PCN Number:	20220503002.2A	**PCN Date:**	October 12, 2022
Title:	Qualification of new die revision/datasheet updates, updated BOM option in TAI, additional Assembly/Test site in MLA		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Oct 31, 2022	**Sample Requests accepted until:**	Nov 12, 2022*

***Sample requests received after Nov 12, 2022 will not be supported.**

Change Type:					
☒	Assembly Site	☒	Assembly Process	☒	Assembly Materials
☒	Design	☒	Electrical Specification	☐	Mechanical Specification
☒	Test Site	☒	Packing/Shipping/Labeling	☐	Test Process
☐	Wafer Bump Site	☐	Wafer Bump Material	☐	Wafer Bump Process
☐	Wafer Fab Site	☐	Wafer Fab Materials	☐	Wafer Fab Process
		☐	Part number change		

PCN Details

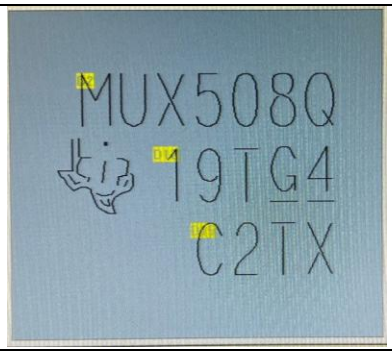
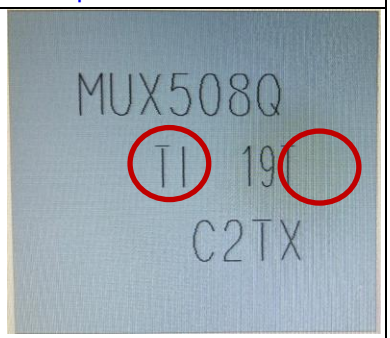
Description of Change:

Revision A is to announce the addition of new devices that were not included on the original PCN notification. These new devices are highlighted and **bolded** in the device list below. The expected first shipment date for these new devices will be 180 days from this notice for these newly added devices only.

Texas Instruments is pleased to announce the qualification of a silicon revision with datasheet updates, a BOM update in TAI, and new Assembly/Test site in MLA.

BOM/Assembly options are as follows:

	TAI Current	**TAI New**	**MLA**
Bond wire diameter composition, diameter	Au, 0.96 mil	1mil PCC Die-> LF .96mil Au Die->Die	1mil PCC Die-> LF .96mil Au Die->Die

	Current Device Symbolization	**New Device Symbolization**
**ECAT	Include Value	Remove
TI Bug	Include	Replace with "TI" text
Example		

** - Not all devices necessarily have ECAT information included in the symbolization, but for the ones that do, this information will be removed.

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ

The design change was implemented to improve EMI, tighten the POR specification and increase the CMTI capabilities.

The datasheet number will be changing:

Product Family	Current Datasheet Number	New Datasheet Number
AMC1211-Q1	SBAS896A	SBAS896B
AMC1311-Q1	SBAS897B	SBAS897C
AMC1311-Q1 (SN2011029)	SBASA97A	SBASA97B

The product datasheet(s) is being updated as summarized below:

AMC1211-Q1

Changes from Revision A (June 2020) to Revision B (February 2022)	Page
• Changed part name from AMC1211A-Q1 to AMC1211-Q1 (has no effect orderable part number)	1
• Changed pin names: VIN to IN, VOUTP to OUTP and VOUTN to OUTN	4
• Changed C_{IO} from ~1 pF to ~1.5 pF	7
• Changed VDD1 DC PSRR from -65 dB (typical) to -80 dB (typical)	9
• Changed $VDD1_{UV}$ (VDD1 falling) from 1.75 V / 2.53 V / 2.7 V to 2.4 V / 2.6 V / 2.8 V (minimum / typical / maximum)	9
• Changed *Typical Application* section	22
• Added *Input Filter Design* section	24
• Added *Differential to Single-Ended Output Conversion* section	24
• Changed *Layout* section	27

