

PCN Number:	20210416001.1	PCN Date:	July 02, 2021
Title:	AMC1300B/1300/1302 Design Change and Datasheet Update		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Oct 2, 2021	Estimated Sample Availability:	Date provided at sample request.
Change Type:			
<input type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process
<input checked="" type="checkbox"/>	Design	<input checked="" type="checkbox"/>	Electrical Specification
<input type="checkbox"/>	Test Site	<input type="checkbox"/>	Packing/Shipping/Labeling
<input type="checkbox"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material
<input type="checkbox"/>	Wafer Fab Site	<input type="checkbox"/>	Wafer Fab Materials
		<input type="checkbox"/>	Part number change

PCN Details

Description of Change:

This notification is to inform of a design change to the AMC1300B/1300/1302 devices. Affected devices are listed in the Product Affected section of this document.

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

The datasheet number will be changing:

	Current	New
Product Family	Datasheet Number	Datasheet Number
AMC1302	SBAS812C	SBAS812D
AMC1300B/AMC1300	SBAS895B	SBAS895C

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



AMC1302

SBAS812D – JUNE 2018 – REVISED JUNE 2021

Changes from Revision C (October 2019) to Revision D (June 2021)

Page

• Updated the numbering format for tables, figures, and cross-references throughout the document	1
• Changed C _{IO} from ~1 pF to ~1.5 pF.....	6
• Changed V _{OS} from –100 μV / ±10 μV / 100 μV to –50 μV / ±2.5 μV / 50 μV (min / typ / max).....	8
• Changed E _G from –0.3% / ±0.05% / 0.3% to –0.2% / ±0.04% / 0.2% (min / typ / max)	8
• Changed TCE _G from –50 ppm/°C / ±15 ppm/°C / 50 ppm/°C to –35 ppm/°C / ±3 ppm/°C / 35 ppm/°C (min / typ / max)	8
• Changed V _{Fail-safe} from –2.6 V / –2.5 V (typ / max) to –2.63 V / –2.57 V / –2.53 V (min / typ / max).....	8
• Changed CMTI from 55 kV/μs / 80 kV/μs to 100 kV/μs / 150 kV/μs (min / typ)	8
• Changed VDD1 _{POR} from 1.75 V / 2.15 V / 2.7 V to 2.4 V / 2.6 V / 2.8 V (min / typ / max).....	8
• Changed Rise, Fall, and Delay Time Waveforms image.....	9

Changes from Revision B (April 2020) to Revision C (June 2021)	Page
• Changed <i>Features</i> section.....	1
• Changed several figures throughout document (editorial changes only).....	1
• Changed TCV_{OS} , TCE_G , and CMTI values in AMC1300B column of <i>Device Comparison Table</i>	4
• Changed C_{IO} from ~1 pF to ~1.5 pF.....	8
• Changed V_{CMov} hysteresis from 95 mV to 60 mV.....	10
• Changed TCV_{OS} (AMC1300B) from ± 3 to $\pm 0.9 \mu V/^\circ C$ and typical value from ± 1 to $\pm 0.1 \mu V/^\circ C$	10
• Changed TCE_G (AMC1300B) from ± 50 to $\pm 30 ppm/^\circ C$ and typical value from ± 15 to $\pm 5 ppm/^\circ C$	10
• Changed SNR (min), $f_{IN} = 1 kHz$ from 80 dB to 81.5 dB.....	10
• Added $V_{CLIPout}$ specification.....	10
• Changed $V_{FAILSAFE}$ from * / -2.6 V / -2.5 V to -2.63 V / -2.57 V / -2.53 V (min / typ / max).....	10
• Changed output short-circuit current from $\pm 13 mA$ to 14 mA (sourcing or sinking).....	10
• Changed CMTI (AMC1300B) min from 75 to 100 kV/ μs and typ from 140 to 150 kV/ μs	10
• Changed $VDD1_{UV}$ from 1.75 V / 2.53 V / 2.7 V to 2.4 V / 2.6 V / 2.8 V (min / typ / max).....	10
• Changed <i>Analog Input</i> section.....	21
• Changed <i>Analog Output</i> section.....	23
• Changed <i>Detailed Design Procedure</i> section.....	25
• Added <i>Shunt Resistor Sizing</i> section.....	25
• Added <i>Input Filter Design</i> section.....	25
• Added <i>Differential to Single-Ended Output Conversion</i> section.....	25
• Changed <i>Application Curves</i> section.....	27
• Added layout recommendations to <i>What To Do and What Not To Do</i> section.....	27

This product change notification is considered the final datasheet notification. The product datasheet revisions will be available after expiration of this PCN. Although the datasheet is not yet published on the TI website for review, the document is available. If customers require a preview datasheet prior to PCN expiration or have additional questions regarding the datasheet change, please contact r-bucksch@ti.com.

