



MICROCHIP

QUALIFICATION REPORT
RELIABILITY LABORATORY

PCN #: JAON-12YAST529

Date
March 07, 2016

**Qualification of palladium coated copper with gold flash
(CuPdAu) bond wire in selected automotive products of the
200K wafer technology available in 64L and 44L TQFP
package at MTAI assembly site.**

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MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected automotive products of the 200K wafer technology available in 64L and 44L TQFP package at MTAI assembly site.
CN	BC152609
QUAL ID	Q16006
MP CODE	LEBQ1YV2XV01
Part No.	PIC18F66K22T-E/PTV01
Bonding No.	BDM-000881 Rev. A
CCB No.	1661
<u>Package</u>	
Type	64L TQFP
Package size	10x10x1 mm
Die thickness	11 mils
Die size	149.4 x 140.7 mils
<u>Lead Frame</u>	
Paddle size	200 x 200 mils
Material	C7025
Surface	Ag spot
Process	Stamp
Lead Lock	No
Part Number	10106405
Treatment	Roughened
<u>Die attach material</u>	
Epoxy	3280
Wire	CuPdAu wire
Mold Compound	G700HA
Plating Composition	Matte Tin



MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI163903023.000	GRSM416232475.310	1552V2B
MTAI163903024.000	GRSM416232475.300	1552V2C
MTAI163903151.000	GRSM416232475.300	1552W22

Result

☒ Pass ☐ Fail ☐ _____

64L TQFP (10x10x1.0 mm) assembled by MTAI pass reliability test per AEC-Q006 standard. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260 °C reflow temperature per IPC/JEDEC J-STD-020D standard.

Prepared By: Thinnapol Date: March 07, 2016 (Sr. Reliability Engineer)

(Mr. Thinnapol Nakkasun)

Approved By: Som Date: March 07, 2016 (Reliability Manager)

(Mr. Somnuek Thongprasert)

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-020D)	IPC/JEDEC C J-STD- 020D	198	0/198	Pass	

<u>Precondition Prior Perform Reliability Tests (At MSL Level 1)</u>	Electrical Test :+25°C and 125°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 and 125°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: (Standard) -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 125°C System: J750 C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200) Decap Inspection (Information Only) Bond Strength: Wire Pull (>2.5 grams) Bond Shear (>15.00 grams) Cross section Stress Condition: (Extended) -65°C to +150°C, 1000 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 125°C System: J750 C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200) Decap Inspection (Information Only) Bond Strength: Wire Pull (>2.5 grams) Bond Shear (>15.00 grams) Cross section	JESD22-A104		231		Parts had been pre-conditioned at 260°C
			231 (0)	0/231	Pass	
			66 (0)	0 /66	Pass	22 units / lot
			9 (0)	0/9	Pass	
			45 (0)	0/45	Pass	
			3(0) Wires	0/3	Pass	1 Wire/ lot
				231		
			231 (0)	0/231	Pass	
			66 (0)	0 /66	Pass	22 units / lot
			9 (0)	0/9	Pass	
			45 (0)	0/45	Pass	
			3(0) Wires	0/3	Pass	1 Wire/ lot

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	Stress Condition: (Standard) +130 °C/85%RH, 96 hrs. Bias Volt: 2.5 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260 °C
	Electrical Test: + 25 °C and 125 °C System: J750		231(0)	0/231	Pass	77 units / lot
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		66 (0)	0 /66	Pass	22 units / lot
	Decap Inspection (Information Only)		9 (0)	0/9	Pass	
	Bond Strength: Wire Pull (>2.5 grams) Bond Shear (>15.00 grams)		45 (0)	0/45	Pass	
	Cross section		3(0) Wires	0/3	Pass	1Wire/ lot
	Stress Condition: (Extended) +130 °C/85%RH, 192 hrs. Bias Volt: 2.5 Volts System: HAST 6000X			231		
	Electrical Test: + 25 °C and 125 °C System: J750		231(0)	0/231	Pass	
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		66 (0)	0 /66	Pass	22 units / lot
	Decap Inspection (Information Only)		9 (0)	0/9	Pass	
	Bond Strength: Wire Pull (>2.5 grams) Bond Shear (>15.00 grams)		45 (0)	0/45	Pass	
	Cross section		3(0) Wires	0/3	Pass	1 Wire/ lot

