



Product Change Notification - KSRA-04OPOO860

Date:

11 Jan 2019

Product Category:

16-Bit - Microcontrollers and Digital Signal Controllers

Affected CPNs:**Notification subject:**

CCB 2938 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected products of the 0.18um TSMC wafer technology available in 28L QFN-S 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 wire for selected products of the 0.18um TSMC wafer technology available in 28L QFN-S package at NSEB assembly site.

Pre Change:

Using gold (Au) bond wire, 8200T or 8600 die attach and G770HCD or G700LTD mold compound material.

Post Change:

Using palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach and G700LTD mold compound material.

Pre and Post Change Summary:

	Pre Change		Post Change
Assembly Site	UTAC Thai Limited		UTAC Thai Limited
	(UTL-1) LTD. (NSEB)		(UTL-1) LTD. (NSEB)
Wire material	Au Wire		CuPdAu Wire
Die attach material	8200T	8600	8600
Molding compound material	G770HCD	G700LTD	G700LTD
Lead frame material	C194		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:**

February 11, 2019 (date code: 1906)

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

Time Table Summary:

	May 2017					-->	January 2019					February 2019			
Workweek	18	19	20	21	22		01	02	03	04	05	06	07	08	09
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:

May 09, 2017: Issued initial notification.

January 11, 2019: Issued final notification. Attached the qualification report. Provided estimated first ship date to be on February 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_KSRA-04OPOO860_Qual_Report.pdf](#)

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Affected Catalog Part Numbers (CPN)

DSPIC33EP128GP502-I/MM
DSPIC33EP128GP502T-I/MM
DSPIC33EP128GS702-E/MM
DSPIC33EP128GS702-I/MM
DSPIC33EP128GS702T-E/MM
DSPIC33EP128GS702T-I/MM
DSPIC33EP128MC202-E/MM
DSPIC33EP128MC202-I/MM
DSPIC33EP128MC202T-E/MM
DSPIC33EP128MC202T-I/MM
DSPIC33EP128MC502-I/MM
DSPIC33EP128MC502T-E/MM
DSPIC33EP128MC502T-I/MM
DSPIC33EP16GS202-E/MM
DSPIC33EP16GS202-I/MM
DSPIC33EP16GS202T-E/MM
DSPIC33EP16GS202T-I/MM
DSPIC33EP16GS202T-I/MMC01
DSPIC33EP16GS502-E/MM
DSPIC33EP16GS502-I/MM
DSPIC33EP16GS502T-E/MM
DSPIC33EP16GS502T-I/MM
DSPIC33EP256GP502-E/MM
DSPIC33EP256GP502-H/MM
DSPIC33EP256GP502-I/MM
DSPIC33EP256GP502T-E/MM
DSPIC33EP256GP502T-H/MM
DSPIC33EP256GP502T-I/MM
DSPIC33EP256MC202-E/MM
DSPIC33EP256MC202-H/MM
DSPIC33EP256MC202-I/MM
DSPIC33EP256MC202T-E/MM
DSPIC33EP256MC202T-H/MM
DSPIC33EP256MC202T-I/MM
DSPIC33EP256MC502-E/MM
DSPIC33EP256MC502-H/MM
DSPIC33EP256MC502-I/MM
DSPIC33EP256MC502T-E/MM
DSPIC33EP256MC502T-H/MM
DSPIC33EP256MC502T-I/MM
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DSPIC33EP32GP502-I/MM
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DSPIC33EP32GS502T-I/MM
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DSPIC33EP32MC202-H/MM
DSPIC33EP32MC202-I/MM
DSPIC33EP32MC202T-E/MM
DSPIC33EP32MC202T-I/MM
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DSPIC33EP512GP502T-I/MM
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DSPIC33EV128GM002-I/MM
DSPIC33EV128GM002T-I/MM
DSPIC33EV128GM102-E/MM
DSPIC33EV128GM102-H/MM
DSPIC33EV128GM102-I/MM
DSPIC33EV128GM102T-I/MM
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DSPIC33EV256GM002-H/MM
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DSPIC33EV256GM002T-I/MM
DSPIC33EV256GM102-E/MM
DSPIC33EV256GM102-H/MM
DSPIC33EV256GM102-I/MM
DSPIC33EV256GM102T-I/MM
DSPIC33EV32GM002-E/MM
DSPIC33EV32GM002-H/MM
DSPIC33EV32GM002-I/MM
DSPIC33EV32GM002T-I/MM
DSPIC33EV32GM102-E/MM
DSPIC33EV32GM102-H/MM
DSPIC33EV32GM102-I/MM
DSPIC33EV32GM102T-I/MM
DSPIC33EV64GM002-E/MM
DSPIC33EV64GM002-H/MM
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DSPIC33EV64GM002T-I/MM
DSPIC33EV64GM102-E/MM
DSPIC33EV64GM102-H/MM
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DSPIC33EV64GM102T-I/MM
HA7619-I/MM028
HA7619T-I/MM028
PIC24EP128GP202-E/MM
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PIC24EP128GP202-I/MM038
PIC24EP128GP202T-I/MM038
PIC24EP256GP202-E/MM
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PIC24EP256GP202T-E/MM

