



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: MFOL-22OJZY331

Date:
July 31, 2025

Qualification of CuPdAu as a new wire material for selected 24AA01x, 24AA02x, 24AA04x, 24AA08x, 24AA16x, 24FC01, 24FC02, 24FC04x, 24FC08, 24FC16x, 24LC01Bx, 24LC02Bx, 24LC04Bx, 24LC08Bx, 24LC16Bx, AT24C01D, AT24C02D, AT24C04D, AT24C08D, AT24C16D and AT24C32E device families available in 5L SOT-23 package.

The AT42QT1011-TSHR451, ATTINY10-TS8R, ATTINY4-TS8R, ATTINY5-TS8R, ATTINY9-TSHR, ATTINY4-TSHR, ATTINY5-TSHR, ATTINY10-TSHR449, AT42QT1011-TSHR, AT42QT1010-TSHR, ATTINY9-TS8R, ATTINY10-TSHR, ATTINY10-TSHR450, AT42QT1012-TSHR, 24AA025E64T-I/OT, 24AA014T-I/OT, 24AA025E48T-E/OT, 24AA025E64T-E/OT, 24AA025E48T-I/OT, 24AA025T-I/OT, 24AA025UIDT-I/OT, 24LC014T-I/OT, 24LC014T-E/OT, 24LC025T-E/OT, and 24LC025T-I/OT catalog part numbers (CPN) available in 6L SOT-23 package at MTAI assembly site. This is a qualification by similarity (QBS).



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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of CuPdAu as a new wire material for selected 24AA01x, 24AA02x, 24AA04x, 24AA08x, 24AA16x, 24FC01, 24FC02, 24FC04x, 24FC08, 24FC16x, 24LC01Bx, 24LC02Bx, 24LC04Bx, 24LC08Bx, 24LC16Bx, AT24C01D, AT24C02D, AT24C04D, AT24C08D, AT24C16D and AT24C32E device families available in 5L SOT-23 package. The AT42QT1011-TSHR451, ATTINY10-TS8R, ATTINY4-TS8R, ATTINY5-TS8R, ATTINY9-TSHR, ATTINY4-TSHR, ATTINY5-TSHR, ATTINY10-TSHR449, AT42QT1011-TSHR, AT42QT1010-TSHR, ATTINY9-TS8R, ATTINY10-TSHR, ATTINY10-TSHR450, AT42QT1012-TSHR, 24AA025E64T-I/OT, 24AA014T-I/OT, 24AA025E48T-E/OT, 24AA025E64T-E/OT, 24AA025E48T-I/OT, 24AA025T-I/OT, 24AA025UIDT-I/OT, 24LC014T-I/OT, 24LC014T-E/OT, 24LC025T-E/OT, and 24LC025T-I/OT catalog part numbers (CPN) available in 6L SOT-23 package at MTAI assembly site. This is a qualification by similarity (QBS).
CN	E000275281
QUAL ID	R2500711 Rev. A
Bonding No.	BD-003404 Rev 01
MP CODE	363V2YC7XA00
Part No.	24LC01BT-E/OT
CCB No.	7590 and 8070
<u>Lead Frame</u>	
Paddle size	66 x 48 mils
Material	A194
Surface	Ag spot Plated
Process	Stamped
Lead lock	No
Part number	10100502
Plating composition	Matte Tin
<u>Bond Wire</u>	
Wire	CuPdAu wire
<u>Die Attach Material</u>	
Epoxy	8390A
<u>Mold Compound</u>	
Mold compound	G600V
<u>Package</u>	
Type	5L SOT-23



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PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI261201052.000	MCSO524118736.110	252542R
MTAI261201433.000	MCSO524118736.110	2525589
MTAI261201465.000	MCSO524118736.110	25255BQ

Result ☒ Pass ☐ Fail ☐ _____

5L SOT-23 assembled by MTAI 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
<u>Precondition</u> <u>Prior Perform</u> <u>Reliability Tests</u> (At MSL Level 1)	Electrical Test: +25°C System: NEXTEST_PT	JESD22-A113	693(0)	0/693	Pass	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 System: NEXTEST_PT		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 Electrical Test: +25°C System: NEXTEST_PT Bond Strength: Wire Pull (>2.50 grams)	JESD22-A104	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
UNBIASED-HAST	Stress Condition: +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: +25°C System: NEXTEST_PT	JESD22-A118	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
HAST	Stress Condition: +130°C/85%RH, 96 hrs. Bias Volt: 5.0 Volts System: HAST 6000X Electrical Test: +25°C System: NEXTEST_PT	JESD22-A110	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 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		135		45 units /lot
	Electrical Test: +25°C System: NEXTEST_PT		135(0)	0/135	Pass	
Bond Strength Data Assembly	Wire Pull (>3.00 grams)	Mil. Std. 883-2011	30(0) Wires	0/30	Pass	
	Bond Shear (>12.60 grams)	CDF-AEC- Q100-001	30(0) Bonds	0/30	Pass	



