



MICROCHIP

**QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY**

PCN #: JPZA-17PROK647

**Date:
March 4, 2025**

Qualification of QMI519 as a new die attach material for USX5007C/KD catalog part number (CPN) available in 100L VQFN (12X12X0.9mm) package assembled at MTAI assembly site. The qualification of MTAI as an additional assembly site for selected KSZ9131RNXI-TR, KSZ9131RNXC-TR, KSZ9131RNXI and KSZ9131RNXC catalog part numbers (CPN) available in 48L VQFN package will be qualify by similarity (QBS). This is Q006 Grade 3 qualification.



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of QMI519 as a new die attach material for USX5007C/KD catalog part number (CPN) available in 100L VQFN (12X12X0.9mm) package assembled at MTAI assembly site. The qualification of MTAI as an additional assembly site for selected KSZ9131RNXI-TR, KSZ9131RNXC-TR, KSZ9131RNXI and KSZ9131RNXC catalog part numbers (CPN) available in 48L VQFN package will be qualify by similarity (QBS). This is Q006 Grade 3 qualification.
CN	E000246496
QUAL ID	R2401317 Rev. A
MP CODE	STB071KDXC50
Part No.	USX5007C/KD
Bonding No.	BD-002245 Rev. 01
CCB No.	6910 and 6910.004
<u>Package</u>	
Type	100L VQFN
Package size	12 x 12 x 0.9mm
<u>Lead Frame</u>	
Paddle size	323x323mils
Material	EFTEC64
Surface	Ag signal ring plated on DAP
Process	Etched
Lead Lock	No
Part Number	10110011
Treatment	Roughening
<u>Material</u>	
Epoxy	QMI519
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Sn



MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI252600940.000	TC14924313854.200	2439YD7
MTAI252601144.000	TC14924313854.200	2439YT8
MTAI252601148.000	TC14924313854.200	2439YTK

Result

Pass Fail _____

100L VQFN (12x12x0.9mm) assembled by MTAI pass reliability test per QCI-39000.
This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 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
Moisture/Reflow Sensitivity Classification Test (At MSL Level 3)	30°C/ 60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020E)	IPC/JEDEC C J-STD- 020E	135(0)	0/135	Pass	
Precondition Prior Perform Reliability Tests (At MSL Level 3)	Electrical Test: +25°C and 85°C System: LTX_D1X	JESD22- A113	693(0)	0/693	Pass	Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C and 85°C System: LTX_D1X			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	Stress Condition: -55°C to +125°C, 500 Cycles System : VOTSCH Electrical Test: +25°C and 85°C System: LTX_D1X Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>8.00 grams)	JESD22-A104		231		Parts had been pre-conditioned at 260°C
			231(0)	0/231	Pass	
		45 (0)	0/45	Pass		
	Stress Condition: -55°C to +125°C, 1000 Cycles System: VOTSCH Electrical Test: +25°C and 85°C System: LTX_D1X Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>8.00 grams)			231		
		231(0)	0/231	Pass		
		45 (0)	0/45			

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	Stress Condition: +110°C/85%RH, 264 hrs. Bias Volt: PS1:1.32 Volts, PS3: 3.63 Volts System: HAST 6000X	JESD22- A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C and 85°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>8.00 grams)		45 (0)	0/45	Pass	
	Stress Condition: +110°C/85%RH, 528 hrs. Bias Volt: PS1:1.32 Volts, PS3:3.63 Volts System: HAST 6000X			231		
	Electrical Test: +25°C and 85°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>8.00 grams)		45 (0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	Stress Condition: +110°C/85%RH, 264 hrs. System: HAST 6000X	JESD22- A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: LTX_D1X		231(0)	0/231	Pass	77 units / lot
High Temperature Storage Life	Stress Condition: Bake 150°C, 500 hrs System: CHINEE	JESD22- A103		135		45 units / lot
	Electrical Test: +25°C and 85°C System: LTX_D1X		135(0)	0/135	Pass	
	Stress Condition: Bake 150°C, 1000 hrs System: CHINEE			135		
	Electrical Test: +25°C and 85°C System: LTX_D1X		135(0)	0/135	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Bond Strength Data Assembly	Wire Pull (> 3.00 grams)	Mil. Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>8.00 grams)	CDF-AEC-Q100-001	30 (0) Bonds	0/30	Pass	



