

---

# MICROTEX ELECTRONICS

201 E. Arapaho, Suite 200  
Richardson, TX 75082

Tel: (972) 479-1011  
Fax: (972) 479-1015

## Corporate Quality Manual Rev A. March, 2003

This quality manual applies to all locations of Microtex Electronics in determining the high level policies in the quality management system. Any variations due to local operating practices shall be addressed and defined in site specific operational procedures.

Propriety and confidential: this document may not be copied, disclosed, or used in whole or in part without the consent of Microtex Electronics. Hard copies are for reference only and uncontrolled. User is responsible for verifying correct revision of this manual in the electronic file prior to usage.

## Table of contents:

Contents	2
Company Profile	4
Introduction	4
Quality Policy	4
Organizational Chart	29
Revision status sheet	5
Approval Signatures	6
4.1 Management Responsibility	7
4.2 Quality System	9
4.3 Contract Review	10
4.4 Design Control	11
4.5 Document and data control	13
4.6 Purchasing	14
4.7 Control of customer supplied product	15
4.8 Product Identification and traceability	16
4.9 Process control	17
4.10 Inspection and Testing	18
4.11 Control of Inspection, measuring, and Test Equip.	19
4.12 Inspection and test status	20

4.13 Control of nonconforming product	21
4.14 Corrective and preventive action	22
4.15 Handling, Storage, Packaging, Preservation, Delivery	23
4.16 Control of Quality Records	24
4.17 Internal Quality Audits	25
4.18 Training	26
4.19 Servicing	27
4.20 Statistical Techniques	28

## Company Profile

---

### Introduction

Microtex Electronics is an electronics company serving the Utility, Industrial, and Computer marketing sector. We specialize in the design, manufacture, sales and support of products for this market sector. Microtex Electronics is a spin-off of the R&D outfit Hardware Design Consultants, founded by John David Nickles. Hardware Design Consultants has been in business for over eight years developing products for fortune 500 companies. Microtex Electronics was formed to target commercial and industrial applications in a wide range of OEM and distribution customers. With a firm commitment to technology leadership. Quality and reliability, Microtex Electronics is poised for growth in the Utility and Computer sector. This quality Assurance manual defines Microtex Electronics policies and objectives regarding the application of the principles of quality assurance, to ensure that all products and services rendered by the company are of required quality, and comply with the customer's stated requirements and expectations.

### **Quality Policy**

#### Definition

Quality at Microtex Electronics means error-free operation which meets the needs and exceeds of our internal and external customers.

#### Implementation

It is each individual's responsibility to understand his or her customer's needs and expectations and deliver products and services to achieve Microtex Electronics Quality.

# Revision Status Sheet

Manual Rev.	Page Rev.	Date Issued.	Remarks	Approved
A	A All	3/15/03	Initial Release	JDN

# Approval Signatures

Upon major Revision of this manual, Approval and acceptance by each Microtex Electronics Department is recorded here.

## Signatories

President, CTO	John David Nickles	Date 3/15/03
Director of Sales	Roy Bartlett	Date 3/15/03
Director of Operations	Frank Nickles	Date 3/15/03

# Management Responsibility

## 4.1.1 Quality Policy

The company's Quality Policy, objectives and commitment to quality are defined by the executive team, which consists of the President/GM and functional directors / managers. This Policy is communicated to all levels of the organization through training and publication of the documented Quality system.

## 4.1.2. Organization

Due to the diversity of operations, the responsibility, authority, and interrelation of all personnel who manage, perform, and verify work affecting quality will best be served through department organizational charts, or in quality systems procedures and work instructions at all locations.

### 4.1.2.1. Responsibility and Authority

Management Organizational Charts define the lines of responsibility in interrelation of the major functional organizations.

### 4.1.2.2. Resources

The identification and provision of adequate resources is the responsibility of management, and shall include all activities defined and documented in the quality system.

### 4.1.2.3. Management Representative

Management Representatives for each location are identified on site specific organization charts, Representatives are Authorized to carry out responsibilities as described in the ISO 9001 Standard. The Director or quality appoints Management Representatives.

## 4.1.3. Management Review

The Quality System shall be reviewed to ensure its continued effectiveness and suitability in meeting the ISO-9000 standard and Microtex Electronics' stated quality policy and objectives. The review shall address the following:

- Confirmation that the quality policy continues to be relevant to Microtex Electronics' goals and our customer's expectations, as well as understood, implemented, and maintained throughout the organization.
- The identification of weaknesses and deficiencies in the quality system, including those identified as a result of internal and external Audits.
- Verification that corrective/preventive actions are effective.
- Action Items are to address any deficiencies, with the individuals or groups responsible, conclusions, and anticipated completion dates identified.