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PIC24EP64MC202T-E/MM
PIC24EP64MC202T-H/MM
PIC24EP64MC202T-I/MM
PIC24FJ128GA202-E/MM
PIC24FJ128GA202-I/MM
PIC24FJ128GA202T-I/MM
PIC24FJ128GB202-I/MM
PIC24FJ128GB202T-I/MM
PIC24FJ64GA202-E/MM
PIC24FJ64GA202-I/MM
PIC24FJ64GA202T-I/MM
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PIC24FJ64GB202-I/MM
PIC24FJ64GB202T-I/MM



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: KSRA-04OPOO860

Date
December 13, 2018

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected products of the 0.18um TSMC wafer technology available in 28L QFN-S package at NSEB assembly site.



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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected products of the 0.18um TSMC wafer technology available in 28L QFN-S package at NSEB assembly site.
CN	ES224994
QUAL ID	Q18131 Rev. A
MP CODE	TLAB1MM2XLHD
Part No.	DSPIC33EP512GP502-H/MM
Bonding No.	BDM-001349 REV: A
CCB No.	2938
<u>Package</u>	
Type	28L QFN-S
Package size	6 x 6 x 0.9 mm
Die thickness	11 mils
Die size	168.1 x 158.4 mils
<u>Lead Frame</u>	
Paddle size	193 x 193 mils
Material	C194
Surface	Ag on lead only
Process	Etched
Lead Lock	Yes
Part Number	FR0410
Treatment	Micro-etched
<u>Material</u>	
Epoxy	8600
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Tin



MICROCHIP **PACKAGE QUALIFICATION REPORT**

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
NSEB191500021.000	TC11918511133.700	182888M
NSEB191500028.000	TC11918511133.700	182889C
NSEB191500031.000	TC11918511133.700	182889S

Result

☒ Pass ☐ Fail ☐ _____

28L QFN-S assembled by 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 C J-STD- 020E	231	0/231	Pass	

<u>Precondition Prior Perform Reliability Tests (At MSL Level 1)</u>	Electrical Test :+25°C 85°C and 150°C System: J750	JESD22- A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test :+25°C 85°C and 150°C System: J750			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, 1500 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 85°C and 150°C System: J750	JESD22-A104	231(0)	0/231	Pass	Parts had been pre-conditioned at 260°C
	Stress Condition: -65°C to +150°C, 3000 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 85°C and 150°C System: J750		231(0)	0/231	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: 3.6 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 25°C,85°C and 150°C System: J750		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. Bias Volt: 3.6 Volts System: HAST 6000X			231		
	Electrical Test: + 25°C,85°C and 150°C System: J750		231(0)	0/231	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		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. System: HAST 6000X			231		
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	
High Temperature Storage Life	Stress Condition: Bake 175°C, 1000 hrs System: SHEL LAB	JESD22-A103		135		45 units / lot
	Electrical Test :+25°C,85°C and 150°C System: J750		135(0)	0/135	Pass	
	Stress Condition: Bake 175°C, 2000 hrs System: SHEL LAB			135		
	Electrical Test :+25°C,85°C and 150°C System: J750		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: ERS A RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Bond Line Thickness	Bond Line Thickness	SPI-45528	15(0)	15(0)	Pass	
Cross section	Cross section Inspection 5 units / lot		15(0) Wires	0/15	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 (> 2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	