



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: NTDO-11USUI436

Date:
January 6, 2026

Qualification of palladium-coated copper with gold flash (CuPdAu) as a new wire material for ATSAM4LS2CA, ATSAM4LC8CA, ATSAM4LS8CA, AT32UC3A1512, AT32UC3A1128, AT32UC3A1256, ATSAM4LC4CA, ATSAM4LS4CA, ATSAM4LC2CA, AT32UC3C1128C, AT32UC3C1256C, AT32UC3C1512C and AT32UC3C164C device families available in 100L TQFP (14x14x1mm) package assembled at MMT assembly site.



MICROCHIP Package Qualification Report

Purpose: Qualification of palladium-coated copper with gold flash (CuPdAu) as a new wire material for ATSAM4LS2CA, ATSAM4LC8CA, ATSAM4LS8CA, AT32UC3A1512, AT32UC3A1128, AT32UC3A1256, ATSAM4LC4CA, ATSAM4LS4CA, ATSAM4LC2CA, AT32UC3C1128C, AT32UC3C1256C, AT32UC3C1512C and AT32UC3C164C device families available in 100L TQFP (14x14x1mm) package assembled at MMT assembly site.

CCB No. 7412

<u>Misc.</u>	Assembly site	MMT
	BD Number	BD-002880/03
	MP Code (MPC)	58U947E5XC10
	Part Number (CPN)	AT32UC3C1512C-AUT
	MSL information	MSL-1
	Assembly Shipping Media (T/R, Tube/Tray)	Tray
	Base Quantity Multiple (BQM)	90
<u>Lead-Frame</u>	Paddle size	280x280 mils / 240x240 mils
	Material	C7025
	DAP Surface Prep	Bare Cu
	Process	Stamp
	Lead-lock	No
	Part Number	10110015 / 10110014
	Lead Plating	Matte Tin
	Strip Size	250.0x70.0mm
	Strip Density	30 Units/strip
<u>Bond Wire</u>	Material	CuPdAu
<u>Die Attach</u>	Part Number	QMI519
	Conductive	Yes
<u>MC</u>	Part Number	G700HA
<u>PKG</u>	Package Type	TQFP
	Pin/Ball Count	100
	PKG width/size	14x14x1mm



MICROCHIP

Package Qualification Report

Manufacturing Information:

Assembly Lot No.
MMT-261600001.000
MMT-261600002.000
MMT-261600003.000

Result



Pass



Fail



Qualification of 58U94 in 100L TQFP (E5X) with CuPdAu wire and QMI519 at MMT was conducted at MPHL reliability lab. Reliability stress passed standard Qualification.

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, 90°C System: M1_SV_1024/MT9510	JESD22-A113	231 units per lot	Lot 1 0/300	Pass	
	Bake 150°C, 24 hrs System: HERAEUS			Lot 2 0/300	Pass	
	85°C/85%RH Moisture Soak 168hrs. System: Climats Excal 5423-HE 3x Convection-Reflow 260°C max System: Mancorp CR.5000F			Lot 3 0/300	Pass	
	Electrical Test: 25°C, 90°C System: M1_SV_1024/MT9510 All units before HAST, UHAST, TCT were submitted to this MSL1 preconditioning					
Temperature Cycle	Stress Condition: (Standard) -65°C to +150°C, 500 cycles System: Votsch VTS²7012	JESD22-A104	77 units per lot	Lot 1 0/85	Pass	
	Electrical Test: 25°C, 90°C System: M1_SV_1024/MT9510			Lot 2 0/85	Pass	
	Bond Strength: 0.8 mils Wire Pull (>3.0g)			Lot 3 0/85	Pass	
HAST	Stress Condition: (Standard) + 130°C, 85%RH, 96hrs. System: HIRAYAMA HASTEST PC- 422R8	JESD22-A118	77 units per lot	Lot 1 0/81	Pass	
	Electrical Test: 25°C, 90°C System: M1_SV_1024/MT9510			Lot 2 0/81	Pass	
				Lot 3 0/81	Pass	
UHAST	Stress Condition: (Standard) + 130°C, 85%RH, 96hrs. NO BIAS System: HIRAYAMA HASTEST PC- 422R8	JESD22-A118	77 units per lot	Lot 1 0/85	Pass	
	Electrical Test: 25°C, 90°C System: M1_SV_1024/MT9510			Lot 2 0/85	Pass	
				Lot 3 0/85	Pass	

PACKAGE QUALIFICATION REPORT

HTSL	Stress Condition: Bake 175°C, 504 hrs. System: HERAEUS Electrical Test: 25°C, 90°C System: M1_SV_1024/MT9510	JESD22-A103	45 units per lot	Lot 1 0/60	Pass	
				Lot 2 0/60	Pass	
				Lot 3 0/60	Pass	
0h Mechanical	Bond Strength: 0.8mils Wire Pull (>4.0g) Bond Shear (>10.0g) Stitch Pull (>3g) System: Dage		30 wires for WP, 35 wires for BS and 20 wires for SP	WP: 30 BS: 35 SP: 20	Pass	