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	Stress Condition: (Standard) +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
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		66 (0)	0 /66	Pass	22 units / lot
	Decap Inspection (Information Only)		15(0) Units	0/15	Pass	5 units / lot
	Stress Condition: (Extended) +130 °C/85%RH, 192 hrs. System: HAST 6000X			231		
	Electrical Test: +25 °C System: J750		231(0)	0/231	Pass	
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		66 (0)	0 /66	Pass	22 units / lot
	Decap Inspection (Information Only)		15(0) Units	0/15	Pass	5 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	
	Cross section		3(0) Wires	0/3	Pass	1 Wire/ lot
	Stress Condition: Bake 175°C, 1000 hrs System: SHEL LAB	JESD22-A103		135		
	Electrical Test :+25°C and 125°C System: J750		135(0)	0/135	Pass	
	Cross section		3(0) Wires	0/3	Pass	1 Wire/ lot
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: ERSA RA 2200D Visual Inspection: External Visual Inspection	JESD22-B-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: ERSA RA 2200D Visual Inspection: External Visual Inspection	JESD22-B-102E	22 (0)	22 22 0/22	Pass	
Physical Dimensions	Physical Dimension, 30 units from 1 lot	JESD22 - B100/B 108	30(0) Units	0/30	Pass	
Bond Strength	Wire Pull (>2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
Data Assembly	Bond Shear (>15.00 grams)	JESD22 -B116	30 (0) bonds	0/30	Pass	

JAON-12YAST529 - CCB 1661 and 1661.01 Final Notice: Qualification of CuPdAu bond wire in selected automotive products of the 200K wafer technology available in 64L and 44L TQFP package at MTAI assembly site.

Affected Catalog Part Numbers (CPN)

PCN_JAON-12YAST529
CATALOG_PART_NBR
PIC16F1517-I/PTVAO
PIC16F1517T-I/PTVAO
PIC16F1526-E/PTVAO
PIC16F1526T-E/PTVAO
PIC16F1527-E/PTVAO
PIC16F1527-I/PTVAO
PIC16F1527T-I/PTVAO
PIC16F1719-E/PTVAO
PIC16F1719T-E/PTVAO
PIC16F1784T-E/PTVAO
PIC16F1787T-E/PTVAO
PIC16F1934-I/PTVAO
PIC16F1934T-I/PTVAO
PIC16F1937-I/PTVAO
PIC16F1937T-I/PTVAO
PIC16F1946T-I/PTVAO
PIC16F1947-I/PTVAO
PIC16F1947T-I/PTVAO
PIC16F727T-E/PTVAO
PIC16LF1519-E/PTVAO
PIC16LF1519T-E/PTVAO
PIC16LF1934-I/PTVAO
PIC16LF1934T-I/PTVAO
PIC16LF1937-I/PTVAO
PIC16LF1937T-I/PTVAO
PIC18F45K20-I/PTVAO
PIC18F45K20T-I/PTVAO
PIC18F45K22-I/PTVAO
PIC18F45K80-I/PTVAO
PIC18F45K80T-I/PTVAO
PIC18F46K22-E/PTVAO
PIC18F46K22T-E/PTVAO
PIC18F46K80-E/PTVAO
PIC18F46K80-I/PTVAO
PIC18F46K80T-E/PTVAO
PIC18F46K80T-I/PTVAO
PIC18F65K22-I/PTVAO
PIC18F65K22T-I/PTVAO
PIC18F65K80-I/PTVAO
PIC18F65K80T-I/PTVAO
PIC18F66K80-I/PTVAO
PIC18F66K80T-I/PTVAO
PIC18F66K90-E/PTVAO

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Affected Catalog Part Numbers (CPN)

PCN_JAON-12YAST529
CATALOG_PART_NBR
PIC18F66K90T-E/PTVAO
PIC18LF45K22-E/PTVAO
PIC18LF45K22T-E/PTVAO
PIC18LF46K22-I/PTVAO
PIC18LF46K22T-E/PTVAO
PIC18LF46K22T-I/PTVAO