Product Change Notification / ASER-13ZAYE268

Date:

08-Jul-2022

Product Category:

Microprocessors

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4902 & 4902.001 Final Notice: Qualification of a new die size and mold compound for Die # 2 for selected catalog part numbers (CPN) ATSAMA5D28C-D1G-CU, ATSAMA5D27C-D1G-CU, ATSAMA5D28C-D1G-CUR, ATSAMA5D27C-D1G-CUR, ATSAMA5D27C-D5M-CU & ATSAMA5D27C-D5M-CUR available in 289L TFBGA (14x14x1.2mm) and U2 component for selected catalog part number (CPN) ATSAMA5D27-SOM1 available in 176L MODULE (40x38x6.34mm) packages.

Affected CPNs:

ASER-13ZAYE268_Affected_CPN_07082022.pdf
ASER-13ZAYE268_Affected_CPN_07082022.csv

Notification Text:

PCN Status: Final Notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the files found in the Affected CPNs section.
Note: For your convenience Microchip includes identical files in two formats (.pdf and .xls)

Description of Change: Qualification of a new die size and mold compound for Die # 2 for selected catalog part numbers (CPN) ATSAMA5D28C-D1G-CU, ATSAMA5D27C-D1G-CU, ATSAMA5D28C-D1G-CUR, ATSAMA5D27C-D1G-CUR, ATSAMA5D27C-D5M-CU & ATSAMA5D27C-D5M-CUR available in 289L TFBGA (14x14x1.2mm) and U2 component for selected catalog part number (CPN) ATSAMA5D27-SOM1 available in 176L MODULE (40x38x6.34mm) packages.

Pre and Post Change Summary:

	Pre Change	Post Change
Die Size	With change in die size. See Pre and Post Change Summary for comparison.	
Mold Compound	KE-G1250LKDS	KE-G1250NAS

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability by qualifying a new die size and new mold compound.

Change Implementation Status: In Progress

Estimated First Ship Date: July 15, 2022 (date code: 2229)

Note: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

Time Table Summary:

	July 2022				
Workweek	27	28	29	30	31
Qual Report Availability		x			
Final PCN Issue Date		x			
Estimated Implementation Date			x		

Method to Identify Change: Traceability code

Qualification Report: Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

Revision History: July 8, 2021: Issued final notification.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachments:

PCN ASER-13ZAYE268_Qual Report.pdf
PCN_ASER-13ZAYE268_Pre and Post Change_Summary.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

Terms and Conditions:

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.

