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QUALITY POLICY

ISAHAYA ELECTRONICS CORPORATION conforms to the company philosophy which is based to challenge infinite possibilities, provides satisfactory semiconductor products by customers and contribute to society based on quality priority.

We carry out the following quality assurance activities to realize the quality policy.

- (a) We accurately grasp "Quality from which customer satisfaction is gained" and set optimum quality.
- (b) We make products with high level of standard safety and reliability.
- (c) We aim for "all good products".
- (d) We continuously improve the effectiveness of the quality management system.

1. QUALITY ASSURANCE SYSTEM

1-1. QUALITY ASSURANCE SYSTEM FOR SEMICONDUCTOR DEVICES

Figure II -1 shows our quality assurance system that covers the products life cycle from development and design to mass production, shipping and field use. The product design builds the specifications and quality of the product. For each device product type, a prototype is fabricated to verify the electrical characteristics and reliability before mass production begins. The process design builds the quality during the production process. It controls the equipment and manufacturing conditions, and maintains and improves product finish. Factory Quality Assurance Department carries on the quality control of materials, parts, production process and the ensure of quality and reliability in shipment to enhance the product quality and reliability. Quality Assurance Department keeps the cooperation with each department and carries on the reliability test and evaluation of the developed products to develop to Design Department.

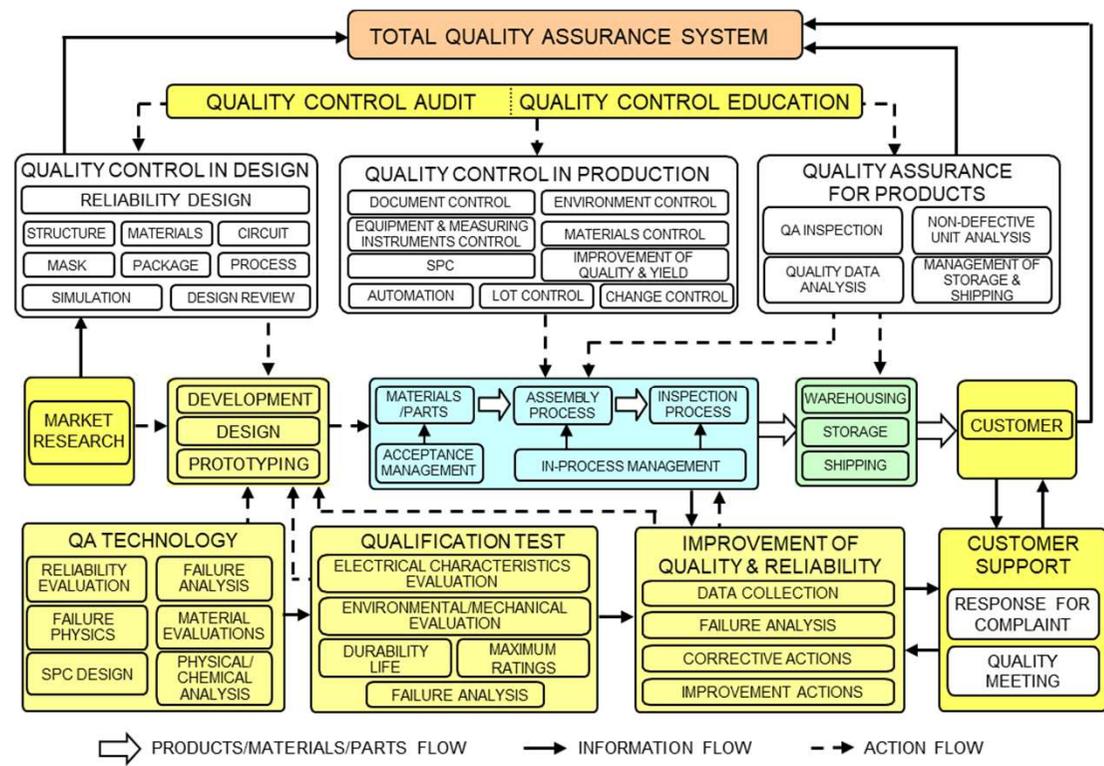


Figure II -1. QUALITY ASSURANCE SYSTEM FOR SEMICONDUCTOR DEVICES

1-2. QUALITY ASSURANCE SYSTEM CHART

We established the quality assurance system chart shown as Figure II -2 with cooperation between internal departments.