QUALIFICATION REPORT SUMMARY RELIABILITY LABORATORY

PCN #: JPZA-17PROK647

**Date:
April 8, 2025**

**Qualification of MTAI as an addition assembly site for
KSZ9031RNXVB-VAO and KSZ9031RNXVB-TRVAO
catalog part numbers (CPN) available in 48L VQFN
(7x7x1.0mm) package. The KSZ9131RNXI-TR,
KSZ9131RNXC-TR, KSZ9131RNXI and KSZ9131RNXC
catalog part numbers (CPN) available in 48L VQFN
package will be qualify by similarity (QBS). This is
Q006 Grade 2 qualification.**



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an addition assembly site for KSZ9031RNXVB-VAO and KSZ9031RNXVB-TRVAO catalog part numbers (CPN) available in 48L VQFN (7x7x1.0mm) package. The KSZ9131RNXI-TR, KSZ9131RNXC-TR, KSZ9131RNXI and KSZ9131RNXC catalog part numbers (CPN) available in 48L VQFN package will be qualify by similarity (QBS). This is Q006 Grade 2 qualification.
CN	E000246922
QUAL ID	R2401318 Rev. A
MP CODE	STGB19PUAVA1
Part No.	KSZ9031RNXVB-VAO
Bonding No.	A-069549 Rev.B
CCB No.	7167 and 6910.004
<u>Package</u>	
Type	48L VQFN-WFS
Package size	7 x 7 mm
<u>Lead Frame</u>	
Paddle size	224 x 224mils
Material	A194
Surface	Ag ring plated on DAP
Process	Etched
Lead Lock	No
Part Number	10104818
Treatment	Roughening
<u>Material</u>	
Epoxy	3280
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Sn



MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI252701468.000	TC14924145440.800	24406MT
MTAI252701543.000	TC14924145440.800	244071K
MTAI252701558.000	TC14924145440.800	244073A

Result

Pass Fail _____

48L VQFN-WFS (7x7 mm) assembled by MTAI pass reliability test per QCI-39000.
This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 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
Moisture/Reflow Sensitivity Classification Test (At MSL Level 3)	30°C/ 60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020E)	IPC/JEDEC J-STD-020E	0135	0/135	Pass	
Precondition Prior Perform Reliability Tests (At MSL Level 3)	Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG	JESD22-A113	693(0)	0/693	Pass	Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	30°C/60%RH Moisture Soak 192 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 110°C System: LTX_D1X_HI_CFG		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: -55°C to +125°C, 1000 Cycles System : TABAI ESPEC TSA-70H Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG	JESD22- A104	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)					
	Stress Condition: -55°C to +125°C, 2000 Cycles System: TABAI ESPEC TSA-70H Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG		231(0)	231 0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)					

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	Stress Condition: +110°C/85%RH, 264 hrs. Bias Volt: VDD1=3.3 Volts, VDD2=1.2Volts System: HAST 6000X	JESD22- A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)		45(0)	0/45	Pass	
	Stress Condition: +110°C/85%RH, 528 hrs. Bias Volt: VDD1=3.3 Volts,VDD2=1.2Volts System: HAST 6000X			231		
	Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)		45(0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	Stress Condition: +110°C/85%RH, 264 hrs. System: HAST 6000X	JESD22- A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG		231(0)	0/231	Pass	77 units / lot
High Temperature Storage Life	Stress Condition: Bake 150°C, 500 hrs System: CHINEE	JESD22- A103		135		45 units / lot
	Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG		135(0)	0/135	Pass	
	Stress Condition: Bake 150°C, 1000 hrs System: CHINEE			135		
	Electrical Test: +25°C,85°C and 110°C System: LTX_D1X_HI_CFG		135(0)	0/135	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		0/22		
				0/22		
			22(0)	0/22	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Physical Dimensions	Physical Dimension, 10 units from 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	