If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

ATSAMA5D27C-D5M-CU

ATSAMA5D27C-D5M-CUR

ATSAMA5D28C-D1G-CU

ATSAMA5D27C-D1G-CU

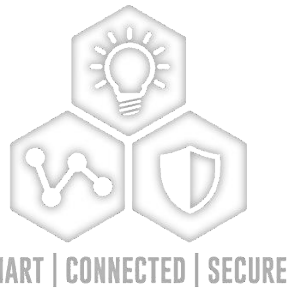
ATSAMA5D28C-D1G-CUR

ATSAMA5D27C-D1G-CUR

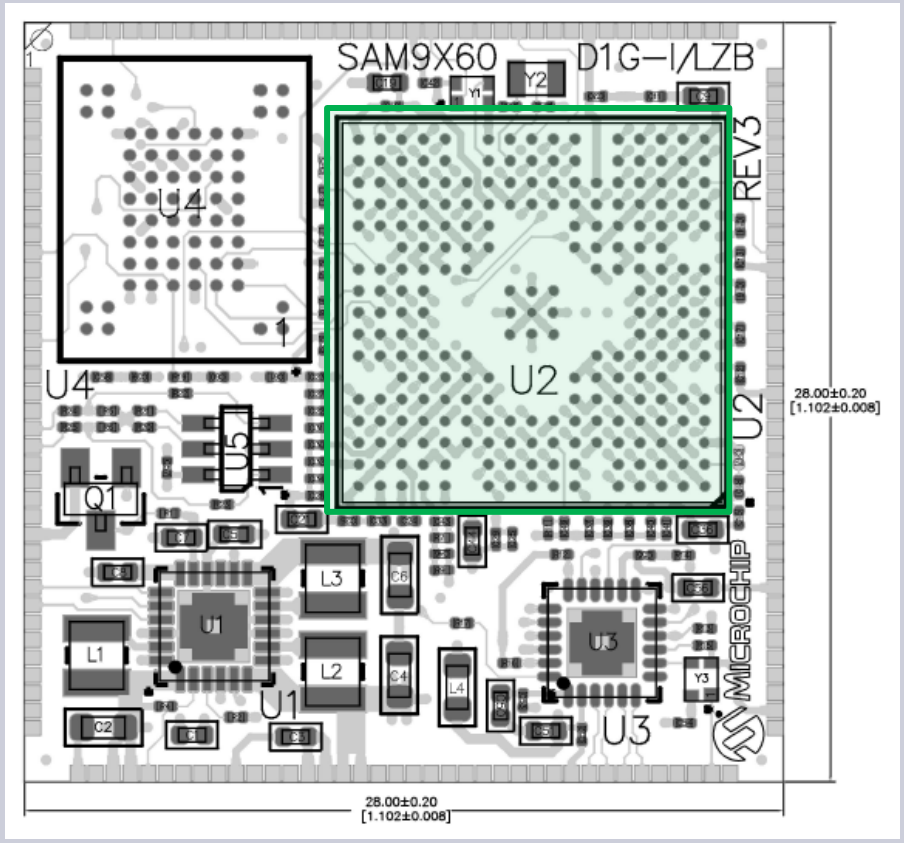
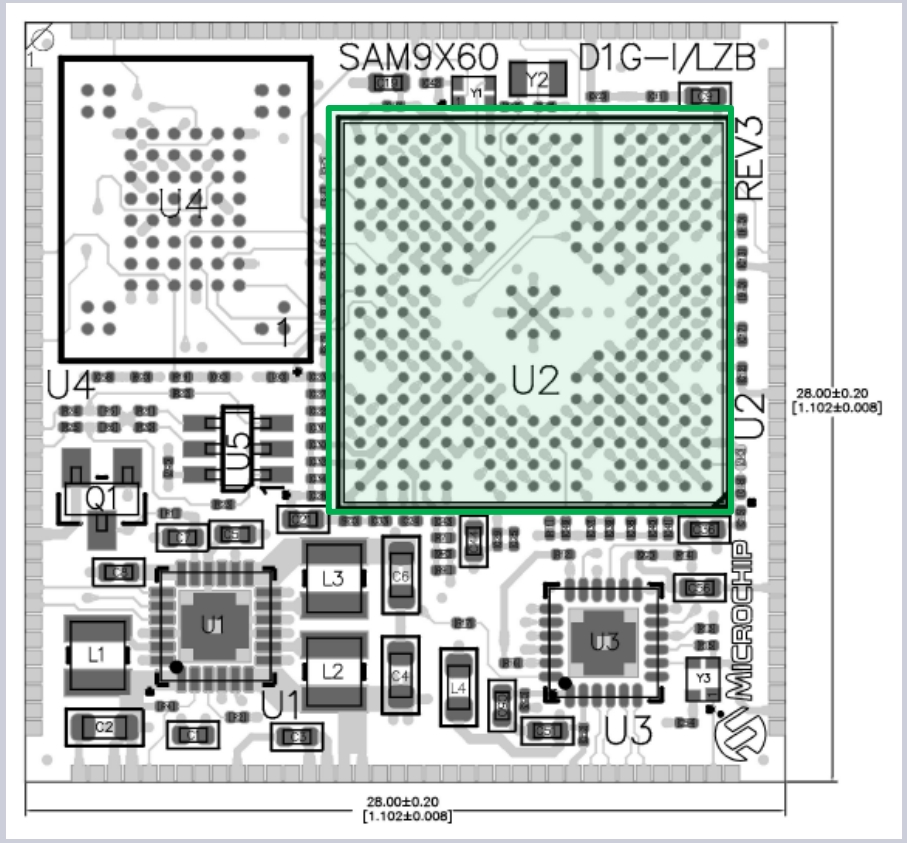
ATSAMA5D27-SOM1

