Product Change Notification - GBNG-06LXXH156

Date:

02 May 2018

Product Category:

8-bit PIC Microcontrollers

Affected CPNs:

Notification subject:

CCB 2856 Final Notice: Qualification of Microchip Fabrication site (FAB 4) for selected Atmel products manufactured with the 59.91K process technology.

Notification text:

PCN Status:

Final notification

PCN Type:

Manufacturing Change

Microchip Parts Affected:

Please open one of the icons found in the Affected CPNs section above.

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

Description of Change:

Qualification of Microchip Fabrication site (FAB 4) for selected Atmel products manufactured with the 59.91K process technology.

Pre Change:

Fabricated at UMC5 and TPS5 fabrication sites using 8 inch wafers.

Post Change:

Fabricated at Microchip Fabrication site (FAB 4) using 8 inch wafers.

Pre and Post Change Summary:

	Pre Change		Post Change
Fab Site	UMC5	TPS5	Microchip Fabrication site (FAB 4)
Wafer Size	8 inch wafers	8 inch wafers	8 inch wafers
Quality Certification	ISO/TS16949	ISO/TS16949	ISO/TS16949
Design/Layout	No Change	No Change	No Change
Die Size	No Change	No Change	No Change

Impacts to Data Sheet:

None

Change Impact:

None

Reason for Change:

To improve on time delivery performance by qualifying Microchip Fabrication site (FAB 4)

Change Implementation Status:

In progress

Estimated First Ship Date:

June 2, 2018 (date code: 1822)

NOTE: Please be advised that after the estimated first ship date customers may receive pre and

post change parts
Time Table Summary:

	March 2017				->	May 2018				June 2018				
Workweek	10	11	12	13		18	19	20	21	22	23	24	25	26
Initial PCN Issue Date		X												
Qualification Report Availability														
Final PCN Issue Date						X								
Estimated Implementation Date										X				

Method to Identify Change:
Traceability code
Qualification Report:
Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.
Revision History:
March 13, 2017: Issued initial notification.
March 20, 2017: Re-issued the initial notification. Revised the initial PCN by narrowing the scope to affect only the ATMEGA168PB device family manufactured with the 59.91K process technology which is reflected in the subject, description, and the affected parts list.
December 11, 2017: Re-issued the initial notification. Revised the affected parts list and estimated qualification completion date.
March 22, 2018: Revised the initial notification to update the affected parts list and remove parts that are not in of the scope.
May 2, 2018: Issued final notification. Attached the Qualification Report. Revised the affected parts list. Provided estimated first ship date on June 2, 2018.

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

Attachment(s):
PCN_GBNG-06LXXH156_Qual_Report.pdf

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

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Affected Catalog Part Numbers (CPN)

ATMEGA168-20AUR
ATMEGA168-20MQ
ATMEGA168-20MQR
ATMEGA168-20MUR
ATMEGA168A-AU
ATMEGA168A-AUR
ATMEGA168A-MU
ATMEGA168A-MUR
ATMEGA168P-20AN
ATMEGA168P-20ANR
ATMEGA168P-20AUR
ATMEGA168P-20MQ
ATMEGA168P-20MQR
ATMEGA168P-20MUR
ATMEGA168PA-AN
ATMEGA168PA-ANR
ATMEGA168PA-AU
ATMEGA168PA-AUR
ATMEGA168PA-MN
ATMEGA168PA-MNR
ATMEGA168PA-MU
ATMEGA168PA-MUR
ATMEGA168PB-AN
ATMEGA168PB-ANR
ATMEGA168PB-AU
ATMEGA168PB-AUR
ATMEGA168PB-MN
ATMEGA168PB-MNR
ATMEGA168PB-MU
ATMEGA168PB-MUR
ATMEGA168PV-10AN
ATMEGA168PV-10AUR
ATMEGA168PV-10MUR
ATMEGA168V-10AUR
ATMEGA168V-10MQ
ATMEGA168V-10MQR
ATMEGA168V-10MUR
ATMEGA324PB-AN
ATMEGA324PB-ANR
ATMEGA324PB-AU
ATMEGA324PB-AUR
ATMEGA324PB-MN
ATMEGA324PB-MNR
ATMEGA324PB-MU
ATMEGA324PB-MUR
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ATMEGA328-AUR

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ATMEGA328-MUR
ATMEGA328-MURA1
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ATMEGA328P-AUA1
ATMEGA328P-AUR
ATMEGA328P-AURA1
ATMEGA328PB-AN
ATMEGA328PB-ANR
ATMEGA328PB-AU
ATMEGA328PB-AUR
ATMEGA328PB-MN
ATMEGA328PB-MNR
ATMEGA328PB-MU
ATMEGA328PB-MUR
ATMEGA328P-MU
ATMEGA328P-MUR
ATMEGA328P-MURA1
ATMEGA48-20AU
ATMEGA48-20MU
ATMEGA48-20MUR
ATMEGA48A-AU
ATMEGA48A-AUR
ATMEGA48A-MU
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ATMEGA48P-20MU
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ATMEGA48V-10MU
ATMEGA48V-10MUR
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ATMEGA88-20MU