AMC1311-Q1

Changes from Revision B (May 2020) to Revision C (February 2022)	Page
• Changed pin names: VIN to IN, VOUTP to OUTP and VOUTN to OUTN	4
• Changed C_{IO} from ~1 pF to ~1.5 pF	7
• Merged V_{OS} specs for 4.5V ≤ VDD1 ≤ 5.5 V and 3.0 V ≤ VDD1 ≤ 5.5 V ranges into one (AMC1311B-Q1 only)	9
• Changed VDD1 DC PSRR from -65 dB (typical) to -80 dB (typical)	9
• Changed CMTI from 75 kV/µs (minimum), 140 kV/µs (typical) to 100 kV/µs (minimum), 150kV/µs (typical) (AMC1311B-Q1 only)	9
• Changed $VDD1_{UV}$ (VDD1 falling) from 1.75 V / 2.53 V / 2.7 V to 2.4 V / 2.6 V / 2.8 V (minimum / typical / maximum)	9
• Changed *Typical Application* section	22
• Added *Input Filter Design* section	24
• Added *Differential to Single-Ended Output Conversion* section	24
• Changed *Layout* section	27

AMC1311-Q1 (SN2011029)

Changes from Revision A (June 2021) to Revision B (May 2022)	Page
• Merged V_{OS} specs for 4.5V ≤ VDD1 ≤ 5.5 V and 3.0 V ≤ VDD1 ≤ 5.5 V ranges into one	8
• Changed VDD1 DC PSRR from -65 dB (typical) to -80 dB (typical)	8
• Changed CMTI from 75 kV/µs (minimum), 140 kV/µs (typical) to 100 kV/µs (minimum), 150kV/µs (typical)	8
• Changed $VDD1_{UV}$ (VDD1 falling) from 1.75 V / 2.53 V / 2.7 V to 2.4 V / 2.6 V / 2.8 V (minimum / typical / maximum)	8

Reason for Change:

Supply continuity.

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

Impact on Environmental Ratings

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

Die Rev:

Current	**New**
Die Rev [2P]	**Die Rev [2P]**
A	**B**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TAI	TAI	TWN	Chung Ho, New Taipei City
MLA	**MLA**	**MYS**	**Kuala Lumpur**

Sample product shipping label (not actual product label)

Product Affected:

AMC1211AQDWVQ1	**AMC1311BQDWVQ1**	**AMC1311QDWVQ1**	SN2011029QDWVRQ1
AMC1211AQDWVRQ1	AMC1311BQDWVRQ1	AMC1311QDWVRQ1	

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)

Q100H/Q006 Grade 1 AMC1311CQDWVRQ1 - 4-die MCM RISO LBC8LVISO MIHO-8 fab - Hybrid Wires - Offload to MLA
Approve Date 25-Apr-2022

Product Attributes

Attributes	Qual Device: AMC1311CQDWVRQ1	QBS Process Reference: INA210BQDCKRQ1	QBS Process Reference: INA215AQDCKRQ1	QBS Process Reference: ISO7741FQDWQ1
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Product Function	Signal Chain	Signal Chain	Signal Chain	Interface
Wafer Fab Supplier	AIZU, MIHO	AIZU	AIZU	MIHO
Die Revision	A, B	D	C	A
Assembly Site	MLA	NFME	NFME	TAI
Package Type	SOIC	SOT	SOT	SOIC
Package Designator	DWV	DCK	DCK	DW
Ball/Lead Count	8	6	6	16

- QBS: Qual By Similarity
- Qual Device AMC1311CQDWVRQ1 is qualified at LEVEL3-260C
- Device AMC1311CQDWVRQ1 contains multiple dies.

