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Product Change Notification - JAON-20BQVK768 (Printer Friendly)

Date: 24 Dec 2016

Product Category: Power Management - PWM Controllers; Switching Regulators; Power Management - Power Modules; Power MOSFET Drivers; Linear Regulators; Power Management - Power Switches

Notification subject: CCB 2837 Initial Notice - Fabrication Site Qualification: Qualification of Fabrication site (FAB 5) for Micrel products manufactured with the BCD05 process technology.

Notification text: **PCN Status:**
Initial notification

Microchip Parts Affected:

Please open the attachments found in the attachments field below labeled as PCN_#_Affected_CPN.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).

Description of Change:

Qualification of Fabrication site (FAB 5) for Micrel products manufactured with the BCD05 process technology. Please review the FAQ attached here for additional information regarding this change.

Pre Change:

Fabricated at Micrel fabrication site (San Jose, CA, USA) (SJ) using 6 inch wafers.

Post Change:

Fabricated at Atmel Fabrication site FAB 5 (Colorado Springs, CO, USA) (COS) using 6 inch wafers

Note: Microchip previously announced that the qualification of this process technology (BCD05) will be qualified at Microchip Fabrication Sites using 8 inch wafers. That qualification will proceed and will be communicated when completed as indicated in PCN # **CYER-31JLEX869**. The Colorado Springs location will become the primary location while the Microchip Fabrication sites locations using 8 inch wafers will be secondary manufacturing sites.

Pre and Post Change Summary:

	Pre Change	Post Change	
Fabrication Location	Micrel Fabrication Site (San Jose, CA, USA)	Primary Fab Location: Atmel Fabrication site FAB 5 (Colorado Springs, CO USA)	Secondary Fab Location: Microchip Fabrication Sites

			(Tempe, AZ and Gresham, OR, USA)
Wafer Diameter	6 inches (150 mm)	6 inches (150 mm)	8 inches (200 mm)
Quality certification	ISO9001	ISO9001/TS16949	ISO/TS16949
Data sheet / specifications	No Change	No Change	No Change
Design/layout	No Change	No Change	No Change
Die Size	No change	No change	No change
Final test program	No change	No change	No change
Package Type/MSL	No Change	No Change	No Change

Impacts to Data Sheet:

No impact anticipated.

Change Impact:

None

Reason for Change:

To improve productivity with the closure of the Micrel fab (SJ) as part of the integration of Micrel and Microchip.

Change Implementation Status:

In Progress

Estimated First Ship Date:

Catalog part numbers fabricated at FAB 5 will not ship until after the final PCN with the listed CPN(s) attached. Microchip will issue Final PCNs as mask sets are released to production at FAB 5. Final PCNs will not be issued until after the qual data has been provided. Qual data will be provided in the intermediate PCN as noted in the time table below.

NOTE: This FAB transition will vary by catalog part number (CPN) and may take several months/years to complete the transition that may result in several final PCNs.

Summary Time Table of notable events to date:

	December 2016					->	April 2017				May 2017 onw
Workweek	48	49	50	51	52	14	15	16	17		
Initial PCN Issue Date				X							
								X			

Qualification Report Availability and Intermediate PCN issue date													
Final PCN Issue Date													Will be issued catalog part number (CPNs) are related to product

Method to Identify Change:
Traceability code.

Qualification Plan:
Please open the attachments included with this PCN labeled as PCN_#_Qual Plan.

Revision History:
December 24, 2016: Issued initial notification.

The change described in this PCN does not alter Micrel's or Atmel's or Microchip's current regulatory compliance regarding the material content of the applicable products.

- Attachment(s):**
- [Frequently Asked Questions_FAB Transfer.pdf](#)
 - [PCN_JAON-20BQVK768_Qual_Plan.pdf](#)
 - [PCN_JAON-20BQVK768_Affected CPN.pdf](#)
 - [PCN_JAON-20BQVK768_Affected CPN.xls](#)

Please contact your local **Microchip sales office** with questions or concerns regarding this notification.

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JAON-20BQVK768 - CCB 2837 Initial Notice - Fabrication Site Qualification: Qualification of Fabrication site (FAB 5) for Micrel products manufactured with the BCD05 process technology.

Affected Catalog Part Numbers (CPN)

PCN_JAON-20BQVK768
CATALOG_PART_NBR
MIC2026A-1YM
MIC2026A-1YM-TR
MIC2026A-2YM
MIC2026A-2YM-TR
MIC2076A-1YM
MIC2076A-1YM-TR
MIC2076A-2YM
MIC2076A-2YM-TR
MIC2101YML-TR
MIC2102YML-TR
MIC2103YML-TR
MIC2104YML-TR
MIC2124YMM
MIC2124YMM-TR
MIC2125-2YML-TR
MIC2125-1YML-TR
MIC2125YML-T5
MIC2125YML-TR
MIC2126YML-T5
MIC2126YML-TR
MIC2127-AYML
MIC2127-AYML-T5
MIC2127-AYML-TR
MIC2128YML-T5
MIC2128YML-TR
MIC2150YML-TR
MIC2151YML-TR
MIC2155YML-TR
MIC2156YML-TR
MIC2164-2YMM
MIC2164-2YMM-TR
MIC2164-3YMM
MIC2164-3YMM-TR
MIC2164CYMM
MIC2164CYMM-TR
MIC2164YMM
MIC2164YMM-TR
MIC2165YMME
MIC2165YMME-TR
MIC2166YMME
MIC2166YMME-TR
MIC2174-1YMM
MIC2174-1YMM-TR

