



Product Change Notification: DSNO-27BDNH748

Date:

29-Jul-2026

Product Category:

8-Bit Microcontrollers

Notification Subject:

CCB 8402 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected AT89C51AC2, AT89C51AC3, AT89C51CC01, AT89C51CC03, AT89C51ED2, AT89C51IC2, AT89C51ID2, AT89C51RB2, AT89C51RC2, AT89C51RD2 and AT89CC01UAEDS device families available in 44L TQFP (10x10x1mm) package at MTAI assembly site.

Affected CPNs:

[DSNO-27BDNH748_Affected_CPN_07292026.pdf](#)

[DSNO-27BDNH748_Affected_CPN_07292026.csv](#)

PCN Status: Final Notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the files found in the Affected CPNs section.

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) as a new bond wire material for selected AT89C51AC2, AT89C51AC3, AT89C51CC01, AT89C51CC03, AT89C51ED2, AT89C51IC2, AT89C51ID2, AT89C51RB2, AT89C51RC2, AT89C51RD2 and AT89CC01UAEDS device families available in 44L TQFP (10x10x1mm) package at MTAI assembly site.

Pre and Post Summary Changes:

	Pre Change	Post Change	Change (Yes/No)
Assembly Site	Microchip Technology	Microchip Technology	No

	Thailand (HQ) (MTAI)	Thailand (HQ) (MTAI)	
Wire Material	Au	CuPdAu	Yes
Die Attach Material	QMI519 (PFAS-free)	QMI519 (PFAS-free)	No
Molding Compound Material	G700HA	G700HA	No
Lead-Frame Material	C7025	C7025	No

Impacts to Datasheet: None

Change Impact: None

Reason for Change: To improve manufacturability by qualifying palladium coated copper with gold flash (CuPdAu) as a new bond wire material at MTAI assembly site.

Change Implementation Status: In Progress

Estimated First Ship Date: 26 October 2026 (date code: 2644)

Note Below EFSD: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

Timetable Summary:

	July 2026					>	October 2026				
Work Week	27	28	29	30	31		40	41	42	43	44
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.

Note: This is a qualification by similarity (QBS) to CCB# 16-1206, 7627 and 7042.

Revision History: July 29, 2026: Issued final notification.

Note: The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable product.

Attachments:

[PCN_DSNO-27BDNH748_Qual Report_CCB.7042.pdf](#)

[PCN_DSNO-27BDNH748_Qual Report_CCB16-1206 and 7627.pdf](#)

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

Terms and Conditions:

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If you wish to change your PCN profile, including opt out, please go to the [PCN home page](#) select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN):

AT89C51ED2T-RLTUMA2
AT89C51ED2T-RLTUMA1
AT89C51ED2T-RLTUMA0
AT89C51ED2T-RLRUMA0
AT89C51ID2T-RLRUM
AT89C51RD2T-RLRUM
AT89C51RD2T-RLTUM
AT89C51CC03UAT-RLTUM
AT89C51CC03CAT-RLTUM
AT89C51AC3T-RLTUM
AT89C51AC2T-RLTUM
AT89C51CC01UAT-RLTUM
AT89C51CC01UAT-RLRUM
AT89C51CC01CAT-RLTUM
AT89CC01UAEDT-RLRUM
AT89C51IC2T-RLRUM
AT89C51RC2T-RLTUM
AT89C51IC2T-RLTUM
AT89C51RB2T-RLTUM
AT89C51RC2T-RLRUL
AT89C51IC2T-RLRUL
AT89C51RB2T-RLRUL
AT89C51IC2T-RLTUL
AT89C51RC2T-RLTUL
AT89C51RB2T-RLTUL
AT89C51ED2T-RLRUM
AT89C51ID2T-RLTUM
AT89C51RD2T-RLTUMA0
AT89C51ED2T-RLTUM



Qualification Report Summary

RELIABILITY LABORATORY

PCN #: DSNO-27BDNH748

Date:

November 20, 2024

Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected AT89C51AC2, AT89C51AC3, AT89C51CC01, AT89C51CC03, AT89C51ED2, AT89C51IC2, AT89C51ID2, AT89C51RB2, AT89C51RC2, AT89C51RD2 and AT89CC01UAEDS device families available in 44L TQFP (10x10x1mm) package at MTAI assembly site. This is a Q100 Grade 1 qualification.

PACKAGE QUALIFICATION REPORT

Purpose:

Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected AT89C51AC2, AT89C51AC3, AT89C51CC01, AT89C51CC03, AT89C51ED2, AT89C51IC2, AT89C51ID2, AT89C51RB2, AT89C51RC2, AT89C51RD2 and AT89CC01UAEDS device families available in 44L TQFP (10x10x1mm) package at MTAI assembly site. This is a Q100 Grade 1 qualification.

