QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: NTDO-24ZJOF507

Date:
November 15, 2024

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire as new wire material for selected PIC16F153xx, PIC16F183xx, PIC16F184xx, PIC16LF153xx, PIC16LF183xx, PIC16LF184xx, PIC18F04Q4xx, PIC18F05Q4xx and PIC18F06Q4xx, AVR16DD14, AVR32DD14, AVR16DU14, AVR32DU14, PIC18F05Q2xx, PIC18F06Q2xx, PIC18F04Q2xx, device families available in 14L and 8L SOIC (3.90mm) packages at MMT assembly site.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) bond wire as new wire material for selected PIC16F153xx, PIC16F183xx, PIC16F184xx, PIC16LF153xx, PIC16LF183xx, PIC16LF184xx, PIC18F04Q4xx, PIC18F05Q4xx and PIC18F06Q4xx, AVR16DD14, AVR32DD14, AVR16DU14, AVR32DU14, PIC18F05Q2xx, PIC18F06Q2xx, PIC18F04Q2xx, device families available in 14L and 8L SOIC (3.90mm) packages at MMT assembly site.
CN	E000238835
QUAL ID	R2401147 Rev. A
MP CODE	MV0034D3XFX6
Part No.	PIC16F18426-E/SL
Bonding No.	BD-001882 Rev. 02
CCB No.	6422
Package	
Type	14L SOIC
Package size	.150”
Lead Frame	
Paddle size	95 x 155 mils
Material	CDA194
Surface	Selective Ag Plating
Process	Stamped
Lead Lock	No
Part Number	10101416
Treatment	BOT
Material	
Epoxy	QMI519
Wire	CuPdAu wire
Mold Compound	G600V
Plating Composition	Matte Sn

MICROCHIP

PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-251800673.000	GRSM424422913.220	2431PPE
MMT-251800677.000	GRSM424422913.220	2431DC5
MMT-251901323.000	GRSM424422913.220	2432DD3

Result ☒ Pass ☐ Fail ☐ ____________________

14L SOIC (.150”) 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	JESD22-A113	693(0)	0/693		Good Devices
	Bake 150°C, 24 hrs. System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		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		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		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>2.50 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		231(0)	0/231	Pass	77 units / lot
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 and 125°C System: J750		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: TPS Bake Oven	JESD22-A103		0/135		45 units
	Electrical Test: +25°C and 125°C System: J750		135(0)	0/135	Pass	
Wire sweep	Wire sweep Inspection 15 Wires / lot	-	45(0) Wires	0/45	Pass	
Bond Strength Data Assembly	Wire Pull (>2.50 grams)	Mil. Std. 883-2011	30(0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	CDF-AEC-Q100-001	30(0) bonds	0/30	Pass	