MICROCHIP

QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: MAAN-21MBKP146

Date:
August 11, 2025

Qualification of palladium-coated copper with gold flash (CuPdAu) as a new bond wire material for selected ATXMEGA128xx, ATXMEGA192xx, ATXMEGA256xx, ATXMEGA32xx, ATXMEGA384xx, and ATXMEGA64xx device families available in 64L and 100L TQFP (14x14x1mm) packages at the MMT assembly site. The AT90CAN32, AT90CAN64, ATmega128, ATmega128A, ATMEGA165xx, ATmega169xx, ATmega325, ATmega325xx, ATmega329, ATmega329xx, ATmega64, ATmega64A, ATmega645, ATmega645xx, ATmega649 and ATmega6490xx device families available in 64L and 100L TQFP (14x14x1mm) package will qualify by similarity (QBS).

Package Qualification Report

Purpose: Qualification of palladium-coated copper with gold flash (CuPdAu) as a new bond wire material for selected ATXMEGA128xx, ATXMEGA192xx, ATXMEGA256xx, ATXMEGA32xx, ATXMEGA384xx, and ATXMEGA64xx device families available in 64L and 100L TQFP (14x14x1mm) packages at the MMT assembly site. The AT90CAN32, AT90CAN64, ATmega128, ATmega128A, ATMEGA165xx, ATmega169xx, ATmega325, ATmega325xx, ATmega329, ATmega329xx, ATmega64, ATmega64A, ATmega645, ATmega645xx, ATmega649 and ATmega6490xx device families available in 64L and 100L TQFP (14x14x1mm) package will qualify by similarity (QBS).

CCB No. 7411 and 7411.001

Misc.	Assembly site	MMT
	BD Number	BD-002879/01
	MP Code (MPC)	359597E5XC03
	Part Number (CPN)	ATXMEGA128A1U-AU
	MSL information	MSL-1
	Assembly Shipping Media (T/R, Tube/Tray)	Tray
	Base Quantity Multiple (BQM)	90
	Reliability Site	MTAI
Lead-Frame	Paddle size	280x280 mils
		240x240 mils
	Material	C7025
	DAP Surface Prep	Bare Cu
	Treatment	None
	Process	Stamp
	Lead-lock	No
	Part Number	10110015 (Stamp)
		10110014 (Stamp)
	Lead Plating	Matte Tin
	Strip Size	250.0x70.0mm
	Strip Density	30 pads/strip
Bond Wire	Material	CuPdAu
Die Attach	Part Number	3280
	Conductive	Yes
MC	Part Number	G700HA
PKG	Package Type	TQFP
	Pin/Ball Count	100
	PKG width/size	14x14x1mm

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Package Qualification Report

Manufacturing Information:

Wafer Lot No.	Assembly Lot No.
MCSO525233784.200#24,25	MMT-254800100.000
MCSO525233784.200#22,23	MMT-254800101.000
MCSO525233784.200#20,21	MMT-254800102.000

☒ **Pass** ☐ **Fail** ☐ ____________________

35.9K wafer in 100L TQFP (E5X) with CuPdAu wire at MMT is qualified Moisture/ Reflow Sensitivity Classification Level 1 at 260°C ref low temperature per IPC/JEDEC J-STD-020E standard 1. No delamination observed. HAST, UHAST, TCT and HTSL Passed.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests **MSL-1 @ 260C**	**Electrical Test :** +85°C, +25°C	JESD22-A113,	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp	JIP/ IPC/JEDE	693(0)	0/693	Pass	
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 85°C/85%RH Moisture Soak 168hrs. System: Climats Excal 5423-HE		693(0)			
	Reflow 3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)	0/693		
	Electrical Test : +85°C, +25°C		693(0)	0/693	Pass	
Temp Cycle	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2	JESD22-A104	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +85°C		231(0)	0/231	Pass	
	Bond Strength: Wire Pull Bond Shear		15(0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C		231(0)	0/231	Pass	
BIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, +85°C		231(0)	0/231	Pass	

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, 500 hrs System: HERAEUS	JESD22-A103	150 (0)			
	Electrical Test : +85°C, +25°C		150 (0)	0/150	Pass	
Bond Strength Data Assembly	Wire Pull 1 lot, 35 wires from 5 units min	M2011.8 MIL-STD-883	35(0) Wires	0/35	Pass	
Bond Strength Data Assembly	Bond Shear 1 lot, 35 bonds from 5 units min	M2011.8 MIL-STD-883	35(0) bonds	0/35	Pass	