For the prototype, reliability tests based on standard of JIS and JEITA etc. are implemented and electrical characteristics evaluation and qualification test are carried out.

After these tests are passed, Product and Process Design Departments make standards for materials/parts, processes and inspections etc. for transition to mass production.

For mass production, Manufacturing Department carries on from materials/parts acceptance to products shipment, and manages processes/equipment.

In case of change for production, changed item is fed back to the process based on the change control regulation.

Before products shipment, Quality Assurance Department monitors quality with the quality assurance test. And Quality Assurance Department corresponds technical inquiry and investigation/report for the defect product for customer response.

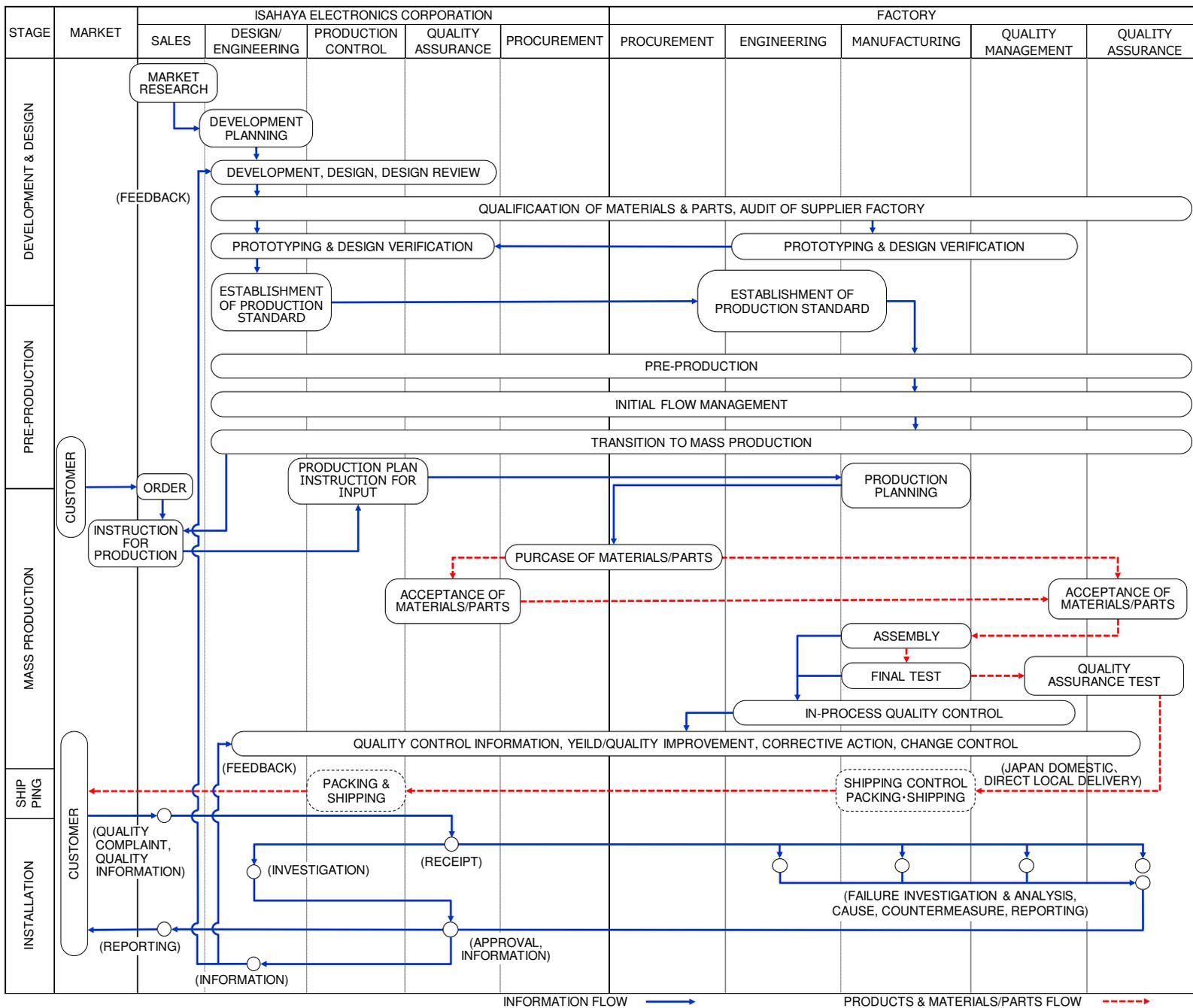


Figure II -2. QUALITY ASSURANCE SYSTEM CHART

2. QUALITY ASSURANCE AT DEVELOPMENT & MASS PRODUCTION STAGE

We show our quality assurance system from development to production to ensure the target quality and reliability.