Reason for Change:

EMI Improvement

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

Die Rev designator will change as shown in the table and sample label below:

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

Sample product shipping label (not actual product label)



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)T0:1750



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: Design Change and datasheet updates

AMC1300BDWV	AMC1300BDWVR	AMC1300DWV	AMC1300DWVR
AMC1302DWV	AMC1302DWVR		

Qualification Report

Approve Date 04-Jun-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>AMC1300B</u> <u>DWVR</u>	Qual Device: <u>AMC1300</u> <u>DWVR</u>	QBS Product Reference: <u>AMC1300BOD</u> <u>WVRO1</u>	QBS Process Reference: <u>AMC1305M25</u> <u>ODWRO1</u>	QBS Process Reference: : <u>INA215AOD</u> <u>CKRO1</u>	QBS Package Reference: <u>AMC1302OD</u> <u>WVRO1</u>	QBS Package Reference: <u>AMC1311BQ</u> <u>DWVO1</u>
PC	Automotive Preconditioning Level 2	Level 2-260C	-	-	-	-	3/948/0	-	-
PC	Automotive Preconditioning Level 3	Level 3-260C	-	-	1/305/0	3/960/0	-	1/276/0	3/898/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	1/77/0	3/231/0	3/231/0	1/77/0	3/231/0
AC	Autoclave 121C	96 Hours	-	-	1/77/0	3/231/0	3/231/0	1/77/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	1/77/0	3/231/0	3/231/0	1/77/0	3/231/0
HTSL	High Temp Storage Bake 175C	500 Hours	-	-	1/45/0	1/45/0	1/45/0	1/45/0	3/135/0
ED	Electrical Characterization	Per datasheet spec	-	1/30/0	3/90/0	3/90/0	-	3/90/0	3/90/0
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	3/231/0	-	-
HTOL	Life Test, 140C	480 Hours	-	-	1/77/0	-	-	-	-
HTOL	Life Test, 150C	408 Hours	-	-	-	3/231/0	-	1/77/0	3/231/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-	3/2400/0	3/2400/0	-	-
HBM	ESD - HBM - Q100	4000 V	-	-	1/3/0	1/3/0	-	1/3/0	-
CDM	ESD - CDM - Q100	1500 V	-	-	1/3/0	1/3/0	-	1/3/0	-
LU	Latch-up	Per	-	-	1/6/0	1/6/0	-	1/6/0	1/6/0

Type	Test Name / Condition	Duration	Qual Device: <u>AMC1300B</u> <u>DWVR</u>	Qual Device: <u>AMC1300</u> <u>DWVR</u>	QBS Product Reference: <u>AMC1300BOD</u> <u>WVRO1</u>	QBS Process Reference: <u>AMC1305M25</u> <u>ODWRO1</u>	QBS Process Reference: : <u>INA215AOD</u> <u>CKRO1</u>	QBS Package Reference: <u>AMC1302OD</u> <u>WVRO1</u>	QBS Package Reference: <u>AMC1311BQ</u> <u>DWVO1</u>
		AEC-Q100-004							
WB P	Bond Pull	Wires	1/76/0	-	1/30/0	3/90/0	1/30/0	1/30/0	1/30/0
WB S	Ball Bond Shear	Wires	1/76/0	-	1/30/0	3/90/0	1/30/0	1/30/0	1/30/0

- QBS: Qual By Similarity
 - Qual Device AMC1300DWVR is qualified at LEVEL3-260C
 - Qual Device AMC1300BDWVR is qualified at LEVEL3-260C
 - Device AMC1300DWVR contains multiple dies.
 - Device AMC1300BDWVR contains multiple dies.
 - Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
 - The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
 - The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
 - The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles
- Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

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

Qualification Report

Approve Date 03-Jun-2021

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: <u>AMC1302DWV</u> <u>R</u>	QBS Product Reference: <u>AMC1302ODWVR</u> <u>O1</u>	QBS Process Reference: <u>INA215AODCKR</u> <u>O1</u>	QBS Process Reference: <u>ISO7741FODW</u> <u>O1</u>	QBS Package Reference: <u>AMC1311BODWV</u> <u>O1</u>
PC	Preconditioning	Level 2-260C	-	-	3/948/0	3/1304/0	-
PC	Preconditioning	Level 3-260C	-	-	-	-	3/898/0
ED	Electrical Distributions	Cpk>1.67	-	1/30/0	-	3/90/0	3/90/0
HAS T	Biased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0	3/231/0
AC	Autoclave 121C	96 Hours	-	-	3/231/0	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	-	3/231/0	3/231/1 (1)	3/231/0
HTS L	High Temp Storage Bake 175C	500 Hours	-	-	1/45/0	3/231/0	3/135/0
HTO L	Life Test, 125C	1000 Hours	-	-	3/231/0	3/231/0	-
HTO L	Life Test, 150C	408 Hours	-	-	-	-	3/231/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/0	3/2400/0	-
HBM	ESD - HBM -	6000 V	-	-	-	1/3/0	-

Type	Test Name / Condition	Duration	Qual Device: <u>AMC1302DWVR</u> R	QBS Product Reference: <u>AMC1302ODWVR</u> O1	QBS Process Reference: <u>INA215AODCKR</u> O1	QBS Process Reference: <u>ISO7741FODW</u> O1	QBS Package Reference: <u>AMC1311BODWV</u> O1
	Q100						
HBM	ESD - HBM - Q100	4000 V	-	1/3/0	-	1/3/0	1/3/0
CDM	ESD - CDM - Q100	1500 V	-	1/3/0	-	1/3/0	1/3/0
LU	Latch-up	Per JESD78	1/6/0	1/6/0	-	1/6/0	1/6/0
WBP	Bond Pull (Cpk>1.67)	Wires	-	-	1/30/0	3/228/0	1/30/0
WBS	Wire Bond Shear (Cpk>1.67)	Wires	-	-	1/30/0	3/228/0	1/30/0

- QBS: Qual By Similarity

- Qual Device AMC1302DWVR is qualified at LEVEL3-260C

- Device AMC1302DWVR contains multiple dies.

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours

- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours

- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

Note (1): One EOS fail discounted per QTS 487131-1

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