The Director of quality is responsible, at minimum for maintaining ongoing analysis of corrective and preventive actions, internal and external audit findings, customer complaints, and process and product nonconformities.

A formal record of management review is maintained, together with attendees, and details of decisions taken. These management review meetings are scheduled on a semiannual basis as a minimum.

## **4.2 QUALITY SYSTEM**

### **4.2.1 GENERAL**

This Quality Manual outlines the Quality System in place at all Microtex Electronics facilities. Implementation of the Quality System is through common standard operating procedures supported by unique product Phase Review process, departmental procedures, necessary work instructions and process flow charts.

This system is consistent with, and shall satisfy the requirements of, the ISO 9001 Quality System Standard, 1994 issue.

This manual serves as the primary reference document for all activities related to quality and is used for assessing the effectiveness of the Quality System as a means of ensuring that product conforms to specified requirements.

The Quality System described in this manual applies to all products and services which are offered to customers during all phases of development, design, production, inspection, packaging, shipping and servicing.

### **4.2.2 QUALITY SYSTEM PROCEDURE**

The company's documented Quality System is tiered in levels:

Level 1 (Corporate Quality Manual)

Level 2 (Standard Operating Procedures)

Level 3 (Work Instructions, Forms & Records)

Standard Operating Procedures, Work Instructions, and Forms are documented and controlled via Master Lists.

### **4.2.3 QUALITY PLANNING**

Quality Planning is an integral part of the Quality Management System as defined by this manual. Specific Quality Plans may be developed as part of design projects or as required by contract review. If required, these plans will set out the specific practices, resources, and sequence of activities relevant to contract, product or project requirements. Quality planning also encompasses any applicable quality management system procedures.

## **4.3 CONTRACT REVIEW**

### **4.3.1 GENERAL**

Documented procedures are maintained for the review of orders/contracts, including channels for communication and methods for resolving discrepancies. When a verbal order is received, order requirements are verbally agreed upon before acceptance.

### **4.3.2 REVIEW**

Review is performed to ensure that all agreed upon requirements are adequately defined and documented prior to acceptance/implementation of the order/contract.

Orders/contracts are reviewed to ensure that we have the capability to meet order/contract requirements. The manufacturing schedule is checked and the delivery date is determined.

Any problem, ambiguities, or differences identified in contract review are addressed, and the quote is created and sent to the customer.

Customer orders are reviewed to ensure that they match the original quote or contract.

### **4.3.3 AMENDMENT TO CONTRACT**

Amendments to or deviations from accepted orders/contracts are made according to documented procedures, and changes are communicated to the concerned functions.

### **4.3.4 RECORDS**

Quality records of contract reviews and acceptance.

## **4.4 DESIGN CONTROL**

### **4.4.1 GENERAL**

The product development group will design products using appropriate techniques including mathematical modeling, simulation, and analysis techniques. Apart from the product specification the product development groups will design in accordance with the Engineering Design Guidelines. Non-conformance to the design guidelines should be documented and approved by the Director of Engineering and the Director of Quality. Appropriate testing shall be conducted to verify conformance to models and simulation techniques. Variations by trial and test should be avoided except where no appropriate simulation or modeling technique is available.

Each design shall include appropriate worse case analysis to ensure design specification shall be met over time and component normal variance. Each design should be reviewed for design for manual assembly.

Materials shall be selected for design from the standards parts list. New parts shall be selected and qualified according to the new parts approval process. All parts shall be multiple sourced except under exceptional circumstances. The Director of Engineering will approve exceptions.

### **4.4.2 DESIGN AND DEVELOPMENT PLANNING**

A plan is established to identify the tasks, schedules and resources required to develop a product. The plan is updated as the design evolves.

### **4.4.3 ORGANIZATIONAL AND TECHNICAL INTERFACES**

Organizational and other technical interfaces between different groups or departments are defined and documented in the New Product Development Process, or specific Product development plan, and the necessary information are documented and transmitted regularly as required.

### **4.4.4 DESIGN INPUT**

Product design requirements are identified, documented and controlled. The New Product Development Process verifies the design requirements regularly. Incomplete, ambiguous and conflicting requirements are resolved between the relevant organizations. Contract Review is considered an essential part of this activity.

#### **4.4.5 DESIGN OUTPUT**

The New Product Development Process will verify that the design output meets the design input requirements, acceptance criteria, regulatory requirements and those characteristics that are crucial to the safe and proper functioning of the product.