2-1. DEVELOPMENT PLAN

Using the demand estimate based on market research, we plan development considering the required levels of quality, functionality, reliability and production issues.

Then new theories, technology and ideas are adopted to design and development.

For this purpose, we have defined three development levels:

Level I : Developing products with new design rules, materials, and process technologies

Level II : Modifying the design to mass-produced products, or partially modifying processes, packages, materials, and equipment

Level III : Using the current processes and packages or those of similar or slightly modified quality levels

2-2. DESIGN REVIEW

We review the design validation, a prototype is fabricated. Then the prototype undergoes a qualification test that checks whether their electrical characteristics, maximum ratings, and reliability meet the quality target. Design and Engineering Department and Quality Assurance Department carefully review the results of qualification test. When they find any inconsistencies, they investigate the causes using failure analyses and improve the prototype.

When the new device passes the qualification test, a pre-production meeting is held to check any problems concerning design, production, or quality.

After all problems have been resolved, the device is ready for pre-production.

2-3. PRE-PRODUCTION

At the pre-production stage, initial period management is carried out to check the quality of manufactured products. The initial period management refers to a special management system that applies for a certain period after the production starts.

An increased quantity of information is collected during this period. Immediate corrective actions are then taken for any failures detected and the results are checked. Also at this stage, we prepare standard forms for mass production and train workers.

And we set up materials and parts supply system and provide equipment and tools required for production. The new device is now ready to enter the mass production stage.

2-4. MASS PRODUCTION

The device is put into continuous production based on the production plan.

Figure II-3 shows the quality assurance system at mass production stage.

The in-process quality control consists of workmanships checking of product finish and measurement values of quality data.

At the final inspection, all products undergo electrical characteristic testing and screening is performed to detect defective products and reject marginal products.

Completed products that have passed the final inspection are subjected to quality assurance tests to check whether they meet the customer requirements. The quality assurance test is performed lot-by-lot test to judge whether a lot should be accepted or rejected.

The test results are immediately fed back to relevant departments to maintain and improve quality, and are also used to estimate the reliability in field use.

