



QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: CAAN-02WLOO847

Date:
June 24, 2017

Qualification of palladium coated copper with gold flash (CuPdAu) as a new wire material and QMI519 as a new die attach material for selected SST25LF020A, SST25VF010A, SST25VF020, SST25VF512 and SST25VF512A device families available in 8L SOIC (.150in) package. This is a qualification by similarity (QBS).



MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) as a new wire material and QMI519 as a new die attach material for selected SST25LF020A, SST25VF010A, SST25VF020, SST25VF512 and SST25VF512A device families available in 8L SOIC (.150in) package. This is a qualification by similarity (QBS).
CN	ES098794
QUAL ID	Q17084 Rev. A
MP CODE	DEDX2YC2XA00
Part No.	24LC512T-E/SN
Bonding No.	BDM-001302 Rev. A
CCB No.	2927 and 8137
<u>Package</u>	
Type	8L SOIC
Package size	150 mils
<u>Lead Frame</u>	
Paddle size	95 x 130 mils
Material	CDA194
Surface	Bare Cu paddle
Process	Stamped
Lead Lock	Yes
Part Number	10100842
Treatment	Roughened
<u>Material</u>	
Epoxy	8390A
Wire	Au wire
Mold Compound	G600V
Plating Composition	Matte Tin



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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI180702622.000	GRSM417152115.300	1719PE 7
MTAI180702623.000	GRSM417152115.340	1719PE 8
MTAI180703101.000	GRSM417152115.300	1719U5E

Result



Pass



Fail



8L SOIC (.150") 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-020D standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020D)	IPC/JEDEC J-STD-020D	135	0/135	Pass	

<u>Precondition Prior Perform Reliability Tests (At MSL Level 1)</u>	Electrical Test :+25°C,85°C and 125°C System: NEXTEST_PT	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			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,85°C and 125°C System: NEXTEST_PT			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: + 85°C System: NEXTEST_PT Bond Strength: Wire Pull (> 2.5 grams) Bond Shear (>15.00 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: 5.5 Volts System: HAST 6000X Electrical Test: +25°C, 85°C and 125°C System: NEXTEST_PT	JESD22-A110	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
High Temperature Storage Life	Stress Condition: Bake 175°C, 504 hrs System: SHEL LAB Electrical Test : +25°C, 85°C and 125°C System: NEXTEST_PT	JESD22-A103	45(0)	45 0/45	Pass	45 units

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Solderability Temp 215°C	Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	JESD22B-102E	22 (0)	22 22 0/22	Pass	
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	JESD22B-102E	22 (0)	22 22 0/22	Pass	
Bond Strength Data Assembly	Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)	M2011 JESD22-B116	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	



MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an additional assembly site for selected ATECC108A, ATECC508A, ATSHA204A, ATECC608A, ATECC608B and ECC608-TFLXWPC device families available in 8L SOIC (3.90mm) package using QMI519 die attach material. The selected SST25LF020A, SST25VF010A, SST25VF020, SST25VF512 and SST25VF512A device families available in 8L SOIC (.150in) package will qualify by similarity (QBS).
QUAL ID	R2200905 Rev. B
MP CODE	58962TC2XTXA
Part No.	ATECC608A-SSHXA-T
Bonding No.	BD-000861 Rev. 02
CCB No.	5249 and 8137
<u>Package</u>	
Type	8L SOIC
Package size	150 mils
<u>Lead Frame</u>	
Paddle size	90 x 90 mils
Material	CDA194
Surface	Bare Cu
Process	Stamped
Lead Lock	No
Part Number	10100812
Treatment	BOT
<u>Material</u>	
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
MTAI231902058.000	U8CD923045545.120	2232Q2Y
MTAI231902378.000	U8CD923045545.120	2232R44
MTAI232000036.000	U8CD923045545.120	2233RD1

Result

☒ Pass ☐ Fail ☐ _____

8L SOIC (150 mils) 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, 85°C and 100°C System: NEXTEST_PT	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs. System: CHINEE	JIP/IPC/JEDEC		693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH	J-STD-020E		693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C, 85°C and 100°C System: NEXTEST_PT			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: +85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot
	Stress Condition: -65°C to +150°C, 1000 Cycles System: TABAI ESPEC TSA-70H			231		
	Electrical Test: +85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.50 grams) Bond Shear (>15.00 grams)		15 (0) 15 (0)	0/15 0/15	Pass 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: NEXTEST_PT		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, 85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. Bias Volt: 5.5 Volts System: HAST 6000X			231		
	Electrical Test: +25°C, 85°C and 100°C System: NEXTEST_PT		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: SHEL LAB Electrical Test: +25°C, 85°C and 100°C System: NEXTEST_PT	JESD22-A103	45(0)	45 0/45	Pass	45 units
Solderability Temp 215°C	Steam Aging: Temp 93°C, 8Hrs System: SAS-3000 Solder Dipping: Solder Temp. 215°C Solder material: SnPb Sn63, Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
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 22 0/22	Pass	
Physical Dimensions	Physical Dimension, 10 units / 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>3.00 grams)	Mil. Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>10.00 grams)	CDF-AEC-Q100-001	30 (0) bonds	0/30	Pass	