#### **4.4.6 DESIGN REVIEW**

During the Design development, as specified by the Product Development Plan, formal reviews are conducted. The appropriate output deliverables are verified and recorded. Records of the design reviews are maintained.

#### **4.4.7 DESIGN VERIFICATION**

Each product design should be put through a full evaluation to demonstrate conformance to product specification. Each evaluation should be fully documented and recorded as a control document.

#### **4.4.8 DESIGN VALIDATION**

Each design will be subjected to verification of the design quality, design margin and design performance under application conditions that occur beyond specification limits. Under such abnormal conditions should a failure in the design occur, such a failure shall not cause harm or safety hazard to the users.

#### **4.4.9 DESIGN CHANGES**

All design changes including fixes to known problems, suggestions for improvement, and/or cost reduction are identified, documented and controlled.

All implemented changes are reviewed and approved, prior to implementation, by the same functions/ organizations that performed the original review and approval, unless specifically designated otherwise.

## **4.5 DOCUMENT AND DATA CONTROL**

### **4.5.1 GENERAL**

The company maintains procedures to handle Document and Data Control activities.

### **4.5.2 DOCUMENT APPROVAL AND ISSUE**

All controlled documents and data are reviewed and approved for adequacy by authorized personnel prior to their release and distribution. They are available at all locations where they are essential to the effective functioning of the quality system.

Reference documents of external origin are controlled to assure that only the appropriate revision levels are used.

Obsolete documents are promptly removed from all points of issue or use, unless required to maintain control of down level build of product. Where this is a requirement the document will be marked accordingly.

### **4.5.3 DOCUMENT CHANGES**

Changes to controlled documents and data are reviewed and approved by the same functions/organizations that performed the original review and approval unless specifically designated otherwise.

The designated functions/ organizations have access to all pertinent background information for the review and change approval.

Where applicable, an explanation of the change is recorded in the document or the appropriate attachments.

## **4.6 PURCHASING**

### **4.6.1 GENERAL**

The company maintains procedures to ensure Purchased Product conforms to specified requirements

### **4.6.2 EVALUATION OF SUBCONTRACTORS**

Suppliers are selected based on their abilities to meet quality, delivery, cost and service requirements. Potential suppliers are jointly selected and reviewed by the Supply Manager and Design Engineering. Quality data, Vendor Rating System, and Source Inspection/ Audit results may be used to assess their capability and performance.

### **4.6.3 PURCHASING DATA**

Specifications and/or drawings are required to define the specified requirements for all purchased products. Purchasing Data will contain the title, number and issue of specific quality system and agency requirements to be applied to the product, where applicable. Purchase orders are reviewed and controlled by the Purchasing Department.

### **4.6.4 VERIFICATION OF PURCHASED PRODUCT**

#### **4.6.4.1 SUPPLIER VERIFICATION AT SUBCONTRACTOR'S PREMISES**

Purchased product is evaluated by Incoming Inspection as required. If appropriate, source inspection may be required and specified in the purchasing documents.

#### **4.6.4.2 CUSTOMER VERIFICATION OF SUBCONTRACTED PRODUCT**

When required, verification by customer or their representative at the subcontractor's plant, will not absolve MICROTEX of the responsibility to provide an acceptable product, or solely used as evidence of an effective control of quality.

## **4.7 CONTROL OF CUSTOMER SUPPLIED PRODUCT**

Customer supplied products is handled in accordance with the normal controls as defined in the quality system. Any such product that is lost, damaged or unsuitable for use will be recorded and reported to the customer.

The company maintains procedures to ensure Purchased Product conforms to specified requirements.

## **4.8 PRODUCT IDENTIFICATION AND TRACEABILITY**

Procedures exist that identify the product through all stages of production, delivery and installation.

All products and parts with assigned part numbers are identified from applicable engineering drawings throughout the process.

All products are traceable by lot or serial number when necessary to satisfy regulatory requirements.

## 4.9 PROCESS CONTROL

### GENERAL

Procedures are in place to ensure that production processes are conducted in a controlled environment, which will include:

- documentation defining the manner of production
- monitoring of process and product characteristics
- approved processes and equipment, where required
- expected levels of workmanship quality.

### SPECIAL PROCESSES

Special processes, which by their nature cannot be fully verified by subsequent inspection or testing, have had their processes documented with procedures written to ensure that their specific requirements are met.

The following processes are defined as special processes at Microtex:

- Soldering
- Electro-Static Discharge (ESD) handling
- Hi Pot Testing

Appropriate records are maintained for qualified equipment, personnel and processes.