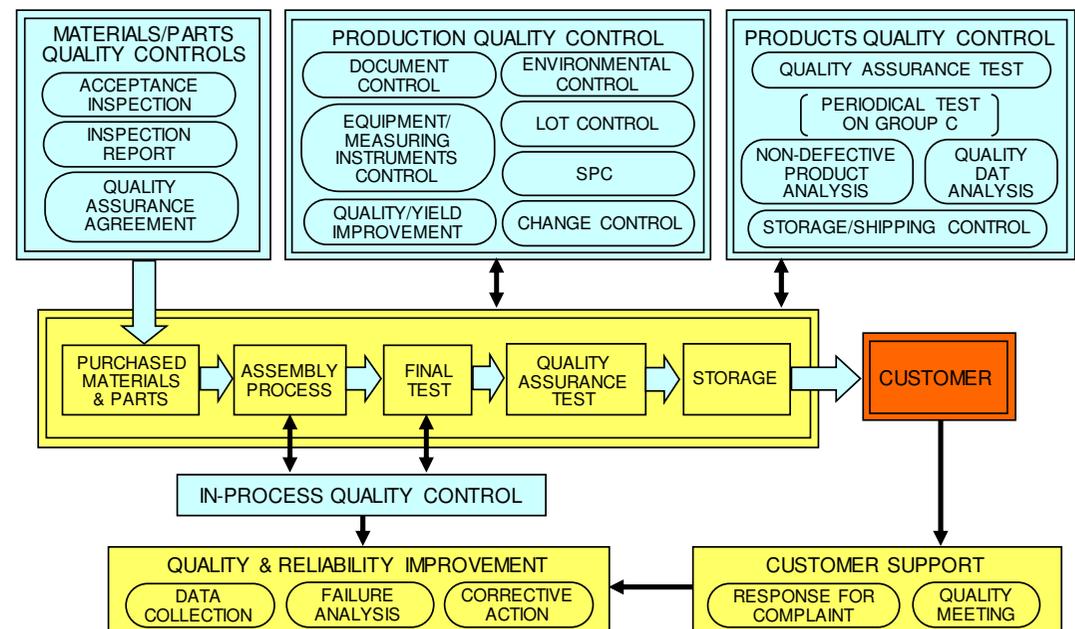


Figure II -3. QUALITY ASSURANCE AT MASS PRODUCTION STAGE

3. QUALITY ASSURANCE OF MATERIALS & PARTS

Semiconductors are manufactured from assembly / packaging materials and parts (e.g. lead frames, gold wires, die bonding materials, packages, and mold resins). Each material or part requires highest levels of specifications and quality.

When developing a new semiconductor device, we compile purchase specifications and drawings for each material and part, then purchase them from specialty suppliers.

We are carrying out the following quality assurance activities to maintain and improve the quality of materials and parts.

Figure II-4 shows the relationship between these activities.

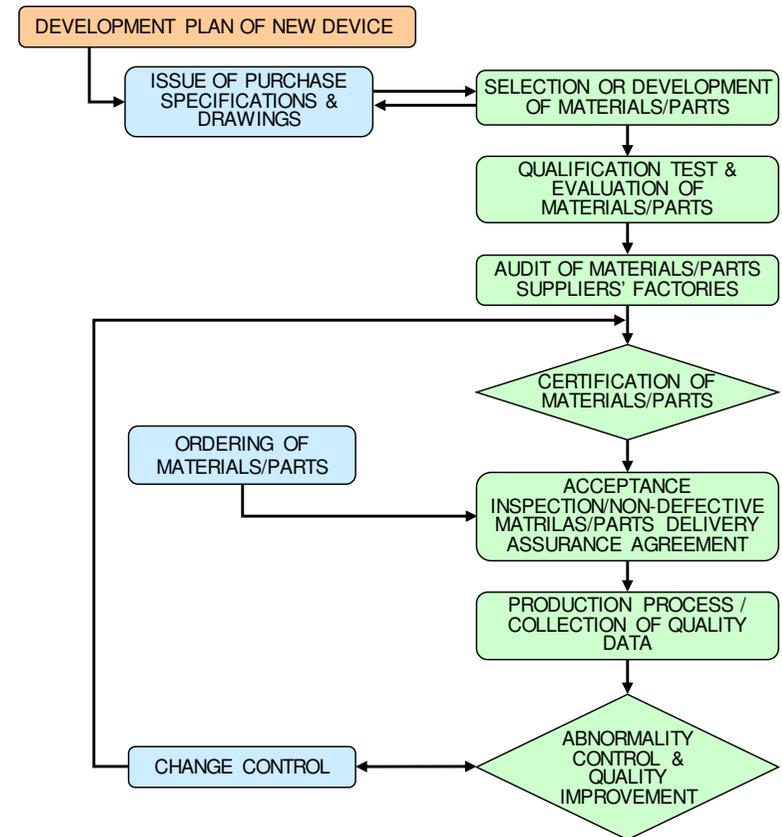


Figure II -4. QUALITY ASSURANCE OF MATERIALS & PARTS

- Careful selection of materials and parts, and joint development with specialty suppliers to meet purchase specifications
- Quality control audit of suppliers' factories, and approval of suppliers and factories
- Qualification test and evaluation of each material or part type
- Acceptance inspection of materials and parts, or conclusion of a non-defective materials/parts delivery assurance agreement with suppliers
- Prevention of degradation causing by storage and handling of materials and parts
- Collection of quality data for materials and parts, and control of abnormalities
- Change control for materials and parts
- Regular quality assurance surveys on materials and parts suppliers, and quality meetings with them

4. CONTROL AT MANUFACTURING PROCESS

4-1. EQUIPMENT CONTROL

The semiconductor manufacturing is a production equipment intensive industry. That is equipment, measuring instruments, and other machinery must operate properly and accurately to maintain and improve the performance and quality of semiconductor devices.

