PCN Number:	20220503002.1	**PCN Date:**	May 04, 2022
Title:	Qualification of new die revision/datasheet updates, updated BOM option in TAI, additional Assembly site in MLA		
Customer Contact:	PCN Manager	**Dept:**	Quality Services
Proposed 1st Ship Date:	Aug 4, 2022	**Estimated Sample Availability:**	Date provided at sample request.

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		

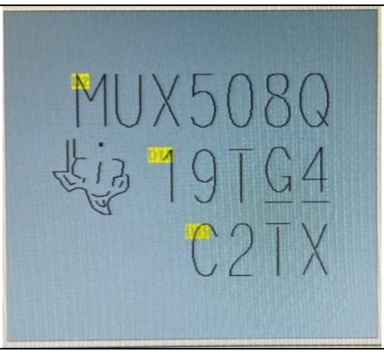
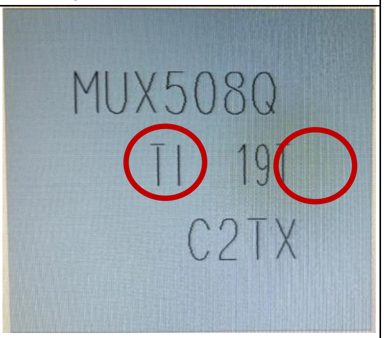
PCN Details

Description of Change:

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

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

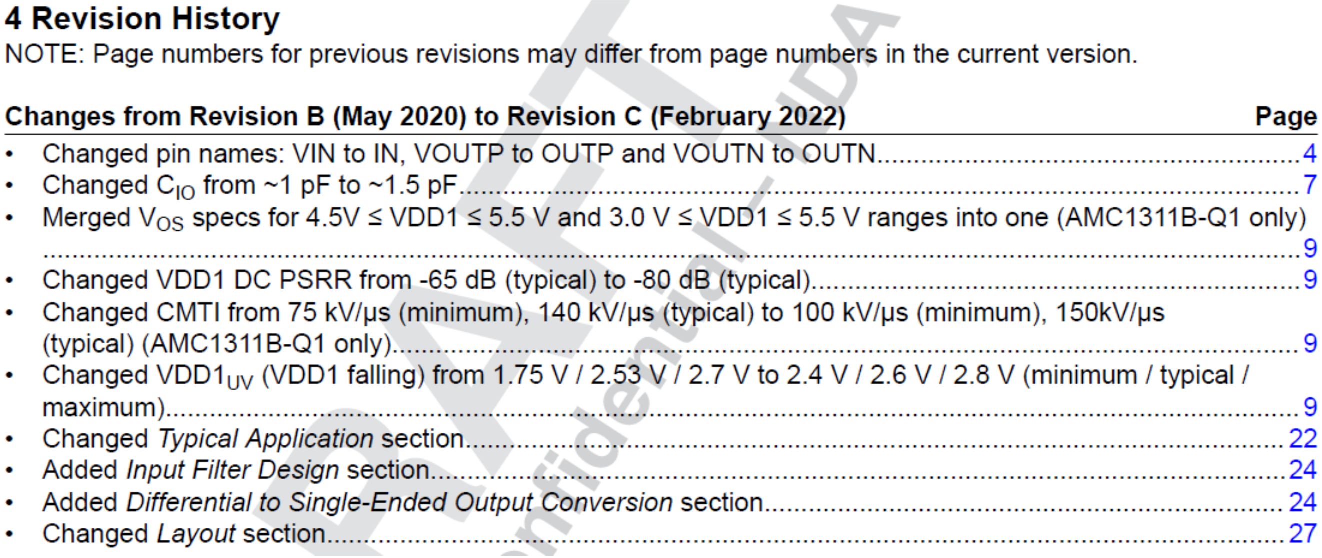
The datasheet number will be changing:

Product Family	**Current Datasheet Number**	**New Datasheet Number**
AMC1311	SBAS786B	SBAS786C
AMC1311 (SN201811022)	SBAS952	SBAS952A

