Product Change Notification / JAON-09TGWM044

Date:

17-Jan-2023

Product Category:

Analog Temperature Sensors, Analog to Digital Converters, Digital Potentiometers, Digital to Analog Converters

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5278 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected MCP3421xxx, MCP3425Axx, MCP401xx, MCP402xx, MCP4706Axx, MCP4716Axx, MCP4725Axx, MCP4726Axx, MCP47DA1T, and MCP9510xx device families available in 6L SOT-23 package assembled at MMT assembly site.

Affected CPNs:

JAON-09TGWM044_Affected_CPN_01172023.pdf
JAON-09TGWM044_Affected_CPN_01172023.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) as a new bond wire material for selected MCP3421xxx, MCP3425Axx, MCP401xx, MCP402xx, MCP4706Axx, MCP4716Axx, MCP4725Axx, MCP4726Axx, MCP47DA1T, and MCP9510xx device families available in 6L SOT-23 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)
Wire Material	Au	CuPdAu
Die Attach Material	84-3J/8006NS	84-3J/8006NS
Molding Compound Material	G600V	G600V
Lead-Frame Material	CDA194	CDA194

Impacts to Data Sheet: None

Change Impact None

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

Change Implementation Status: In Progress

Estimated First Ship Date: February 16, 2023 (date code: 2307)

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

Time Table Summary:

	September 2022					**->**	**January 2023**					**February 2023**				
Workweek	36	37	38	39	40		1	2	3	4	5	6	7	8	9	10
Initial PCN Issue Date			X													
Qual Report Availability									X							
Final PCN Issue Date									X							
Estimated Implementation													X			

Date															

Method to Identify Change: Traceability code

Qualification Report: Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

Revision History: September 13, 2022: Issued initial notification.
January 17, 2023: Issued final notification. Attached the Qualification Report. Provided estimated first ship date to be on February 16, 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_JAON-09TGWM044_Qual_Report.pdf

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

Terms and Conditions:

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.

If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

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Affected Catalog Part Numbers (CPN)

MCP4022T-202E/CH
MCP4022T-502E/CH
MCP4022T-103E/CH
MCP4022T-503E/CH
MCP4023T-202E/CH
MCP4023T-502E/CH
MCP4023T-103E/CH
MCP4023T-503E/CH
MCP4012T-202E/CH
MCP4012T-502E/CH
MCP4012T-103E/CH
MCP4012T-503E/CH
MCP4013T-202E/CH
MCP4013T-502E/CH
MCP4013T-103E/CH
MCP4013T-503E/CH
MCP9510CT-E/CH
MCP9510HT-E/CH
MCP9510HT-E/CHBAA
MCP3421A0T-E/CH
MCP3425A0T-E/CH
MCP3421LA0T-E/CH
MCP3421A1T-E/CH
MCP3425A1T-E/CH
MCP3421A2T-E/CH
MCP3425A2T-E/CH
MCP3421A3T-E/CH
MCP3425A3T-E/CH
MCP4706A0T-E/CH
MCP4706A1T-E/CH
MCP4706A2T-E/CH
MCP4706A3T-E/CH
MCP4716A0T-E/CH
MCP4716A1T-E/CH
MCP4716A2T-E/CH
MCP4716A3T-E/CH
MCP4726A0T-E/CH
MCP4726A1T-E/CH
MCP4726A2T-E/CH
MCP4726A3T-E/CH
MCP4725A0T-E/CH
MCP4725A1T-E/CH
MCP4725A2T-E/CH
MCP4725A3T-E/CH
MCP47DA1T-A0E/OT
MCP47DA1T-A1E/OT

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: JAON-09TGWM044

Date
December 20, 2022

Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected MCP3421xxx, MCP3425Axx, MCP401xx, MCP402xx, MCP4706Axx, MCP4716Axx, MCP4725Axx, MCP4726Axx, MCP47DA1T, and MCP9510xx device families available in 6L SOT-23 package assembled at MMT assembly site.

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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected MCP3421xxx, MCP3425Axx, MCP401xx, MCP402xx, MCP4706Axx, MCP4716Axx, MCP4725Axx, MCP4726Axx, MCP47DA1T, and MCP9510xx device families available in 6L SOT-23 package assembled at MMT assembly site.
CCB	5278
CN	E000131218
QUAL ID	R2201057 Rev. A
MP CODE	DFBE1YC8XAA0
Part No.	MCP4706A0T-E/CH
Bonding No.	BD-000739 Rev.01

Package

Type	6L SOT-23

Lead Frame

Paddle size	72 x 41 mils
Material	CDA194
Surface	Ag Spot Plated
Process	Stamped
Lead Lock	No
Part Number	10100602
Treatment	No

Material

Epoxy	84-3J/8006NS
Wire	CuPdAu wire
Mold Compound	G600V
Plating Composition	Matte Sn

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PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-232402285.000	TMPE223108533.000	2237D9P
MMT-232401444.000	TMPE223108533.000	2237959
MMT-232402286.000	TMPE223108533.000	2237DMD

Result [X] Pass [ ] Fail [ ] _____

6L SOT-23 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
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test:** +25°C and 125°C System: J750_MSO	JESD22-A113	693(0)	0/693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		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 and 125°C System: J750_MSO		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:** -65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H	JESD22-A104		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +125°C System: J750_MSO		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.50 grams)		15(0)	0/15	Pass	
	Bond Shear (>15.00 grams)		15(0)	0/15	Pass	
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: J750_MSO		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.0 Volts System: HAST 6000X	JESD22-A110		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C and 125°C System: J750_MSO		231(0)	0/231	Pass	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 **Electrical Test:** +25°C and 125°C System: J750_MSO	JESD22-A103	 135(0)	0/135 0/135	 Pass	45 units / lot
Bond Line Thickness	Bond Line Thickness	SPI-45528	15(0)	15(0)	Pass	
Wire sweep	Wire sweep Inspection 15 Wires / lot	-	45(0) Wires	0/45	Pass	
Bond Strength **Data Assembly**	Wire Pull (>2.50 grams) Bond Shear (>15.00 grams)	Mil. Std. 883-2011 CDF-AEC-Q100-001	30(0) Wires 30(0) bonds	0/30 0/30	Pass Pass	