ATMEGA88A-AU
ATMEGA88A-AUR
ATMEGA88A-MU
ATMEGA88A-MUR
ATMEGA88P-20AU
ATMEGA88P-20AUR
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ATMEGA88PA-AUR
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ATMEGA88PB-MUR
ATMEGA88PB-MURB75
ATMEGA88PV-10AU
ATMEGA88PV-10AUR
ATMEGA88PV-10MU
ATMEGA88PV-10MUR
ATMEGA88V-10MU
ATMEGA88V-10MUR
ATTINY1614-SSFR
ATTINY1614-SSNR
ATTINY1616-MFR
ATTINY1616-MNR
ATTINY1616-SFR
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ATTINY212-SSFR
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ATTINY416-SNR
ATTINY417-MFR
ATTINY417-MNR
ATTINY814-SSFR
ATTINY814-SSNR

ATTINY816-MNR

ATTINY816-SFR

ATTINY816-SNR

ATTINY817-MFR

ATTINY817-MNR

QUALIFICATION REPORT SUMMARY

PCN #: GBNG-06LXXH156

Date
March 09, 2018

Qualification of Microchip Fabrication site (FAB 4) for selected Atmel products manufactured with the 59.91K process technology.

Purpose: Qualification of Microchip Fabrication site (FAB 4) for selected Atmel products manufactured with the 59.91K process technology.

CCB No.: 2856

Package and Assembly Materials Information

Table 1: Qualification Vehicle Information QFN32

Category	Material Reference
Device Type	ATMega168
Package Dimension	5 x 5 mm
Package Thickness	0.9mm (Max)
Die Size	2.47mm2
Wire Bond Material	Cu_Pd_Au wire
Leadframe/ Substrate Material	LF Copper
Marking material	Laser Marking
Plating Material	Plating Matt Sn with 1hr@150C annealing
Mold Compound Material	G700LA

Table 2: Qualification Vehicle Information TQFP32

Category	Material Reference
Device Type	ATMega168
Package Dimension	7 x 7 mm
Package Thickness	1.2 mm (Max)
Die Size	2.47mm2
Wire Bond Material	CuPdAu
Leadframe/ Substrate Material	LF Copper C194
Marking material	Laser Marking
Plating Material	Plating Matt Sn with 1hr@150C annealing
Mold Compound Material	G700LA

Qualification Results Summary

TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS

Test	#	Test Conditions	ss/lot	Lots	A/R	Step	Status	Comment
PC	A1	Preconditioning [260°C] – JESD22-A113, J-STD-020	285	3	0/1	L3	PASS	
HAST	A2	Biased Highly Accel. Stress Test (post PC) [130°C,85%RH] – JESD22-A101	77	3	0/1	96h	PASS	
UHST	A3	Unbiased High Accel. Stress Test (post PC) [130°C,85RH] – JESD22-A118	77	3	0/1	96h	PASS	
TC	A4	Temp. Cycling (post PC) [-65°C, 150°C] – JESD22 A104	77	3	0/1	500c	PASS	
HTSL	A6	High Temp. Storage Life [175°C] – JESD22-A103	45	3	0/1	500h	PASS	

TEST GROUP B – ACCELERATED LIFE TIME SIMULTION TESTS

Test	#	Test Conditions	ss/lot	Lots	A/R	Step	Status	Comment
HTOL	B1	High Temp. Operating Life [150°C] – JESD22 – A108	77	3	0/1	500h	PASS	
ELFR	B2	Early Life Failure Rate [150°C] – AEC-Q100-008	800	3	0/1	24h	PASS	
EDR	B3	NVM Endurance (Pg.&Erase) NVM Data Retention [175°C] AEC-Q100-005	77 77	3 3	0/1 0/1	100kc 500h	PASS PASS	10kc Flash/ 100kc EE

TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS

Test	#	Test Conditions	ss/lot	Lots	A/R	Step	Status	Comment
WBS	C1	Wire Bond Shear AEC-Q100-001	5p/30 w	1		-	PASS	
BPS	C2	Bond Pull strength (post TC) MIL-883-2011	5p/30 w	1		-	PASS	
SD	C3	Solderability – JESD22 B102	15	1	0/1	-	PASS	
PD	C4	Physical dimensions – JESD22-B100, JESD22-B108	10	3		-	PASS	Assembly Data
LI	C6	Lead Integrity – JESD22-B105	50l/3p	1	0/1	-	PASS	Assembly Data

TEST GROUP E – ELECTRICAL VERIFICATION

Test	#	Test Conditions	ss/lot	Lots	A/R	Step	Status	Comment
HBM / MM	E2	Electrostatic Discharge (HBM & MM) – AEC-Q100-002, 003	3	1	0/1	2kV / 200V	PASS	
CDM	E3	Electrostatic Discharge (CDM) – AEC-Q100-011	3	1	0/1	500V 750V	PASS	
LU	E4	Latch-up [25°C and125°C] – AEC-Q100-004, JESD78	6	1	0/1	+/- 100mA, 1.5xOV	PASS	
ED	E5	Electrical Distribution – AEC-Q100-009	30	3		-	PASS	
FG	E6	Fault Grading – AEC-Q100-007					PASS	
CHAR	E7	Characterization (VT/Leff/Rpoly corner run)	30	1		-	PASS	