For each piece of equipment, maintenance standard is established according to the effects on performance and quality. Then contents and frequencies of daily and routine inspections are defined based on the types of equipment and control standards. These inspections detect malfunction, abnormalities, and change in precision and provide the basis for a preventive maintenance system. Inspections and checks are carried out in-house, by suppliers, or by inspection laboratories.

4-2. ENVIRONMENT CONTROL

The production environment has great effects on the quality and reliability of semiconductor devices.

We select appropriate control items, methods, and criteria for factors such as temperature, humidity, and dust according to the fabrication process. The D.I. water, gases, and chemicals used on the production line are constantly monitored to maintain purity, resistance and other quality levels.

4-3. MEASURING INSTRUMENTS CONTROL

The precision control of measuring instruments involves acceptance inspections and regular inspections to check and correct precision, and prevent failure and degradation in precision. These inspections also establish a preventive maintenance system. Figure II -5 shows the quality control chart of measuring instruments.

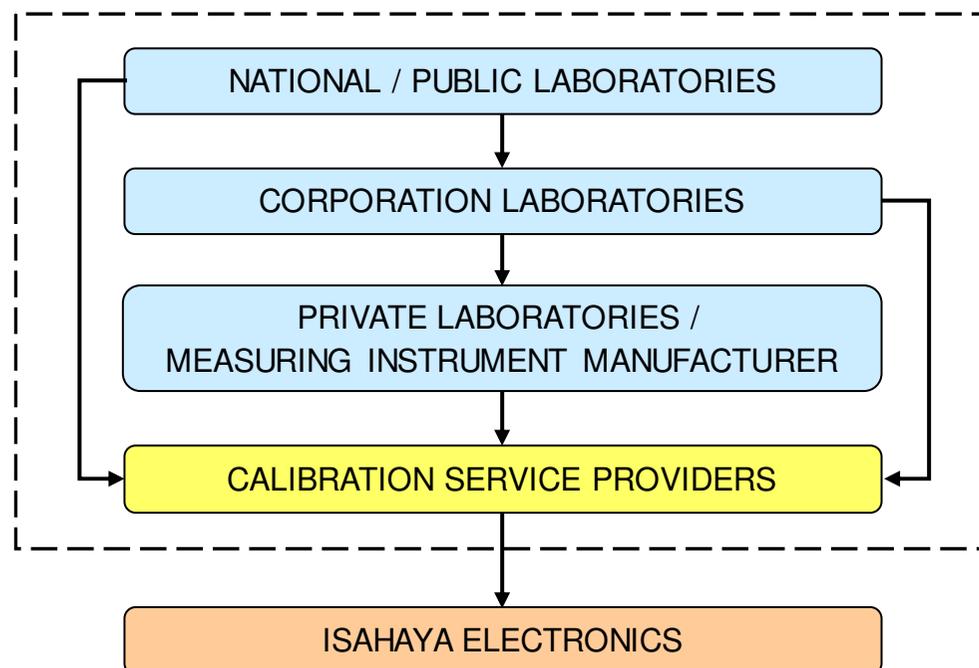


Figure II -5. QUALITY CONTROL CHART OF MEASURING INSTRUMENTS

5. TRACEABILITY CONTROL

When a failure is found, we identify the product lot by the mark on the product, and we can confirm immediately the lot trace of wafer, gold wire, lead frame and mold resin by the process control system. We can also investigate input equipment, input date & time, input & output quantity, defect rate of electrical characteristics test by the same system.

* Trace from the mark on the product is for T150 products only. But, it is possible for general products to trace by the lot information on the reel label.

