Product Change Notification / LIAL-07JNOW904

Date:

12-Dec-2022

Product Category:

Motor Drivers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4952 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected MCP8025xx and MCP8026xx device families available in 40L QFN (5x5x0.9mm) package assembled at MMT assembly site.

Affected CPNs:

LIAL-07JNOW904_Affected_CPN_12122022.pdf
LIAL-07JNOW904_Affected_CPN_12122022.csv

Notification Text:

PCN Status: Final Notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the files found in the Affected CPNs section.
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 wire for selected MCP8025xx and MCP8026xx device families available in 40L QFN (5x5x0.9mm) package assembled at MMT assembly site.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	Microchip Technology Thailand (Branch) / (MMT)	Microchip Technology Thailand (Branch) / (MMT)	Microchip Technology Thailand (Branch) / (MMT)
Wire Material	Au	Au	CuPdAu
Die Attach Material	3280	3280	3280
Molding Compound Material	G700LTD	G700LTD	G700LTD
Lead-Frame Material	C194	C194	C194

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability by qualifying palladium coated copper with gold flash (CuPdAu) bond wire.

Change Implementation Status: In Progress

Estimated First Ship Date: January 7, 2023 (date code: 2302)

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

Time Table Summary:

	February 2022				→	December 2022					January 2023				
Workweek	06	07	08	09		49	50	51	52	53	01	02	03	04	05
Initial PCN Issue Date		x													
Qual Report Availability								x							
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: February 7, 2022: Issued initial notification.
December 12, 2022: Issued final notification. Attached the qualification report. Provided estimated first ship date to be on January 7, 2023.

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

Attachments:

PCN_LIAL-07JNOW904-Qual_Report.pdf

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

Terms and Conditions:

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LIAL-07JNOW904 - CCB 4952 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected MCP8025xx and MCP8026xx device families available in 40L QFN (5x5x0.9mm) package assembled at MMT assembly site.

Affected Catalog Part Numbers (CPN)

MCP8025-115E/MP
MCP8026-115E/MP
MCP8026-115E/MPB3
MCP8025A-115E/MP
MCP8025T-115H/MP
MCP8026T-115H/MP
MCP8025AT-115H/MP
MCP8025-115H/MP
MCP8026-115H/MP
MCP8025A-115H/MP
MCP8025T-115E/MP
MCP8026T-115E/MP
MCP8026T-115E/MPB3

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: LIAL-07JNOW904

Date:
November 25, 2022

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected MCP8025xx and MCP8026xx device families available in 40L QFN (5x5x0.9mm) package assembled at MMT assembly site. This is Q006 Grade 0 qualification.

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PACKAGE QUALIFICATION REPORT

Purpose	**Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected MCP8025xx and MCP8026xx device families available in 40L QFN (5x5x0.9mm) package assembled at MMT assembly site. This is Q006 Grade 0 qualification.**
CN	E000081185
QUAL ID	R2200019 Rev. A
MP CODE	VGBD3MNHXA02
Part No.	MCP8025-115H/NHX
Bonding No.	BD-000271 Rev.01
Package	
Type	40L VQFN-WFS
Package size	5 x 5 x 0.9 mm
Lead Frame	
Paddle size	154 x 154 mils
Material	C194
Surface	Ag Ring Plated
Process	Etched
Lead Lock	Yes
Part Number	10104013
Material	
Epoxy	3280
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Sn

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-223701392.000	TC08922113407.000	2149H0G
MMT-223701581.000	TC08922113407.000	2149KYD
MMT-223800117.000	TC08922113407.000	2150KYT

Result [X] Pass [ ] Fail [ ] _____

40L VQFN-WFS (5x5x0.9 mm) assembled by MMT 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	135(0)	0/135	Pass	
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test:** +25°C, 85°C,125°C and 150°C System: ETS-300	JESD22-A113	693(0)	0/693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			0/693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			0/693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			0/693		
	Electrical Test: +25°C, 85°C,125°C and 150°C System: ETS-300		693(0)	0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** -55°C to +150°C, 1500 Cycles System: TABAI ESPEC TSA-70H	JESD22-A104		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +85°C, 125°C and 150°C System: ETS-300		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>2.50 grams) Bond Shear (>15.00 grams)		45(0)	0/45	Pass	
	Stress Condition: -55°C to +150°C, 3000 Cycles System: TABAI ESPEC TSA-70H			0/231		
	Electrical Test: +85°C, 125°C and 150°C System: ETS-300		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>2.50 grams) Bond Shear (>15.00 grams)		45(0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X	JESD22-A110		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, 85°C, 125°C and 150°C System: ETS-300		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>2.50 grams) Bond Shear (>15.00 grams)		45(0)	0/45	Pass	
	Stress Condition: +130°C/85%RH, 192 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X			0/231		
	Electrical Test: +25°C, 85°C, 125°C and 150°C System: ETS-300		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>2.50 grams) Bond Shear (>15.00 grams)		45(0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: ETS-300		231(0)	0/231	Pass	77 units / lot
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 1000 hrs. System: TPS DC-166-F-ST350	JESD22-A103		0/135		45 units / lot
	Electrical Test: +25°C, 85°C, 125°C and 150°C System: ETS-300		135(0)	0/135	Pass	
	Stress Condition: Bake 175°C, 2000 hrs. System: TPS DC-166-F-ST350			0/135		
	Electrical Test: +25°C, 85°C, 125°C and 150°C System: ETS-300		135(0)	0/135	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: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22(0)	0/22 0/22 0/22	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Physical Dimensions	Physical Dimension, 10 units / lot from 3 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>4.00 grams)	Mil. Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>18.00 grams)	CDF-AEC-Q100-001	30 (0) bonds	0/30	Pass	