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Affected Catalog Part Numbers (CPN)

PCN_JAON-20BQVK768
CATALOG_PART_NBR
MIC2174C-1YMM
MIC2174C-1YMM-TR
MIC2176-1YMM
MIC2176-1YMM-TR
MIC2176-2YMM
MIC2176-2YMM-TR
MIC2176-3YMM
MIC2176-3YMM-TR
MIC2230-AAYML-TR
MIC2230-G4YML-TR
MIC2230-GFHYML-TR
MIC2230-GSYML-TR
MIC2230-J4YML-TR
MIC2230-S4YML-TR
MIC2230-SSYML-TR
MIC2238-AAYML-TR
MIC2238-G4YML-TR
MIC2238-GFHYML-TR
MIC2238-GSYML-TR
MIC2238-J4YML-TR
MIC2238-S4YML-TR
MIC2238-SSYML-TR
MIC2267YML-TR
MIC24051YJL-TR
MIC24052YJL-TR
MIC24053YJL-TR
MIC24054YJL-TR
MIC24055YJL-TR
MIC24056YJL-TR
MIC24069YFL
MIC24069YFL-TR
MIC24070YFL
MIC24070YFL-TR
MIC24091YJL-TR
MIC24092YJL-TR
MIC24097YJL-TR
MIC24098YJL-TR
MIC24420YML-TR
MIC24421YML-TR
MIC25400YML-TR
MIC261201YJL-TR
MIC261203YJL-TR
MIC261203-ZAYJL-TR

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Affected Catalog Part Numbers (CPN)

PCN_JAON-20BQVK768
CATALOG_PART_NBR
MIC261203-ZYJL-TR
MIC26400YJL-TR
MIC26600YJL-TR
MIC26601YJL-TR
MIC26603YJL-TR
MIC26603-ZAYJL-TR
MIC26603-ZYJL-TR
MIC26901YJL-TR
MIC26903YJL-TR
MIC26903-ZAYJL-TR
MIC26950YJL-TR
MIC27600YJL-TR
MIC27600YJL-TRAAA
MIC28303-1YMP-T1
MIC28303-1YMP-TR
MIC28303-2YMP-T1
MIC28303-2YMP-TR
MIC28304-1YMP-T1
MIC28304-1YMP-TR
MIC28304-2YMP-T1
MIC28304-2YMP-TR
MIC283103YML-TR
MIC28310YJL-TR
MIC28404T-E/NVA
MIC284102YML-TR
MIC28510AYJL-TR
MIC28510HFYJL-TR
MIC28510HYJL-TR
MIC28510YJL-TR
MIC28511-1YFL
MIC28511-1YFL-T5
MIC28511-1YFL-TR
MIC28511-2YFL-T5
MIC28511-2YFL-TR
MIC28512-1YFL-T5
MIC28512-1YFL-TR
MIC28512-2YFL-T5
MIC28512-2YFL-TR
MIC28513-1YFL-T5
MIC28513-1YFL-TR
MIC28513-2YFL-T5
MIC28513-2YFL-TR
MIC286101YML-TR

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Affected Catalog Part Numbers (CPN)

PCN_JAON-20BQVK768
CATALOG_PART_NBR
MIC28710AYML-TR
MIC38150HYHL-TR
MIC38300HYHL-TR
MIC45116-1YMP-T1
MIC45116-1YMP-TR
MIC45116-2YMP-T1
MIC45116-2YMP-TR
MIC45205-1YMP-T1
MIC45205-1YMP-TR
MIC45205-2YMP-T1
MIC45205-2YMP-TR
MIC45208-1YMP-T1
MIC45208-1YMP-TR
MIC45208-2YMP-T1
MIC45208-2YMP-TR
MIC45212-1YMP-T1
MIC45212-1YMP-TR
MIC45212-2YMP-T1
MIC45212-2YMP-TR
MIC4600YML-T5
MIC4600YML-TR
MIC5011YM
MIC5011YM-TR
MIC5011YN
MIC5013YM
MIC5013YM-TR
MIC5013YN
MIC59150YME
MIC59150YME-TR
MIC59300-1.2WU
MIC59300-1.2WU-TR
MIC59300-1.2YME
MIC59300-1.2YME-TR
MIC59300WU
MIC59300WU-TR
MIC59300YME
MIC59300YME-TR
MIC61150-10YML-TR
MIC61150-10YMME
MIC61150-10YMME-TR
MIC61150YML-TR
MIC61150YMME
MIC61150YMME-TR

JAON-20BQVK768 - CCB 2837 Initial Notice - Fabrication Site Qualification: Qualification of Fabrication site (FAB 5) for Micrel products manufactured with the BCD05 process technology.