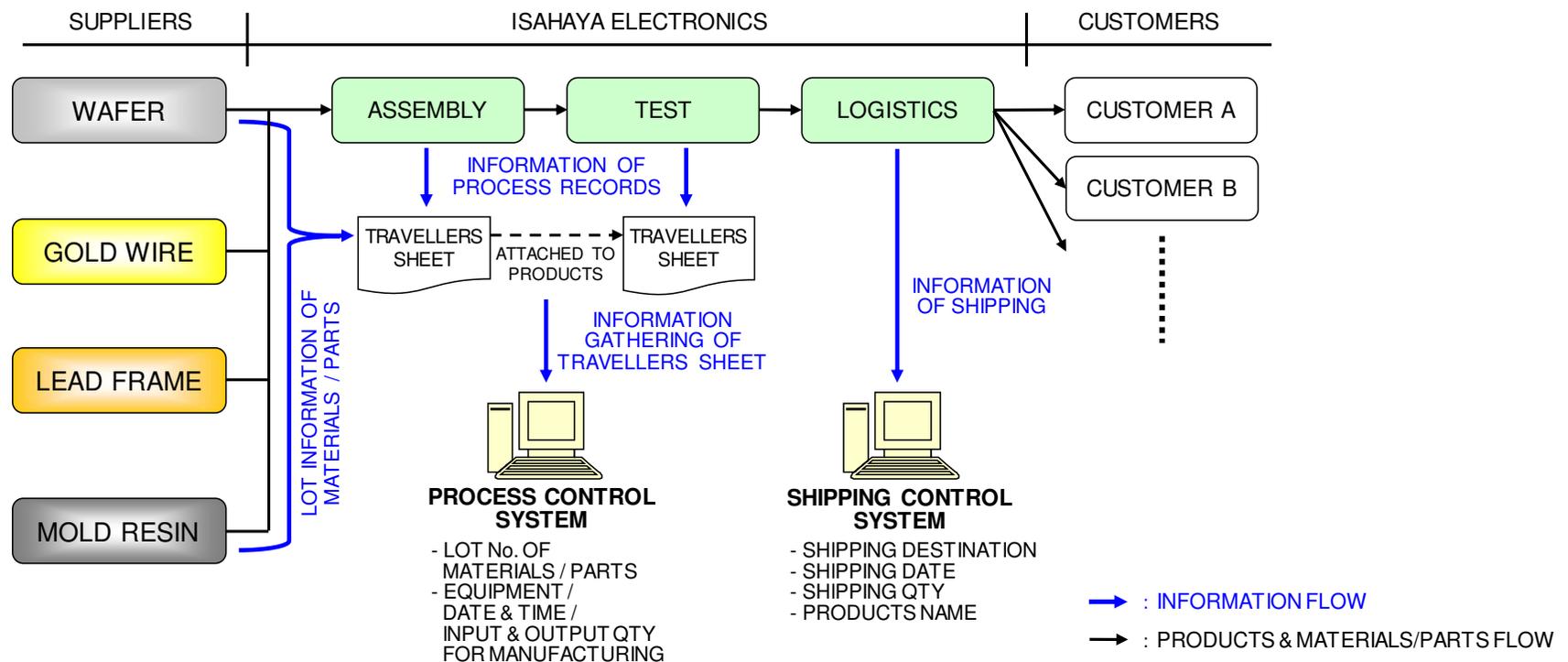


Figure II -6. TRACEABILITY SYSTEM CHART

6. CORRECTIVE ACTION FOR ABNORMALITY AFTER SHIPMENT

When a failure is found at the acceptance inspection, assembly, or field use by the customer, Quality Assurance Department plays the major role in identifying the cause of failure and implementing corrective actions. Based on the analysis request issued by Sales department, Quality Assurance Department investigates the failure and analyzes it using various testing equipment. Based on the analysis result, Design, Engineering and other related departments hold a meeting. Then corrective action is taken as required, and a report is issued to the customer. Figure II -7 shows the complaint response & corrective action system chart.

