



## Product Change Notification - KSRA-04OPOO860

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**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
<b>Assembly Site</b>	UTAC Thai Limited (UTL-1) LTD. (NSEB)		UTAC Thai Limited (UTL-1) LTD. (NSEB)
<b>Wire material</b>	Au Wire		CuPdAu Wire
<b>Die attach material</b>	8200T	8600	8600
<b>Molding compound material</b>	G770HCD	G700LTD	G700LTD
<b>Lead frame material</b>	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:**

Workweek	May 2017					-->	January 2019					February 2019			
	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](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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**MICROCHIP**

**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.**



## MICROCHIP PACKAGE QUALIFICATION REPORT

<b>Purpose</b>	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.
<b>CN</b>	ES224994
<b>QUAL ID</b>	Q18131 Rev. A
<b>MP CODE</b>	TLAB1MM2XLHD
<b>Part No.</b>	DSPIC33EP512GP502-H/MM
<b>Bonding No.</b>	BDM-001349 REV: A
<b>CCB No.</b>	2938
<b><u>Package</u></b>	
<b>Type</b>	28L QFN-S
<b>Package size</b>	6 x 6 x 0.9 mm
<b>Die thickness</b>	11 mils
<b>Die size</b>	168.1 x 158.4 mils
<b><u>Lead Frame</u></b>	
<b>Paddle size</b>	193 x 193 mils
<b>Material</b>	C194
<b>Surface</b>	Ag on lead only
<b>Process</b>	Etched
<b>Lead Lock</b>	Yes
<b>Part Number</b>	FR0410
<b>Treatment</b>	Micro-etched
<b><u>Material</u></b>	
<b>Epoxy</b>	8600
<b>Wire</b>	CuPdAu wire
<b>Mold Compound</b>	G700LTD
<b>Plating Composition</b>	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
<b>Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)</b>	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	

<b>Precondition Prior Perform Reliability Tests (At MSL Level 1)</b>	<b>Electrical Test</b> :+25°C 85°C and 150°C System: J750	JESD22-A113	693(0)	693	Pass	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		
	<b>Electrical Test</b> :+25°C 85°C and 150°C System: J750			0/693		

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Temp Cycle</b>	<b>Stress Condition:</b> -65°C to +150°C, 1500 Cycles System : TABAI ESPEC TSA-70H <b>Electrical Test:</b> + 85°C and 150°C System: J750	JESD22- A104	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C
	<b>Stress Condition:</b> -65°C to +150°C, 3000 Cycles System : TABAI ESPEC TSA-70H <b>Electrical Test:</b> + 85°C and 150°C System: J750			231 0/231	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>HAST</b>	<b>Stress Condition:</b> +130°C/85%RH, 96 hrs. <b>Bias Volt:</b> 3.6 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	<b>Electrical Test:</b> + 25°C,85°C and 150°C System: J750		231(0)	0/231	Pass	77 units / lot
	<b>Stress Condition:</b> +130°C/85%RH, 192 hrs. <b>Bias Volt:</b> 3.6 Volts System: HAST 6000X			231		
	<b>Electrical Test:</b> + 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
<b>UNBIASED-HAST</b>	<b>Stress Condition:</b> +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22- A118		231		Parts had been pre-conditioned at 260°C
	<b>Electrical Test:</b> +25°C System: J750		231(0)	0/231	Pass	77 units / lot
	<b>Stress Condition:</b> +130°C/85%RH, 192 hrs. System: HAST 6000X			231		
	<b>Electrical Test:</b> +25°C System: J750		231(0)	0/231	Pass	
<b>High Temperature Storage Life</b>	<b>Stress Condition:</b> Bake 175°C, 1000 hrs System: SHEL LAB	JESD22- A103		135		45 units / lot
	<b>Electrical Test</b> :+25°C,85°C and 150°C System: J750		135(0)	0/135	Pass	
	<b>Stress Condition:</b> Bake 175°C, 2000 hrs System: SHEL LAB			135		
	<b>Electrical Test</b> :+25°C,85°C and 150°C System: J750		135(0)	0/135	Pass	
<b>Solderability</b> <b>Temp 245°C</b>	<b>Steam Aging:</b> 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)	22 22 0/22	Pass	

## PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Bond Line Thickness</b>	Bond Line Thickness	SPI-45528	15(0)	15(0)	Pass	
<b>Cross section</b>	Cross section Inspection 5 units / lot		15(0) Wires	0/15	Pass	
<b>Physical Dimensions</b>	Physical Dimension, 10 units from 1 lot	JESD22- B100/B108	30(0) Units	0/30	Pass	
<b>Bond Strength Data Assembly</b>	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	

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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
- DSPIC33EP32GP502-E/MM
- DSPIC33EP32GP502-I/MM

DSPIC33EP32GP502T-E/MM  
DSPIC33EP32GP502T-I/MM  
DSPIC33EP32GS202-E/MM  
DSPIC33EP32GS202-I/MM  
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DSPIC33EP32MC202T-E/MM  
DSPIC33EP32MC202T-I/MM  
DSPIC33EP32MC502-E/MM  
DSPIC33EP32MC502-I/MM  
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DSPIC33EV128GM002T-I/MM  
DSPIC33EV128GM102-E/MM  
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DSPIC33EV64GM102-H/MM  
DSPIC33EV64GM102-I/MM  
DSPIC33EV64GM102T-I/MM  
HA7619-I/MM028  
HA7619T-I/MM028

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PIC24EP128GP202-I/MM038  
PIC24EP128GP202T-I/MM038  
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PIC24EP256GP202T-E/MM  
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PIC24FJ128GA202-I/MM  
PIC24FJ128GA202T-I/MM  
PIC24FJ128GB202-I/MM  
PIC24FJ128GB202T-I/MM

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PIC24FJ64GA202-I/MM  
PIC24FJ64GA202T-I/MM  
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PIC24FJ64GB202T-I/MM