Affected Catalog Part Numbers (CPN)

PCN_JAON-20BQVK768
CATALOG_PART_NBR
MIC61300-10YML-TR
MIC61300-10YMME
MIC61300-10YMME-TR
MIC61300YML-TR
MIC61300YMME
MIC61300YMME-TR
MIC94161YCS-TR
MIC94162YCS-TR
MIC94163YCS-TR
MIC94164YCS-TR
MIC94165YCS-TR
SPN011029G
SPN011029G-TR
SPN030054-TR
SPN030055-TR



Micrel San Jose CA (SJ) to Microchip Colorado Springs CO (MCSO) Fab Transfer of BCD05 Frequently Asked Questions (FAQ)

Revision 1 – December 15, 2016

Why is Microchip making this change? The Micrel 6 inch fabrication facility in San Jose is closing. The Microchip 6 inch fabrication facility located at Colorado Springs CO, USA 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?

	Pre Change	Post Change
Fabrication Location	Micrel Fabrication Site (San Jose, CA, USA)	Microchip Fabrication Sites (Colorado Springs CO, USA)
Wafer Diameter	6 inches (150 mm)	6 inches (150 mm)
Quality certification	ISO9001	ISO/TS16949
Data sheet / specifications	No Change	No Change
Design/layout	No Change	No Change
Die Size	No Change	No Change
Final test program	No Change	No Change
Package Type/MSL	No Change	No Change

Why is Microchip qualifying the MCSO 6” location in addition to the 8” locations for the BCD05 process technology? The reason the MCSO 6” location is being qualified is because the fabrication equipment/processes are a better match between the SJ and MCSO fab and will provide better efficiencies for sustaining inventories of BCD05 products. While the 8” locations will provide a suitable backup location to ensure inventory levels can keep up with demand.

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 will issue an initial PCN (PCN#).

The PCN number is [JAON-20BQVK768](#) and it will include the following information:

- a. Qualification plan.
- b. Anticipated quarter and year for availability of the qualification report.
- c. Affected parts list

Phase 2: Microchip will issue an intermediate PCN after qualification has completed. Included in this PCN is:

- a. Qualification report
- b. Complete list of Catalog Part Numbers (CPN) for the qualified BCD05 process technology.

The objective of this PCN is to notify customers that the BCD05 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

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 changes to the product datasheet specifications.
2. Follow Micrel's original qualification guidelines (JEDEC JC14 compliant). The qualification plan will be included in the initial PCN as referenced above.

How does the qualification data pertain to my device?

Numerous catalog part numbers of various product types are produced from the BCD05 process technology. Since it is not practical to qualify each individual part number, Microchip verifies the functionality and parametrics of each individual underlying product type. For the BCD05 process technology qualification, 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 the BCD05 qualification report that will be included in the phase 2 intermediate PCN.

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 production ATE testing and/or bench testing using Micrel SJ and MCSO fabricated samples. Then Microchip will compare the electrical distributions for the critical test parameters with the expectation that they are statistically equivalent.

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 trace code can be used to determine the difference between Micrel SJ and MCSO fabricated material. The 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.

What is Microchip's experience with Fab transfers?

Microchip has successfully completed several Fab transfers over the last 16 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.

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



MICROCHIP

QUALIFICATION PLAN

PCN #: JAON-20BQVK768

Date

October 14, 2016

**Qualification of Fabrication site (FAB 5) for Micrel products
manufactured with the BCD05 process technology.**

TEST NAME	TEST DESCRIPTION	TEST CONDITION	QTY	# Lots per Device	COMMENTS
ELECTRICAL TEST	SPEC 100-1010	ATE GO-NO-GO	800	3	1 st pass test Room Only
PRE-CONDITIONING MSL	MICREL SPEC 520-1010 PEAK TEMPERATURES +260°C	IPC/JEDEC J-STD-020	400	3	
UHAST OR PRESSURE POT TEST - W/PC	JESD22-A118 OR JESD22-A102	Ta +121°C	77	3	
TEMP CYCLE - W/PC	JESD22-A104	Ta -65°C TO +150°C	77	3	
HAST - W/PC biased	JESD22-A110 Vcc = Operating max	Ta +131°C/85%RH	77	3	
STORAGE LIFE - W/PC	JESD22-A103	Ta= +150°C (1000 HRS OR Ta= +175°C (500 HRS)	45	3	
ESD HBM	JEDEC JS-001	Ta= +25°C	15	1	
ESD CDM	JESD22-C101	Ta= +25°C	15	1	
LATCH UP	JESD-78	Ta= +25°C	6	1	
HTOL	Jesd-22A108 Vcc = Operating max	Ta = +125°C	77	3	
LTOL	Jesd-22A108 Vcc = Operating max	Ta = -20°C	45	1	