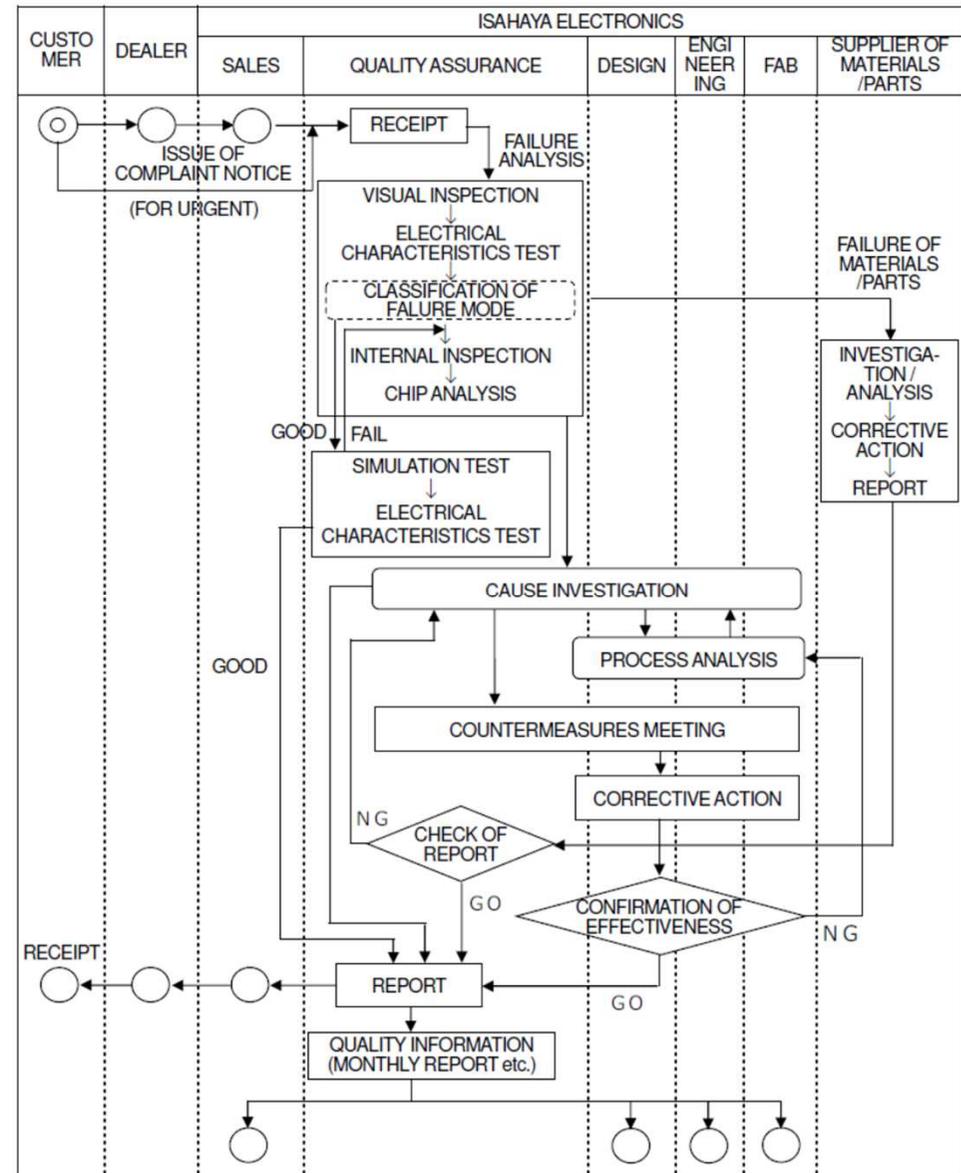


Figure II -7. COMPLAINT RESPONSE & CORRECTIVE ACTION SYSTEM CHART

1. STANDARDIZATION AND DOCUMENT CONTROL

The essence of quality control is standardization.

We promote establishment of appropriate standards based on our standard systems.

【Company / Departments】

Rules for organization, personnel, management, and business are defined and applied.

【Internal standards】

Standards for products, design, materials, inspection, equipment control, maintenance, packing specification, operation and drawings are defines.

They are centrally controlled.

【Internal design handbooks / manuals】

Design standard and procedure manuals are published to promote incorporation of quality at the design stage.

Standardization flowcharts are prepared to prevent errors resulting from carelessness.

2. CERTIFICATION FOR ISO9001/IATF16949

ISAHAYA ELECTRONICS is ISO9001 certified, and also is IATF16949 certified for automotive devices.

Standard	Site	Certified Date
ISO9001	ISAHAYA ELECTRONICS CORPORATION, Tsukuba Laboratory Isahaya Laboratory Osaka Marketing Division ISAHAYA ELECTRONICS TECHNOLOGY (SHENZHEN) CO., LTD.	October, 1996
IATF16949	ISAHAYA ELECTRONICS CORPORATION Isahaya Laboratory Osaka Marketing Division ISAHAYA ELECTRONICS TECHNOLOGY (SHENZHEN) CO., LTD.	November, 2019

3. AWARDS FROM CUSTOMERS

We have activities to improve quality for customer's requisition.
And these were recognized and awarded by some customers.

Award Year	Award Details
FY2018	Excellent Quality Control Award from TOYOTA INDUSTRIES CORPORATION
FY2021	QUALITY AWARD from SANDA WORKS, MITSUBISHI ELECTRIC CORPORATION



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