## **4.10 INSPECTION AND TESTING**

### **4.10.1 GENERAL**

The company maintains procedures for all forms of inspection and test activities

### **4.10.2 RECEIVING INSPECTION AND TESTING**

Incoming materials are processed and verified upon receipt for condition, identification and compliance with the purchasing data through receiving, as required, prior to release.

All discrepant material is segregated and handled in accordance with Section 4.13 Control of Nonconforming Product.

### **4.10.3 IN-PROCESS INSPECTION AND TESTING**

All product is inspected, tested and identified in accordance with the quality plan or documented procedures.

All in-process testing is done in accordance with approved test procedures.

All non-conforming product is identified and handled in accordance with documented repair procedures.

### **4.10.4 FINAL INSPECTION AND TESTING**

All finished product is final tested and inspected prior to movement to the warehouse.

Inspection and testing is done in accordance with the quality plan or documented procedures.

No product is released until all activities specified in the quality plan or documented procedures have been satisfactorily completed, verified and recorded.

### **4.10.5 INSPECTION AND TEST RECORDS**

Records are maintained in accordance with Section 4.16 Quality Records. These records provide evidence that the product has passed inspection and/or test with defined procedures.

## **4.11 CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT**

### **4.11.1 GENERAL**

The company controls, calibrates, and maintains inspection, measuring and test equipment to ensure the conformance of product to the specified requirements.

### **4.11.2 CONTROL PROCEDURES**

The appropriate inspection, measuring and test equipment is selected based upon the measurements and accuracy.'

All inspection, measuring and test equipment that can affect product quality is calibrated at regular intervals in accordance with documented procedures that are traceable to NIST (National Institute of Standards and Technology).

Equipment is calibrated using written procedures that clearly define test methods, acceptance criteria and the actions to be taken when results are unsatisfactory.

Equipment is ensured to be capable of the accuracy and precision necessary-

The Calibration Department keeps calibration records for inspection, measuring and test equipment.

The validity of previous inspection and test results is assessed when inspection, measuring and test equipment is found to be out of calibration.

Environmental conditions are ensured to be suitable for the type of calibrations, inspections, measurements and tests being taken.

Equipment is handled and stored in such a manner to ensure that its accuracy and fitness for use is maintained.

Safeguards are in place to protect both test hardware and software from adjustments that would invalidate the calibration settings.

Equipment design information is available upon request for verification that it is functionally adequate, provided company confidentiality is not compromised.

## **4.12 INSPECTION AND TEST STATUS**

Inspection and test status of product is identified throughout production or servicing. Documented procedures or work instructions specify the use of tags, labels, stamps, travelers, and/ or test software, as appropriate.

Other suitable methods may be used to show conformance or nonconformance of product in regard to inspections and tests performed.

## **4.13 CONTROL OF NONCONFORMING PRODUCT**

### **4.13.1 GENERAL**

Nonconforming products are identified and clearly segregated from the process flow to prevent inadvertent use, shipment or inclusion with conforming items.

Procedures provide for identification, segregation, documentation, evaluation and disposition of nonconforming product.

Notification to the relevant departments is also documented.

### **4.13.2 REVIEW AND DISPOSITION OF NONCONFORMING PRODUCT**

The responsibility for reviewing nonconforming product and deciding on the proper course of action ties with the quality departments.

Nonconforming product is reviewed and then dispositioned according to the following:

- Rework or repaired to meet the specified requirements
- Accept with or without repair by concession
- Returned to vendor
- Scrap

Items that are reworked or repaired must be reinspected or retested for compliance with applicable standards and test procedures.

## **4.14 CORRECTIVE AND PREVENTIVE ACTION**

### **4.14.1 GENERAL**

Microtex maintains procedures for corrective and preventive action. Any changes to the Quality Management System as a result of such actions are implemented and recorded.

### **4.14.2 CORRECTIVE ACTION**

Product nonconformities are investigated to determine the root cause. Effective corrective action is taken to prevent recurrence of the nonconformance.

Processes, work instructions, test records, quality reports, and customer complaints are reviewed to detect and eliminate potential causes of nonconforming product.

Corrective actions are logged in and reviewed to ensure effective corrective actions have been taken.

### **4.14.3 PREVENTIVE ACTION**

Preventative actions are implemented as a result of the identification of trends and recurrences observed in the corrective action process. Steps to prevent recurrence are initiated at the earliest possible point or stage in the process. All appropriate resources are used to detect, analyze and eliminate potential causes of nonconformities

Quality records are maintained for corrective and preventive actions. Changes are documented and procedures are revised as necessary. Follow-up audits, re-inspections or customer follow-ups are conducted as necessary.