TLA7312	SBASA89	SBASA89A

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

AMC1311

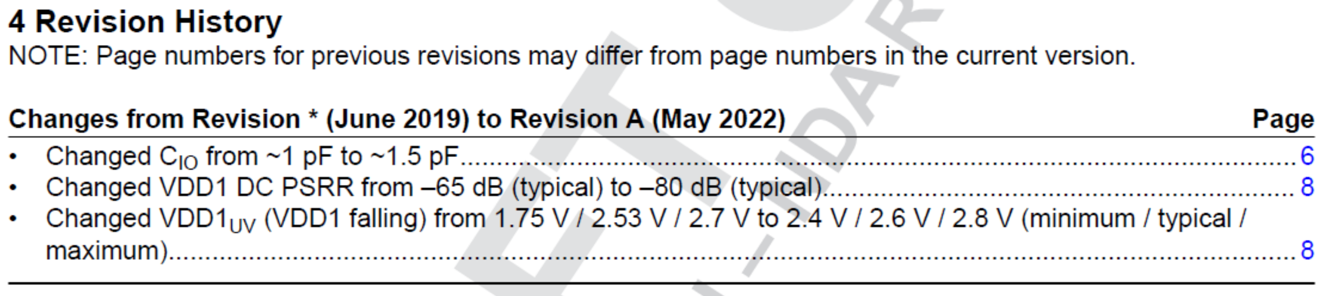


4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

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 (SN201811022)

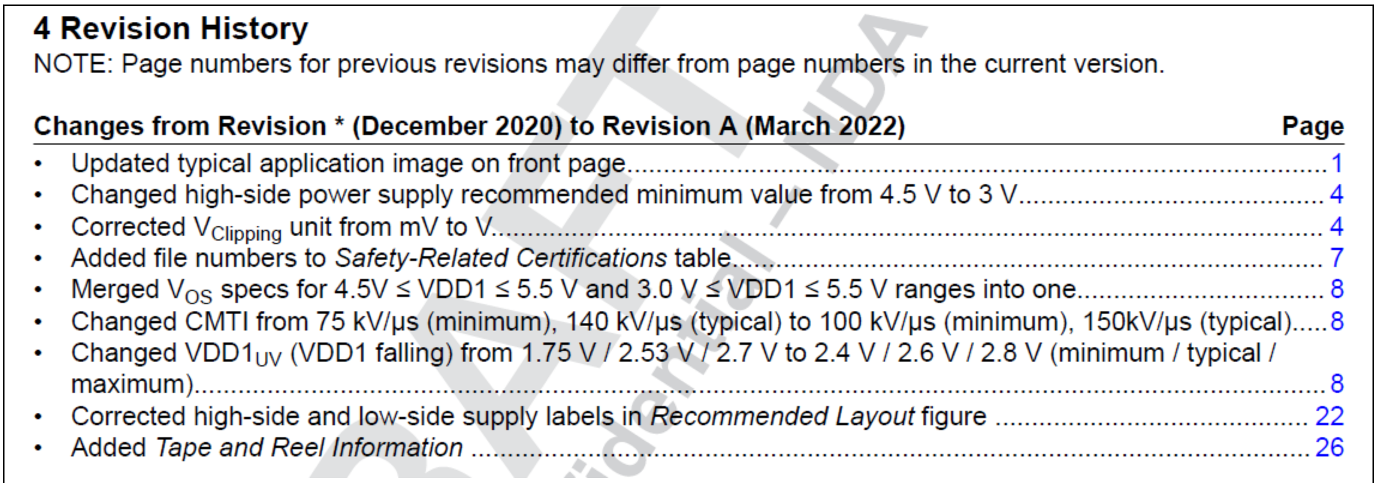


4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision * (June 2019) to Revision A (May 2022)	Page
Changed C_{IO} from ~1 pF to ~1.5 pF	6
Changed VDD1 DC PSRR from –65 dB (typical) to –80 dB (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

TLA7312



4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision * (December 2020) to Revision A (March 2022)	Page
• Updated typical application image on front page	1
• Changed high-side power supply recommended minimum value from 4.5 V to 3 V	4
• Corrected $V_{Clipping}$ unit from mV to V	4
• Added file numbers to *Safety-Related Certifications* table	7
• Merged V_{OS} specs for 4.5V ≤ VDD1 ≤ 5.5 V and 3.0 V ≤ VDD1 ≤ 5.5 V ranges into one	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
• Corrected high-side and low-side supply labels in *Recommended Layout* figure	22
• Added *Tape and Reel Information*	26

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)

Texas Instruments
MADE IN: Malaysia
2DC: 2Q:
MSL 2 /260C/1 YEAR | SEAL DT
MSL 1 /235C/UNLIM | 03/29/04
OPT:
ITEM: 39
LBL: 5A (L)TO:1750
G4
(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T)LOT: 3959047MLA
(4W) TKY(1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) ~~CSO: SHE~~ (21L) ~~CCO:USA~~
(22L) ASO:MLA (23L) ACO:MYS

Product Affected:				
AMC1311DWVR	TLA7312DWVR	AMC1311BDWVR	SN201811022DWVR	

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

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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