



# Micrel to Microchip Fab Transfer Frequently Asked Questions (FAQ)

Revision 1 – February 25, 2016

**Why is Microchip making this change?** The Micrel 6 inch fabrication facility in San Jose is closing. The Microchip 8 inch fabrication facilities will provide more capacity that will ensure continuity of supply. Microchip’s fabrication sites have improved defect control/inspections and more efficient/diversified fab equipment.

## What is and what is not changing?

	<b>Pre Change</b>	<b>Post Change</b>
<b>Fabrication Location</b>	Micrel Fabrication Site (San Jose, CA, USA)	Microchip Fabrication Sites (Tempe, AZ and Gresham, OR, USA)
<b>Wafer Diameter</b>	6 inches (150 mm)	8 inches (200 mm)
<b>Quality certification</b>	ISO9001	ISO/TS16949
<b>Data sheet / specifications</b>	No Change	No Change
<b>Design/layout</b>	No Change	No Change
<b>Die Size</b>	No Change	No Change
<b>Final test program</b>	No Change	No Change
<b>Package Type/MSL</b>	No Change	No Change

**What products are affected and what is the notification strategy?** Microchip has identified the parts affected and is implementing a notification strategy with a three phase Product/Process Change Notice (PCN) approach.

Phase 1: Microchip issued an initial PCN on September 2, 2015. The link to this initial PCN is

<http://www.microchip.com/mymicrochip/NotificationDetails.aspx?pcn=CYER-31JLEX869&opennew=n> This PCN

includes:

- a. Qualification plan.
- b. Anticipated quarter and year for availability of each process technology qualification report.
- c. Affected parts list by process technology.

Phase 2: Microchip will issue intermediate PCNs as each of the 15 process technologies complete qualification.

Included in each of these PCNs is:

- a. Qualification report
- b. Complete list of Catalog Part Numbers (CPN) for the qualified process
- c. Link to the Micrel to Microchip fab transfer FAQ PDF document

The objectives of these PCNs are to notify customers that the given process technology has completed qualification and provide the report.

Phase 3: Microchip will issue Final PCNs as Microchip fabricated CPNs are released to production. Each of these PCNs will include:

- a. The Estimated First Ship Date (EFSD) of each CPN. Please note that there will be multiple PCNs issued over several months/years before implementation on all products has completed. Products from Microchip Fabs will not ship until after a phase 3 PCN has been issued and applicable CPN listed.

**How does Microchip issue PCN's to customers?** Microchip provides a PCN service. As part of this service customers have the option to receive PCNs via email if they register for PCN email service or view PCNs without registration on Microchips website. For information about how to register for PCN email service and all PCN services please view our PCN policy. The link to Microchip's PCN policy is:

[http://ww1.microchip.com/downloads/en/DeviceDoc/PCN\\_EOL%20Policy\\_MCHP.pdf](http://ww1.microchip.com/downloads/en/DeviceDoc/PCN_EOL%20Policy_MCHP.pdf)

**What is Microchip's fabrication transfer qualification strategy?** Microchip is using the following approach:

1. Copy functional (i.e. match the fab process films/design rules and device structures). There will be no change to the product datasheet specifications.
2. Follow Micrel's original qualification guidelines for non-automotive product (JEDEC JC14 compliant). The qualification plan is in the initial PCN as referenced above.

3. For automotive PPAP products, the plan is to follow Micrel's original Q100 compliant qualification testing.

**Where is the qualification data for my device?** Thousands of catalog part numbers of various product types (LDOs, switches, regulators, etc.) are produced from common Fab process technologies. Since it is not practical to qualify each individual part number, Microchip qualifies each Fab process technology and verifies the functionality and parametrics of each individual underlying product type. For each of the 15 process technology qualifications, a representative CPN was selected to be the primary qualification device.