QUAL ID:	R2401168
QUAL ID Rev.:	A
MP CODE:	59F024Y8XREL
Part No.:	AVR64EA48-E/PTREL
Bonding No.:	BD-002348/01
CCB No.:	7042

Lead Frame

Paddle Size:	200 x 200 mils
Material:	C7025
DAP Surface Prep:	Bare Cu
Process:	Stamped
Lead Lock:	No
Part Number:	10104805
Lead Plating:	Matte Tin
Treatment:	Yes

Bond Wire

Wire:	CuPdAu wire
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Die Attach Material

Epoxy:	QMI519
Conductive:	Yes

Mold Compound

Mold Compound:	G700HA
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Package

Type:	TQFP
Pin/Ball Count	48
Package Size:	7x7

Manufacturing Information

Assembly Lot No.
MTAI251301835.000
MTAI251301845.000
MTAI251400248.000

Result: **Pass**

Conclusion:

59F02 using CuPdAu wire in 48L TQFP 7x7 at MTAI is qualified the Moisture/ Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard and passed AECQ100 Grade 1. No delamination observed. All units Passed HAST, UHAST, TC and HTSL.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Precondition	Electrical Test : +25°C	JESD22-A113	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp		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 : +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: +125°C		231(0)	0/231	Pass	
	Bond Strength: Wire Bond Pull Wire Ball 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, +125°C		231(0)	0/231	Pass	
High Temperature Storage Life	Stress Condition: Bake 175°C, 500 hrs System: HERAEUS Taken from 1 lot with 45 units	JESD22-A103	45 (0)			
	Electrical Test : +25°C +125°C		45 (0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Solderability Temp 245°C	Bake: Temp 155°C,4Hrs System: Oven Solder Bath: Temp.245°C Taken from 1 lot with min 22 units	J-STD-002	22 (0)	0/22	Pass	
Bond Strength Data Assembly	Wire Bond Pull 3 lots, 30 wires per lot from 5 units min	M2011.8 MIL-STD-883	35(0) Wires	0/35	Pass	
Bond Strength Data Assembly	Wire Ball Shear 3 lots, 35 bonds per lot from 5 units min	M2011.8 MIL-STD-883	35(0) bonds	0/35	Pass	



QUALIFICATION REPORT SUMMARY

PCN #: DSNO-27BDNH748

**Date:
December 20, 2016**

Qualification of palladium coated copper with gold flash (CuPdAu) as a new bond wire material for selected AT89C51AC2, AT89C51AC3, AT89C51CC01, AT89C51CC03, AT89C51ED2, AT89C51IC2, AT89C51ID2, AT89C51RB2, AT89C51RC2, AT89C51RD2 and AT89CC01UAEDS device families available in 44L TQFP (10x10x1mm) package at MTAI assembly site.



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CCB No.: 16-1206, 7627 and 8402

PACKAGE QUALIFICATION FOR 44 TQFP

ASSEMBLY MATERIALS INFORMATION

- | | |
|--|-------------------------|
| 1. ASSEMBLY HOUSES | : MTAI, Thailand |
| 2. LEAD FRAME | : C7025 |
| 3. LEAD PLATING COMPOSITION | : Matte Sn |
| 4. DIE ATTACH VENDOR AND NUMBER | 3280 |
| 5. BOND WIRE MATERIAL | : Copper wire |
| 6. MOLDING COMPOUND | : G700 |

Qualification Vehicle Information

Device Type	MEGA32A	MEGA644	XMEGA32A4
Product	MICROCONTROLLER	MICROCONTROLLER	MICROCONTROLLER
Package Dimension	10 mm x 10 mm	10 mm x 10 mm	10 mm x 10 mm
Package Thickness	1.0 mm	1.0 mm	1.0 mm



PACKAGE RELIABILITY

Baseline Electrical Parameters Per Device Specification

- **Data Retention Bake**

- Ta: 175C°
- Test Intervals: 500, 1000 hrs.

DEVICE TYPE	LOT NUMBER	DATE CODE	RETENTION 500 HRS	RETENTION 1000 HRS	Result
MEGA32A	A8F6NC2BCF	1634	0/84	0/84	Passed
MEGA644	A8MB3C2BCD	1634	0/84	0/84	Passed
XMEGA32A4	A8CF5C253V	1634	0/84	0/84	Passed

- **UFAST**

- Condition: 110C°, 85% RH
- Test Intervals: 264 hrs.

DEVICE TYPE	LOT NUMBER	DATE CODE	UFAST 264HRS	Result
MEGA32A	A8F6NC2BCF	1634	0/84	Passed
MEGA644	A8MB3C2BCD	1634	0/81	Passed
XMEGA32A4	A8CF5C253V	1634	0/83	Passed

- **Temperature Cycle**

- Conditions: -65C°/+150C°
- Preconditioning: Yes
- Test Intervals: 500 cycles

DEVICE TYPE	LOT NUMBER	DATE CODE	500 TEMP CYCLE (-65°C TO +150°C)	Result
MEGA32A	A8F6NC2BCF	1634	0/80	Passed
MEGA644	A8MB3C2BCD	1634	0/80	Passed
XMEGA32A4	A8CF5C253V	1634	0/80	Passed

- **HAST**

- Conditions: Ta: 110C°, 85% RH
- Vcc: 5.5V (3.7V for low voltage products)



- Mode: Static Standby
- Preconditioning: Yes
- Test Intervals: 264 hrs.

DEVICE TYPE	LOT NUMBER	DATE CODE	HAST 96HRS	Result
MEGA32A	A8FNC2BCF	1634	0/80	Passed
MEGA644	A8MB3C2BCD	1634	0/80	Passed
XMEGA32A4	A8CF5C253V	1634	0/80	Passed