Qualification Results
Data Displayed as: Number of lots / Total sample size / Total failed

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: AMC1311CQDWVRQ1	QBS Process Reference: INA210BQDCKRQ1	QBS Process Reference: INA215AQDCKRQ1	QBS Process Reference: ISO7741FQDWQ1
Test Group A – Accelerated Environment Stress Tests											
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 2	Level 2-260C	-	-	3/948/0	3/1304/0
	PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 3	Level 3-260C	3/0/0	-	-	-
	HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	3/231/0	3/231/0
	AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	-	-	3/231/0	3/231/0
	UHAST	A3	JEDEC JESD22-A102	3	77	Auto Unbiased Hast 130C/85%RH	96 Hours	3/77/0	-	-	-
	TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	3/231/0	-
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	-	-	-
	HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	3/135/0	-	1/45/0	3/231/0

Test Group B – Accelerated Lifetime Simulation Tests											
	HTOL	B1	JEDEC JESD22-A108	3	77	Auto High Temp Operating Life Grade 1	150C(408 Hours); VCC max	1/77/0	-	-	-
	HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	-	3/231/0	3/231/0
	ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/0	6/2654/0
	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	N/A	-	-	-
Test Group C – Package Assembly Integrity Tests											
	WBS	C1	AEC Q100-001	1	30	Auto Wire Bond Shear	Wires	3/30/0	-	1/30/0	3/228/0
	WBP	C2	MIL-STD883 Method 2011	1	30	Auto Wire Bond Pull	Wires	3/30/0	-	1/30/0	3/228/0
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb-free	1/15/0	-	-	-
	SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability >95% Lead Coverage	Pb	1/15/0	-	-	-
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Auto Physical Dimensions	Cpk>1.67	3/10/0	-	-	-
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	1/24/0	-	-	-

Test Group D – Die Fabrication Reliability Tests											
	EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-	-
	TDDB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	-	-	-
	HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	-	-	-
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	-	-	-
	SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	-	-	-
Test Group E – Electrical Verification Tests											
	HBM	E2	AEC Q100-002	1	3	Auto ESD HBM	4000V	1/3/0	1/3/0	-	-
	CDM	E3	AEC Q100-011	1	3	Auto ESD CDM	1500V	1/3/0	1/3/0	-	1/3/0
	LU	E4	AEC Q100-004	1	6	Latch-up	(per AEC-Q100-004)	1/6/0	1/6/0	-	1/6/0
	ED	E5	AEC Q100-009	3	30	Auto Electrical Distributions	Cpk>1.67 Room, hot, and cold test	1/30/0	9/270/0	-	3/90/0

Additional Tests											
	-			-	-	Bond Pull, over ball	Minimum of 5 devices, 30 wires Cpk>1.67	3/30/0	-	-	-
	-			-	-	Bond Pull, over stitch	Minimum of 5 devices, 30 wires Cpk>1.67	3/30/0	-	-	-
	FLAM			-	-	Flammability	Method A - UL94 V-0	1/5/0	-	-	-
	FLAM			-	-	Flammability	Method B - IEC 695-2-2	1/5/0	-	-	-
	FLAM			-	-	Flammability	Method C - UL 1694	1/5/0	-	-	-
	MQ			-	-	Manufacturability (Auto Assembly)	(per automotive requirements)	Pass	-	Pass	Pass
	MQ			-	-	Manufacturability (Wafer Fab)	(per mfg. Site specification)	Pass	-	-	-
	MSL			-	-	Thermal Path Integrity	L3-260C	3/12/0	-	-	-

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I): -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):
Room/Hot/Cold: HTOL, ED
Room/Hot: THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
Room: AC/uHAST

Green/Pb-free Status:
Qualified Pb-Free(SMT) and Green

TI Qualification ID: 20210423-139757

TEXAS INSTRUMENTS

TI Information
Selective Disclosure

Automotive New Product Qualification Summary (As per AEC-Q100, Q006 and JEDEC Guidelines)

Approve Date 25-Apr-2022

Product Attributes

Attributes	Qual Device: AMC1311CQDWVRQ1	QBS Process Reference: INA210BQDCKRQ1	QBS Process Reference: INA215AQDCKRQ1	QBS Process Reference: ISO7741FQDWQ1
Operating Temp Range	-40 to +125 C	-40 to +125 C	-40 to +125 C	-40 to +125 C
Automotive Grade Level	Grade 1	Grade 1	Grade 1	Grade 1
Product Function	Signal Chain	Signal Chain	Signal Chain	Interface
Wafer Fab Supplier	AIZU, MIHO	AIZU	AIZU	MIHO
Die Revision	A, B	D	C	A
Assembly Site	MLA	NFME	NFME	TAI
Package Type	SOIC	SOT	SOT	SOIC
Package Designator	DWV	DCK	DCK	DW
Ball/Lead Count	8	6	6	16

- QBS: Qual By Similarity
- Device AMC1311CQDWVRQ1 contains multiple dies.