## **4.15 HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY**

### **4.15.1 GENERAL**

Procedures are established and maintained to coordinate the movement, handling, storage, packaging preservation and delivery of all products in a manner that does not degrade the quality of the product.

### **4.15.2 HANDLING**

A system is documented and maintained to provide methods and means of handling that prevent damage or deterioration, with particular respect to ESD.

### **4.15.3 STORAGE**

A system is documented and maintained to provide secure storage areas or stock rooms to prevent physical damage or deterioration due to shelf life or ESD for all products, pending use or delivery. Where applicable, these areas are to be accessible only to authorized personnel. The condition of shelf-life sensitive product is periodically assessed when cycle counts are performed.

### **4.15.4 PACKAGING**

A system is documented and maintained to ensure that all products are packaged according to the approved packing drawing. Where contract specifies special packing requirements, procedures exist to ensure compliance. All product packaging must ensure proper product protection during the specified shipping method.

### **4.15.5 PRESERVATION**

All steps are taken to ensure that product is protected from damage and deterioration at all stages of the process.

### **4.15.6 DELIVERY**

Product is shipped to customers using standard shipping methods. Where specified by contract, special arrangements are utilized.

## 4.16 CONTROL OF QUALITY RECORDS

Quality records are maintained to demonstrate achievement of the required quality and the effective operation of Microtex Electronics' quality system.

All quality records are legible and identifiable to the product involved. Records may be stored electronically or in hard copy form. Records are stored and maintained for a minimum of five years unless otherwise specified or required by regulatory agencies, in an environment suitable to minimize damage or deterioration and to prevent loss

Records retention is the responsibility of the department manager in accordance with the above policy. Quality records are maintained for all applicable activities such as:

- Management review minutes
- Contract reviews
- Design records (data, drawings, review minutes and agency reports)
- Purchasing data and documents
- Vendor rating and source inspection records
- Purchaser supplied product lost, etc. — (1 yr. min.)
- Product identification records----- (1 yr. min.)
- Process control records -----(1 yr. min.)
- Inspection and testing records ----- (1 yr. min.)
- Calibration records
- Control of nonconforming items
- Internal and external audits
- Corrective action reports
- Certification and training records of employees
- Customer returns and Repairs

Where required by contract, records are made available for evaluation by the customer or the customer's representative for an agreed period.

## 4.17 INTERNAL QUALITY AUDITS

The Director of Quality is primarily responsible for carrying out a program of planned and documented internal quality audits against the ISO 9001 Standard and the documented Quality Management System

Audit results and status are reviewed at the Management Review meeting.

Audits are annually scheduled to reflect the results and status of previous audits and importance of the activity being audited.

Appropriately trained and qualified personnel who are not directly responsible for the area being audited perform audits.

The audits and follow-up actions are carried out in accordance with documented audit procedures or checklists.

The audit results are documented and distributed to all responsible individuals. Management responsible for the area audited will take timely corrective and preventive action on the deficiencies found by the audit.

## 4.18 TRAINING

Management is responsible for identifying job requirements and training needs for employees. Training is provided by managers, on the job training or through company approved resources.

All personnel performing activities affecting quality are trained in the performance of their job before they provide any output to their customer.

Personnel performing specific tasks are qualified to perform these tasks based on one or more of the following:

- Education
- Work Experience
- Specific Job Skill Training

Completion of training is recognized by methods such as:

- Certification
- Record of Attendance
- Documented Skill
- Testing/ Examination

Records of all training, education and experience are maintained and related to the identified training needs. Human Resources is responsible for maintaining training records for all employees.

## 4.19 SERVICING

Service requests are initiated by customers through the Customer Service

Department. Servicing includes repair or rework of returned products.

Reports of findings are sent to the customer as required. Quality records of activities are maintained.

Procedures are established and maintained for the following activities:

- Customer Services
- Customer Returns and Repairs
- Failure Analysis and Corrective Action

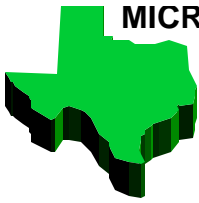
## **4.20 STATISTICAL TECHNIQUES**

### **4.20.1 IDENTIFICATION OF NEED**

Statistical techniques Are used wherever appropriate to monitor and control processes or activities. The need for a particular technique is reviewed by the Engineering, Operations, and Quality departments.

### **4.20.2 PROCEDURES**

These methods will include the use of sampling plans in appropriate areas, trend analysis for determination of field performance, and controls to demonstrate effective process capability.



## Microtex Organizational