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: MFOL-22OJZY331

Date:
July 1, 2025

Qualification of CuPdAu as a new wire material and 8006NS as a new die attach material for selected 24AA014, 24AA025xxx, 24C01C, 24LC014, 24LC025, 24VL014, 24VL025, 25AA010A, 25AA02xx, 25AA040A, 25LC010A, 25LC020A, 25LC040A, 34AA02, 34LC02, 34VL02, MTCH101 and PIC10F2xx device families available in 6L SOT-23 package at MTAI assembly site. The AT42QT1011-TSHR451, ATTINY10-TS8R, ATTINY4-TS8R, ATTINY5-TS8R, ATTINY9-TSHR, ATTINY4-TSHR, ATTINY5-TSHR, ATTINY10-TSHR449, AT42QT1011-TSHR, AT42QT1010-TSHR, ATTINY9-TS8R, ATTINY10-TSHR, ATTINY10-TSHR450, AT42QT1012-TSHR, 24AA025E64T-I/OT, 24AA014T-I/OT, 24AA025E48T-E/OT, 24AA025E64T-E/OT, 24AA025E48T-I/OT, 24AA025T-I/OT, 24AA025UIDT-I/OT, 24LC014T-I/OT, 24LC014T-E/OT, 24LC025T-E/OT, and 24LC025T-I/OT catalog part numbers (CPN) available in 6L SOT-23 package at MTAI assembly site. This is a qualification by similarity (QBS).



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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of CuPdAu as a new wire material and 8006NS as a new die attach material for selected 24AA014, 24AA025xxx, 24C01C, 24LC014, 24LC025, 24VL014, 24VL025, 25AA010A, 25AA02xx, 25AA040A, 25LC010A, 25LC020A, 25LC040A, 34AA02, 34LC02, 34VL02, MTCH101 and PIC10F2xx device families available in 6L SOT-23 package at MTAI assembly site. The AT42QT1011-TSHR451, ATTINY10-TS8R, ATTINY4-TS8R, ATTINY5-TS8R, ATTINY9-TSHR, ATTINY4-TSHR, ATTINY5-TSHR, ATTINY10-TSHR449, AT42QT1011-TSHR, AT42QT1010-TSHR, ATTINY9-TS8R, ATTINY10-TSHR, ATTINY10-TSHR450, AT42QT1012-TSHR, 24AA025E64T-I/OT, 24AA014T-I/OT, 24AA025E48T-E/OT, 24AA025E64T-E/OT, 24AA025E48T-I/OT, 24AA025T-I/OT, 24AA025UIDT-I/OT, 24LC014T-I/OT, 24LC014T-E/OT, 24LC025T-E/OT, and 24LC025T-I/OT catalog part numbers (CPN) available in 6L SOT-23 package at MTAI assembly site. This is a qualification by similarity (QBS).
CN	E000252902
QUAL ID	R2500020 Rev. B
MP CODE	DECA14C8XAXF
Part No.	PIC10F220-E/OT
Bonding No.	BD-002756 Rev. 01
CCB No.	7291 and 8070
<u>Package</u>	
Type	6L SOT-23
<u>Lead Frame</u>	
Paddle size	72 x 41 mils
Material	A194
Surface	Ag single ring Plated
Process	Stamped
Lead Lock	No
Part Number	10100607
Treatment	BOT
<u>Material</u>	
Epoxy	8006NS
Wire	CuPdAu wire
Mold Compound	G600V
Plating Composition	Matte Sn



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PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI253700623.000	TMPE224189773.420	2450VV1
MTAI253700685.000	TMPE224189773.420	2450W1S
MTAI253800046.000	TMPE224189773.420	2451W2J

Result ☒ Pass ☐ Fail ☐ _____

6L SOT-23 assembled by MTAI 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
<u>Precondition</u> <u>Prior Perform</u> <u>Reliability Tests</u> (At MSL Level 1)	Electrical Test: +25°C and 125°C System: J750	JESD22-A113	693(0)	0/693	Pass	Good Devices
	Bake 150°C, 24 hrs.	JIP/ IPC/JEDEC J-STD-020E		693		
	System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs.			693		
	System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max					
	System: Vitronics Soltec MR1243					
	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		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		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		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 Electrical Test: +25°C and 125°C System: J750	JESD22-A103	135(0)	135 0/135	Pass	45 units / lot
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	J-STD-002	22(0)	22 0/22	Pass	
Bond Strength Data Assembly	Wire Pull (>2.50 grams) Bond Shear (>15.00 grams)	Mil. Std. 883-2011 CDF-AEC- Q100-001	30(0) Wires 30(0) Bonds	0/30 0/30	Pass Pass	