

JEDEC STANDARD

Customer Notification of Product/Process Changes by Solid-State Suppliers

JESD46D

(Revision of JESD46C, October 2006)

DECEMBER 2011

JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



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CUSTOMER NOTIFICATION OF PRODUCT/PROCESS CHANGES BY SOLID-STATE SUPPLIERS

(From Board Ballot JCB-00-42, JCB-06-39 and JCB-11-88, formulated under the cognizance of JC-14.4 Committee on Quality Processes and Methods).

1 Scope

This document covers solid-state products and their associated processes.

This standard establishes procedures to notify customers of changes to solid-state products and associated processes.

2 Terms and definitions

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.

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.

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.

2 Terms and definitions (cont'd)

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.

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. 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. Each supplier shall include in their internal PCN specifications a list of what constitutes a major change (See Annex A for examples). Customers must be notified of major changes, whereas notification of minor changes may or may not occur depending on customer requirements.

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

3.2 Procedure (cont'd)

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.
- 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

- a) Customers should acknowledge receipt of the PCN within 30 days of delivery of the PCN.
- b) Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change.
- c) After acknowledgement, lack of additional response within the 90 day period constitutes acceptance of the change. An acceptance, concern, or sample order response or a request for further information and respective documents response should be submitted to the supplier in a timely fashion, (i.e., customer should not wait to the end of the 90 day review period before responding, if the response is known before that time.)
- d) 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) Name, address, telephone, email, and fax number 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 five years after final user notification.

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

This is not a binding list. These are only examples of changes that could possibly affect form, fit, or function, or adversely affect quality and reliability. See 3.2.1.

NOTE Contractual agreements may exist and will take precedence per 3.2.2.

Design	Major design change
Wafer Fab	Wafer fab site Wafer diameter Diffusion dopant Gate oxide material Gate oxide thickness Dielectric material Polysilicon dopant type Metallization material Metallization thickness Top protective layer material Top protective layer thickness Die coating material Die coating thickness
Package Assembly	Assembly site Substrate or leadframe base material Plating material or process technique (BGA) Solder ball material composition Flipchip ball/bump and/or attach solder material composition Wire bond method Mold compound or underfill material Sealing material Die attach material Marking method Marking appearance (incl. Part Number marked on product)
Testing	Test site Test elimination Burn-in change or elimination Electrical Specification Change in ac specification Change in dc specification
Mechanical Specification	Change in case outline Loosening tolerance(s) Packing/Shipping /Labeling Change in Carrier (reel, tray) dimensions Drypack requirements Environment maximum storage temperature

Annex B (informative) Differences between JESD46D and JESD46C

This table briefly describes most of the changes made to entries that appear in this standard, JESD46D, compared to its predecessor, JESD46C (October 2006). 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
1	Replaced “semiconductor” with “solid-state” throughout the scope and in the title of the document. Clarified the text of the last sentence
2	Corrected grammar within the definitions of “change” and “customer”.
2	The subdefinitions for the terms “major change” and “minor change” are now Notes under the definition of “change”.
2	The order of the terms were changed to put all terms in alphabetical order
3.2.1	Added note at end of paragraph
3.2.3 c)	Added text stating all types of responses that a customer could have to a PCN
3.2.5	Added new clause clarifying when changed product may be shipped
3.3	Added new content item f) and a Note regarding material declarations for changed Products
Annex A	Added “(informative)” to title to comply with JEDEC style manual



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