

JOINT JEDEC/ECIA/IPC STANDARD

Customer Notification Standard for Product/Process Changes by Electronic Product Suppliers

J-STD-046

(Revision of JESD46D, December 2011, Supersedes JESD46D)

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JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



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CUSTOMER NOTIFICATION STANDARD FOR PRODUCT/PROCESS CHANGES BY ELECTRONIC PRODUCT SUPPLIERS

(From Board Ballot JCB-16-40, formulated under the cognizance of a joint industry working group with the JC-14.4 Committee on Quality Processes and Methods, ECIA, and IPC.)

1 Scope

This standard is applicable to suppliers of, and affected customers for, electronic products and their constituent components.

This standard establishes the requirements for timely customer notification of changes to electronic products and associated processes.

2 Terms and definitions

approved supplier agent: A direct sales channel, an authorized manufacturer's representative, or an authorized distributor.

authorized distributor: A distributor that has an ongoing, contractual relationship with the supplier and a written agreement to sell the supplier's product.

change, (product or process): An alteration to the product or process, which may be a major change or a minor change.

NOTE 1 A major change is a change that may affect the form, fit, or function of the product or adversely affect the quality or reliability of the product.

NOTE 2 A minor change is a change that does not affect the form, fit, function, quality, or reliability of the product.

component: A constituent part.

customer: Any organization that:

- 1) has purchased the product from the supplier within the past two (2) years and has a contract or purchase agreement with Process Change Notice (PCN) requirements, or
- 2) has requested (and the supplier has agreed to provide) PCN information, or
- 3) is an approved supplier agent and has purchased the product within the past two years.

2 Terms and definitions (cont'd)

electronic device: A device whose operation depends on the conduction of electrons in a vacuum, gas, or semiconductor.

NOTE Examples of electronic devices include transistors, integrated circuits, hybrids, and modules.

electronic product: An item containing one or more electronic devices performing major functions.

fit: The external dimensions and associated tolerances of the product, as specified by the supplier and/or customer.

form: The visual appearance including shape, color, marking, and surface finish of the product, as specified by the supplier and/or customer.

function: The electrical, mechanical, thermal, and performance characteristics of the product, as specified by the supplier and/or customer.

process: A combination of people, procedures, methods, machines, materials, measurement equipment, and/or environment for specific work activities to produce a given product or service.

Product or Process Change Notice (PCN): A document sent to customers describing product or process changes, the reasons for the change, and the projected impact of the change.

Proposed First Ship Date: The date that the changed product could first be shipped to customers.

quality: Conformance of a product to requirements, or perceived fitness for its intended use(s).

reliability: The ability of a product to perform a required function at or below a stated failure rate for a given period of time.

supplier: Any organization that:

- 1) is the original product manufacturer and is thus responsible for generating the Product/Process Change Notice, or
- 2) is an approved supplier agent.

NOTE Any organization that receives a Product/Process Change Notice for a product that is a component within their own product is not considered to be a 'supplier' for purposes of this document and is not required to forward the Product/Process Change Notice on to its customers; however, depending on how its product is affected, said organization must determine whether it needs to generate its own Product/Process Change Notice for its own customers.

3 Requirements

3.1 Documentation

The supplier shall have a documented PCN process that includes the criteria or methodology used to classify the changes as major or minor (See Annex A for examples of commonly accepted types of changes). The following minimum elements must be included in the supplier's documented PCN procedure:

- a) Method of identifying and documenting the customer's unique PCN requirements.
- b) Definition and classification of proposed changes. (Note: This could be a reference to a separate controlled document, e.g., Engineering Change Notice.)
- c) Notification timing.
- d) Deliverables to customer - contents of change notification.
- e) Record retention requirements.

3.2 Procedure

3.2.1 Classify changes(s)

The proposed change should be classified as either major or minor. A major change is any change that may affect the form, fit, or function of the product or adversely affect the quality or reliability of the product. Each supplier shall include in their internal PCN specifications a list of what constitutes a major change (See Annex A for examples of commonly accepted types of changes). The notification document for a major change must clearly state that it is a PCN (Product/Process Change Notification).

Customers must be notified of major changes, whereas notification of minor changes may or may not occur depending on supplier and customer/authorized distributor written agreed requirements. Minor change notifications may also be referred to as an "Informational Notice", "Supplier Communication", or similar title. If such a notice is sent out, it must clearly state its purpose, so as not to be confused with a PCN for a major change.

NOTE This standard proposes no specific requirements regarding documentation (see 3.1) for minor changes.

3.2.2 Customer notification

- a) Identify affected customers
- b) Determine notification requirements (for review or awareness only) per special customer criteria or, supplier-agreed-to customer profile. If a customer expresses no unique notification attributes, the supplier's standard PCN system shall apply.
- c) Customer will be notified a minimum of 90 days before the proposed first ship date of the product identified in the PCN. Shipment of changed product may occur prior to stated ship date only with customer approval.

Included in the 90 day review period is the time necessary for an authorized distributor to forward the notice to its customers of the affected product.

- d) It is suggested that suppliers also post their 'generic' PCN notices (i.e., notice does not contain any confidential or customer specific information) on a website to allow for potentially missed customers to view current and past PCNs.

