Reliability Failures
- No Yield Loss

Skyworks House of Quality

CEO
Vice President Quality
FA / Reliability
Customer Quality
Manufacturing / Supplier Quality
Quality Systems
Assembly / Test Quality

ISO 9001 and ISO/TS 16949 Management Systems

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Quality Policy
Certifications

As an industry leader, Skyworks has demonstrated its quality leadership and strengthened its commitment to customer satisfaction through formal, third-party registration to ISO 9001, ISO/TS 16949, and ANSI/ESD S.20.20.

ISO 9001

ISO 9001 is an internationally recognized Quality Management System standard that promotes customer satisfaction through continual improvement of the system’s effectiveness. ISO 9001 provides a model for a Quality Management System which focuses on the effectiveness of the processes in a business to achieve desired results. The standard promotes the adoption of a process approach emphasizing the requirements, added value, process performance and effectiveness, and continual improvement through objective measurements.

ISO/TS 16949

One of the major challenges facing today’s manufacturers is that, even though there is a low failure probability for each individual component, the total failure probability for all parts combined may reach unacceptable levels. The ISO/TS 16949 standard answers this challenge by defining requirements focused on continual improvement, and the understanding of process interaction. It also creates an implementation framework for customer specific requirements, and includes clear requirements for development processes and techniques to prevent problems in the earliest possible stage of product development.

Jointly developed by International Automotive Task Force (IATF), ISO/TS 16949 is the automotive industry’s international quality management system standard intended to answer the need for global consistency, continual improvement, and increased customer satisfaction. It is approved and released by the International Organization for Standardization (ISO).

ANSI/ESD S.20.20

ANSI/ESD S.20.20 is a standard for the Development of an Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment. The standard covers the requirements necessary to design, establish, implement, and maintain an Electrostatic Discharge (ESD) Control Program.

What Certification Means to You

- Partnering with a company that has made a commitment to quality
- Doing business with an organization that has a recognized management system model
- Assurance that necessary resources have been dedicated
- Consistent processes and products
- A management team that has established clear quality objectives and targets that are constantly monitored and analyzed
- Quality systems and procedures that are continuously audited and improved
Customer Quality

Focused on Customer Product Quality to:
- Ensure customer satisfaction
- Facilitate internal technical organization efforts
- Implement special needs requirements
- Minimize returns
- Determine root cause, corrective actions and resolution
- Participate in change control board
- Manage multiple aspects of all RF products

Putting the Customer First — Total Customer Satisfaction

Vertically Oriented Customer Interface
- Drive new customer initiatives
- Represent customer interest within organization and promote awareness of customer requirements
- Collaborate with customers and sales offices
- Provide failure information to operations and business units

Horizontally Oriented
- Interact with all product lines to achieve continuous improvement

Design and Development
Participate in Gate Reviews
- Ensure products meet customer requirements
- Comply with ESD and EOS
- Create quality awareness
- Enforce design rules
- Participate in product readiness

Manufacturing
Participate in Failure Mode Effects Analysis
- Verify process compliance
- Structure design of experiments
- Manage maverick lots
- Coordinate manufacturing quality
- Attend change control board meetings

Skyworks ongoing commitment to quality is reflected in awards received from leading global customers, including such honors as “Best Electronics Supplier” and “Best Supplier Overall”.
Failure Analysis / Reliability

Teams and Tools in Place to Achieve Perfect Quality Goals

- Conduct qualification plans
  - Test vehicle specifications, required stress tests, and schedules
- Complete product qualification stress testing
- Characterize ESD
- Deliver continuous feedback on quality/reliability
  - Process, package, product, design, and test
- Perform reliability evaluations/experiments
  - Investigate suspected low PPM problems through accelerated stress tests
  - Conduct early feedback and reliability trials
  - Process improvements, new technologies, test screens, etc.
- Finalize qualification reports
- Estimate failure rates
- Verify failures and provide failure analysis support

Standard Product Qualification Tests

- HTOL: 1000 hours at 125 °C case temperature
- MSL preconditioning: moisture soak, 3X reflow
- HAST/Autoclave/85 °C, 85% RH THB (post reconditioning)
- Temperature cycling: 500 cycles, -65 °C to +150 °C (post preconditioning)
- High-temperature storage: 1000 hours at 150 °C ambient
- ESD testing: (HBM, MM, CDM)
- Latch-up tests