Qualification Results
Data Displayed as: Number of lots / Total sample size / Total failed

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: AMC1311CQDWVRQ1	QBS Process Reference: INA210BQDCKRQ1	QBS Process Reference: INA215AQDCKRQ1	QBS Process Reference: ISO7741FQDWQ1
Test Group A – Accelerated Environment Stress Tests										
PC	A1	-	3	22	SAM Analysis, Pre Stress	Completed	3/66/0	-	-	-
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Preconditioning	Level 1-260C	No fails	-	-	-
PC	A1	-	3	22	SAM Analysis, Post Stress	Completed	3/66/0	-	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	3/231/0	-	-	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	192 Hours	3/210/0	-	-	-
HAST	A2	-	3	1	Cross Section, Post bHAST 192 Hours	Completed	3/3/0	-	-	-
HAST	A2	-	3	22	SAM Analysis, Post bHAST, 192 Hours	Completed	3/66/0	-	-	-
HAST	A2	-	3	30	Wire Bond Shear, Post bHast, 192 Hours	Wires	3/90/0	-	-	-
HAST	A2	-	3	30	Bond Pull over Stitch, post bHAST, 192 Hours	Wires	3/90/0	-	-	-
HAST	A2	-	3	30	Bond Pull over Ball, Post bHAST, 192 Hours	Wires	3/90/0	-	-	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	-	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	1000 Cycles	3/210/0	-	-	-

	Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: AMC1311CQDWVRQ1	QBS Process Reference: INA210BQDCKRQ1	QBS Process Reference: INA215AQDCKRQ1	QBS Process Reference: ISO7741FQDWQ1
	TC	A4	-	3	1	Cross Section, Post T/C 1000 Cycles	Completed	3/3/0	-	-	-
	TC	A4	-	3	22	SAM Analysis, Post T/C, 1000 Cycles	Completed	3/66/0	-	-	-
	TC	A4	-	3	30	Wire Bond Shear, Post T/C 1000 Cycles	Wires	3/90/0	-	-	-
	TC	A4	-	3	30	Bond Pull over Stitch, Post T/C, 1000 Cycles	Wires	3/90/0	-	-	-
	TC	A4	-	3	30	Bond Pull over Ball, Post T/C, 1000 Cycles	Wires	3/90/0	-	-	-
	PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle - 40/125C	1000 Cycles	N/A	-	-	-
	HTSL	A6	JEDEC JESD22-A103	3	45	High Temp Storage Bake 175C	500 Hours	3/135/0	-	-	-
	HTSL	A6	JEDEC JESD22-A103	3	44	High Temp Storage Bake 175C	1000 Hours	3/132/0	-	-	-
	HTSL	A6	-	3	1	Cross Section, Post HTSL 2000 Hours	Completed	3/3/0	-	-	-
Test Group C – Package Assembly Integrity Tests											
	WBS	C1	AEC Q100-001	3	30	Wire Bond Shear, Cpk>1.67	Wires	3/30/0	-	-	-
	WBP	C2	MIL-STD883 Method 2011	3	30	Bond Pull over Ball, Cpk >1.67	Wires	3/30/0	-	-	-

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST & TC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40C to +150C
Grade 1 (or Q): -40C to +125C
Grade 2 (or T): -40C to +105C
Grade 3 (or I): -40C to +85C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):
Room/Hot/Cold: HTOL, ED
Room/Hot: THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
Room: AC/uHAST

Green/Pb-free Status:
Qualified Pb-Free(SMT) and Green

TI Qualification ID: 20210423-139757

For questions regarding this notice, e-mails can be sent to the contacts shown below or your local Field Sales Representative.

Location	E-Mail
WW Change Management Team	PCN_ww_admin_team@list.ti.com

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