3.2.3 Customer response

3.2.3.1 Customer acknowledgement response

- a) Customers should acknowledge receipt of the PCN within 30 days of delivery of the PCN. Any concerns, sample order response, or a request for further information should be provided within the acknowledgement period. If additional time is required to determine if samples or additional data is required, the customer must submit this request along with the acknowledgement response and state when they expect to complete their review.
- b) Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change.

3.2.3.2 Customer actions after acknowledgement

- a) After acknowledgement, lack of additional response within the 90 day period constitutes acceptance of the change.
- b) If the customer requires additional time to perform sample testing, beyond the 90 day review period, an extension must be negotiated with the supplier.

3.2.4 Supplier follow-up response

- a) After receipt of all requested qualification reports, additional data to clarify the PCN, and/or samples, the customer shall have at least 30 days to review this qualification data and test samples. Lack of response by the customer after these 30 days constitutes acceptance of the change.
- b) The supplier shall notify all affected customers if a PCN is cancelled.

3.2.5 Shipment of Changed Product

Changed product may not be shipped prior to the Proposed First Ship Date without written approval of the customer.

3.3 Product and Process Change Notification minimum content

The following is the minimum content of the Product and Process Change Notification:

- a) PCN tracking number
- b) Product Identification (e.g., affected supplier part number(s), affected product lines including specific package types, product family)
- c) Customer part number(s) (optional, if not required per agreed to customer criteria)
- d) Detailed description of change(s)
- e) Method, if applicable, of identifying changed product
- f) Reason for change(s)
- g) Anticipated (positive and negative) impact on form, fit, function, quality or reliability
- h) Proposed First Ship Date for change
- i) Supplier Qualification plan schedule and/or results, where applicable
- j) Date, if required, when qualification samples are available
- k) Date, if required, when final qualification data are available
- l) Last date, if applicable, of manufacture of the unchanged product
- m) Supplier contact information, such as but not limited to: name, address, telephone, and email of supplier contact
- n) Statement, if applicable, that device material declaration will be updated due to material change

NOTE It is still the customer's responsibility to request updated material declaration when available.

3.4 Records

Each supplier shall retain documentation of individual PCN information for a minimum of ten years after final user notification.

Annex A (informative) Examples of major changes that may require customer notification

The requirements stated in clause 3.2.1 of this document are that each supplier is to generate a documented list of which changes they consider to be classified as “major” and for which they must notify their customers. Per 3.2.1, a major change is any change that may affect the form, fit, or function of the product or adversely affect the quality or reliability of the product. A customer has the right to review the supplier’s list and then work with the supplier to agree upon any additions to that list.

This annex has been generated to assist both customers and suppliers in providing a list of generic types of major changes that may require customer notification.

Generic types of major changes (that may affect form, fit, or function or adversely affect quality or reliability)

| | |
|------------------------------------|--|
| Design | Change in external dimension Change of critical material/component Changes in process technology affecting critical process steps Change of product marking technology |
| Manufacturing/Test Location | Site transfer to a site not previously qualified (fabrication, assembly, or test site of the finished product) |
| Packing/Shipping | Change in carrier type (tube, reel, tray, etc.) or dimensions Change of product orientation within shipping media Significant change of labelling Dry pack requirements change Reduction in environmental storage conditions |
| Datasheet | Change of datasheet parameters, electrical specification Elimination of final electrical measurement or burn-in (if specifically stated in the datasheet as being performed) |

For solid-state products, Table 4 in JESD47, Stress Test-Driven Qualification of Integrated Circuits, lists guidelines for stress tests that are recommended or should be considered for typical process changes. This table may be used as a reference for identifying major changes for solid-state products.

Annex B (informative) Differences between J-STD-046 and JESD46D

This table briefly describes most of the changes made to entries that appear in this standard, J-STD-046, compared to its predecessor, JESD46D (December 2011). If the change to a concept involves any words added or deleted (excluding deletion of accidentally repeated words), it is included. Some punctuation changes are not included.

| Clause | Description of change |
|---------------|---|
| Title | Change of the name of standard and the document number |
| Scope | Expanded scope of document to cover electronic products and their constituent components that are covered by JEDEC, IPC, and ECIA |
| Terms | Added definitions for approved supplier agent, authorized distributor, component, electronic device, and supplier |
| 3.1 | Minor text change for reference to Annex A |
| 3.2.1 | Restated definition of a major change, modified text for reference to Annex A, added statement that notification document must clearly state this is a PCN, added reference to authorized distributors, added reference to other names for minor changes, and added clarification that minor change notifications must clearly state they are not a major change and thus PCN requirements apply. |
| 3.2.2 | Added reference to authorized distributors in the 90 day review period. |
| 3.2.3 | Split clause 3.2.3 into two sub-clauses, customer actions before and after the 30 day acknowledgement period. Added new requirement that customer request for samples and additional information must be included with the acknowledgement response. |
| 3.3 | For item m) removed requirement to include fax number in notice |
| 3.4 | Changed minimum document retention period from 5 to 10 years. |
| Annex A | Major rewrite introduction text. Removed list of solid state items and replaced it with list of generic items that apply to all products covered by expanded scope of this standard. Restated definition of major change in title of list. |



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