For primary qualification devices, the following methodology is used: Three fab lots go through high temperature operation life (HTOL)/package level qualification testing and one fab lot goes through electrostatic discharge (ESD) and latch up (LU) testing to represent when the technology is qualified for production. All lots must pass high temperature operation life (HTOL), ESD, LU, preconditioning, temperature cycling, unbiased HAST, biased HAST, pressure pot, and high temperature storage testing per JEDEC guidelines. All CPNs will be represented by one of the 15 qualification reports that will be included in the phase 2 PCNs.








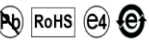




**How will Microchip verify functionality of the Microchip fabricated material?** To ensure that the Microchip fabricated devices behave statistically the same as the respective Micrel fabricated material, Microchip will perform room temperature production testing plus bench testing over temperature (cold, room, and hot) using Micrel and Microchip fabricated samples.

Then Microchip will compare the electrical distributions for the critical test parameters with the expectation that they are statistically equivalent. Microchip will also perform application/functional board level evaluations to ensure that the Microchip fabricated devices behave statistically the same as the respective Micrel fabricated devices.

**Will the Catalog Part Number (CPN) change?** No. The CPN will not change.

**How can I determine if a product was fabricated in the Micrel or Microchip Fab?** The manufacturing product code (MPC) and trace code can be used to determine the difference between Micrel and Microchip fabricated material. If the product is separated from the shipping label, then customers will be required to provide the trace codes to the local Microchip sales office for assistance in determining the die source. The trace code is located on the product's top marking. If the product's packing media is available, please review the following.

To determine whether the product is from the Micrel or Microchip Fab, please observe the MPC field that is included on the shipping label. The shipping label is located on various locations of the shipping media including reels, bags, and inner boxes. Please view examples below:

The label below left is an example of product fabricated at Micrel	The label below right is an example of product fabricated at Microchip
<p>(1P) CATALOG P/N : MCP1624T-I/CHY    (1T) LOT NO.: 120700201000NSEB    MSL: 1/260 C (Q) QTY  (P) CUST. P/N:- PKG: SOT-23 3000   LEADS: 6  MPC: 2x6xxxxxxxxx WAFAER QTY:-   WAFAER REV:A  RETEST D/C:-  WAFAER LOT:-  ID#:(001) TRACE CODE: 1120HWY,1120HWW   B00234/TC09 MADE IN THAILAND</p>	<p>(1P) CATALOG P/N : MCP1624T-I/CHY    (1T) LOT NO.: 120700201000NSEB    MSL: 1/260 C (Q) QTY  (P) CUST. P/N:- PKG: SOT-23 3000   LEADS: 6  MPC: 2x8xxxxxxxxx WAFAER QTY:-   WAFAER REV:A  RETEST D/C:-  WAFAER LOT:-  ID#:(001) TRACE CODE: 1120HWY,1120HWW   B00234/TC09 MADE IN THAILAND</p>

Please note the MPC field 4<sup>th</sup> row down on the left side of the label. The MPC is the 12 digit code that maps directly to a CPN, which is also on the shipping label (1<sup>st</sup> row on the left).

Although the catalog part number will remain unchanged, the MPC will be different. For Micrel fabricated material, the 3<sup>rd</sup> digit (from the left) in the MPC will be a 6 and for Microchip fabricated material, the 3<sup>rd</sup> digit (from the left) will be an 8. As an example, the MPC for the Micrel fabricated products will be 2x6xxxxxxxxx where x's are any letter or number. For the Microchip fabricated products, the MPC will be 2x8xxxxxxxxx.

### What is Microchip's experience with Fab transfers?

Microchip has successfully completed several Fab transfers over the last 15 years representing millions of devices shipped to a large variety of customers within the automotive, medical, aerospace, industrial, and commercial segments.

**Can I obtain Microchip fabricated samples for evaluation and/or qualification?** Yes, customers should contact their authorized Microchip support channel to enter a request for samples. Samples will not be available until Microchip fabricated devices are released to production.

**How will Microchip manage stability of supply during the transition?** Microchip has built Micrel fabricated inventory based on historic monthly ship rates to fulfill customer orders until Microchip fabricated inventory is available.