



Product Change Notification - GBNG-09GKRI087

Date:

11 Jun 2019

Product Category:

8-bit Microcontrollers

Affected CPNs:**Notification subject:**

CCB 3082.001 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond in selected products of the 150K wafer technology available in 16L QFN (4x4x0.9mm) package at NSEB assembly site.

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 palladium coated copper with gold flash (CuPdAu) bond in selected products of the 150K wafer technology available in 16L QFN (4x4x0.9mm) package at NSEB assembly site.

Pre Change:

Using gold (Au) bond wire and EFTEC-64T lead frame material.

Post Change:

Using palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material.

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	UTAC Thai Limited LTD. (NSEB)	UTAC Thai Limited LTD. (NSEB)
Wire material	Au	CuPdAu
Die attach material	8600	8600
Molding compound material	G700LTD	G700LTD
Lead frame material	EFTEC-64T	C194

Impacts to Data Sheet:

None

Change Impact:

None

Reason for Change:

To improve manufacturability by qualifying CuPdAu bond wire at NSEB assembly site

Change Implementation Status:

In Progress

Estimated First Ship Date:

July 11, 2019 (date code: 1928)

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

Time Table Summary:

	June 2019					July 2019				
Workweek	22	23	24	25	26	27	28	29	30	31



Final PCN Issue Date			X							
Qual Report Availability			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:

June 11, 2019: Issued final notification. Attached is the qualification report. Estimated first ship date(EFSD) is on July 11 2019.

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-09GKRI087_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)

PIC16F630-E/ML

PIC16F630-I/ML

PIC16F630T-I/ML

PIC16F676-E/ML

PIC16F676-I/ML

PIC16F676T-I/ML



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN#: GBNG-09GKRI087

Date
May 02, 2018

Qualification of palladium coated copper with gold flash (CuPdAu) bond in selected products of the 160K wafer technology available in 16L QFN package at NSEB assembly site. The selected products of the 150K wafer technology available in 16L QFN package at NSEB assembly site will qualify by similarity.



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) bond in selected products of the 160K wafer technology available in 16L QFN package at NSEB assembly site. The selected products of the 150K wafer technology available in 16L QFN package at NSEB assembly site will qualify by similarity.
CN	ES170933
QUAL ID	Q18030 Rev. A
MP CODE	DE0444D5XAXF
Part No.	PIC16F688-E/ML
Bonding No.	BDM-001497 Rev. A
CCB No	3082 and 3082.001
<u>Package</u>	
Type	16L QFN
Package size	4x4x0.9 mm
Die thickness	15 mils
Die size	77.50 x 100.30 mils
<u>Lead Frame</u>	
Paddle size	110 x 110 mils
Material	COPPER C194-FH
Surface	Ag on lead only
Process	Etched
Lead Lock	Yes
Part Number	FR1346
Treatment	Micro-Etched
<u>Material</u>	
Epoxy	8600 Conductive
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Tin



MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
NSEB184300763.000	GRSM418200580.100	18030W5
NSEB184300765.000	GRSM418200580.100	18030YG
NSEB184300768.000	GRSM418200580.100	1803107

Result

Pass Fail _____

16L QFN (4x4x0.9mm) assembled by UTL (NSEB) pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020E)	IPC/JEDEC J-STD-020E	198	0/198	Pass	
<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 1)	Electrical Test :+25°C and 125°C System: J750 Bake 150°C, 24 hrs System: CHINEE 85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 Electrical Test :+25°C and 125°C System: J750	JESD22-A113	693(0)	693 693 693 0/693	 Pass	Good Devices
Temp Cycle	Stress Condition: -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 125°C System: J750	JESD22-A104	 231(0)	231 0/231	 Pass	Parts had been pre-conditioned at 260°C
HAST	Stress Condition: +130°C/85%RH, 96 hrs. Bias Volt: 5.5 Volts System: HAST 6000X Electrical Test: + 25°C and 125°C System: J750	JESD22-A110	 231(0)	231 0/231	 Pass	Parts had been pre-conditioned at 260°C 77 units / lot
UNBIASED-HAST	Stress Condition: +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: +25°C System: J750	JESD22-A118	 231(0)	231 0/231	 Pass	Parts had been pre-conditioned at 260°C 77 units / lot

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	Stress Condition: Bake 175°C, 504 hrs System: SHEL LAB	JESD22-A103		135		45 units / lot
	Electrical Test :+25°C and 125°C System: J750		135(0)	0/135	Pass	
Solderability Temp 215°C	Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERS RA 2200D Visual Inspection: External Visual Inspection	JESD22B-102E	22 (0)	22 22 0/22	Pass	
Solderability Temp 245°C	Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.245°C Solder material: Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERS RA 2200D Visual Inspection: External Visual Inspection	JESD22B-102E	22 (0)	22 22 0/22	Pass	
Physical Dimensions	Physical Dimension, 10 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (> 4.0 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>10.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	