World-Class, Industry-Leading Reliability and Failure Analysis Capability

- Comprehensive and thorough evaluation of reliability
- Wafer level to complete product

Multi-Site Teams

- Integrated wafer level reliability physics
- Failure analysis
- Product qualification groups

New or Changed

- Wafer Process
- Package and Assembly
- Product

Customer Assured

- Quality
- Reliability
- Performance

Qualification

- Evaluate
- Reliability
- Manufacturability
- Performance
- Qualification Data from Similar Products

New or Changed Customer Assured

- Wafer Process
- Package and Assembly
- Product

Qualification

- Evaluate
- Reliability
- Manufacturability
- Performance
- Qualification Data from Similar Products
Quality Systems

The Foundation of Our Organization

Skyworks has aggressively deployed comprehensive business systems throughout the entire organization. They are based on the philosophy that these should be self-managing and self-correcting. The Plan-Do-Check-Act cycle is emphasized from end to end.

- Customer focused
- Promotion of a leadership environment
- Involves all people within the organization
- Based on process and systems approach
- Continuous improvement is a permanent objective
- Management decisions are data driven
- Suppliers are treated as partners

III Quality Management Systems Plus

Innovate

- Listen to the voice of the customer and the business
- Develop effective quality system tools
- Adopt a holistic approach to quality system innovation

Implement

- Enthusiastically communicate the vision to the organization
- Train the stakeholders, ensure the systems are understood and embraced
- Ensure ongoing compliance
- Monitor and measure the effectiveness and efficiency of these processes

Improve

- Make incremental improvements wherever possible, no matter how small
- Ensure improvements are formally deployed throughout every aspect of the system processes

Quality Management System Principles

- Understand customer or market needs (inputs)
- Develop processes that meet these needs
- Monitor and measure the effectiveness and efficiency of these processes
- Continuously improve the system to achieve customer satisfaction (outputs)
Manufacturing Quality

Key Manufacturing Metrics Drive Actions for Continuous Improvement

Skyworks’ commitment to manufacturing quality includes working with the operations and supply chain organizations to promote the use of advanced quality tools and principles.

- Ensure internal and second-source foundry products meet quality goals and expectations
- Manage fab material supplier quality activities
- Perform incoming material inspection, NCMR, MRB, material disposition, supplier development review, supplier site audit, supplier qualification/re-qualification
- Define, develop, and implement metrics for continuous improvement
- Initiate, explore, and implement quality tools for poke-yoke methods to insure the integrity of the manufacturing process controls
- Validate critical process changes
- Propose process improvement opportunities based on analysis and monitoring of process control indicators
- Investigate customer complaints and determine root cause
- Prepare and perform process audits

Advanced Quality Tools

Best quality practices lead to best quality products. Quality is built in, not tested in:

- Failure Mode Effects Analysis (FMEA) developed during design and manufacturing
- Measurement systems analysis (Gage R&R) performed on all test and measurement equipment
- Process control plans used during pre-launch and manufacturing
- Production Part Approval Process (PPAP)
- Continuous process stability and capability monitoring
Supplier Quality

Partnering with Superior Organizations to Provide Exceptional Products and Value

Skyworks commitment to supplier quality includes working closely with purchasing, supplier engineering and operations to provide reliable supplier development support throughout the supply chain.

- Entire supplier base is ISO 9001 certified and all calibration and testing laboratories are ISO/IEC 17025 certified
- Supplier development performed in line with ISO/TS 16949 requirements
- Skyworks Process Control Optimization (PCO) methodology used to assess and improve supplier process stability and capability
- Continuous supplier monitoring and analysis based on quality, delivery and customer impact data
- Web-based supplier communication tools provide immediate access to latest process and product documentation
- On-site audits and follow-up activities performed by highly trained teams of individuals

Six Sigma

A Measure of Quality That Strives for Perfection

Skyworks is committed to a policy of continual improvement to support customer satisfaction. This policy involves all employees and encompasses all aspects of its business, including process, product, quality and cost. Skyworks has adopted the Six Sigma approach as a tool for continual improvement.

- A disciplined, data-driven approach and methodology for defect elimination
- Six standard deviations between mean and nearest specification limit in any process from manufacturing to transactional and from product to service
- DMAIC (define, measure, analyze, improve, control) improvement system for existing processes falling below specification and looking for incremental improvement
- DMADV (define, measure, analyze, design, verify) improvement system used to develop new processes or products at Six Sigma quality levels