CCB 4902 & 4902.001
Pre and Post Change Summary
PCN#: ASER-13ZAYE268

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

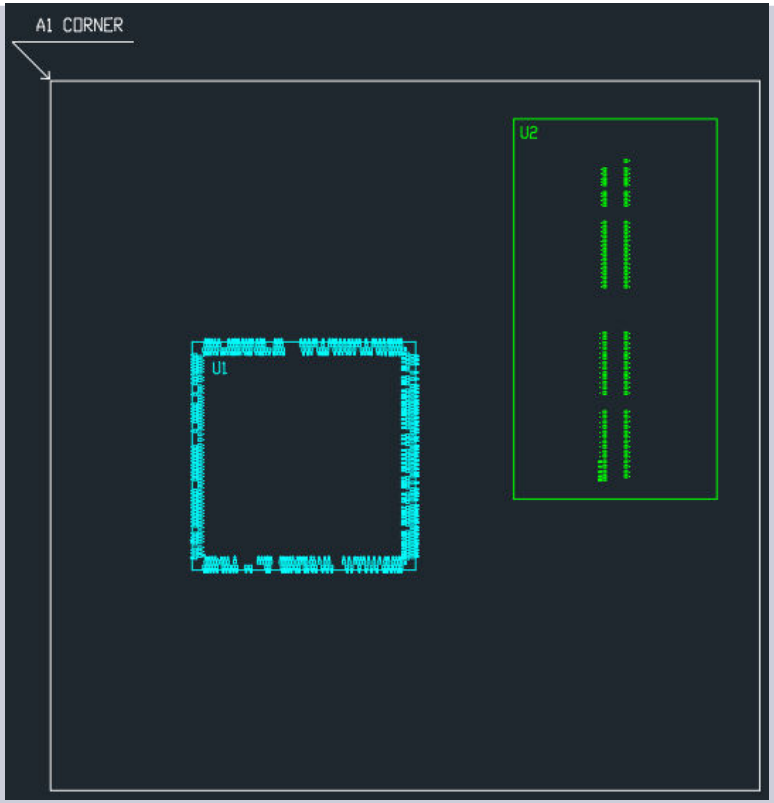
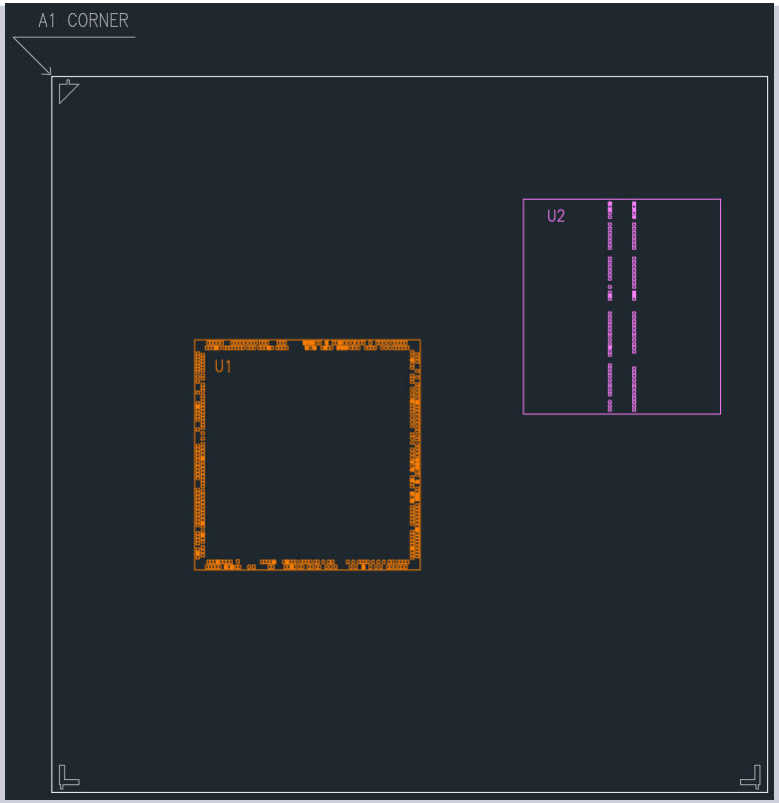


Pre and Post Change Comparison - ATSAMA5D27-SOM1

Pre change	Post Change
	

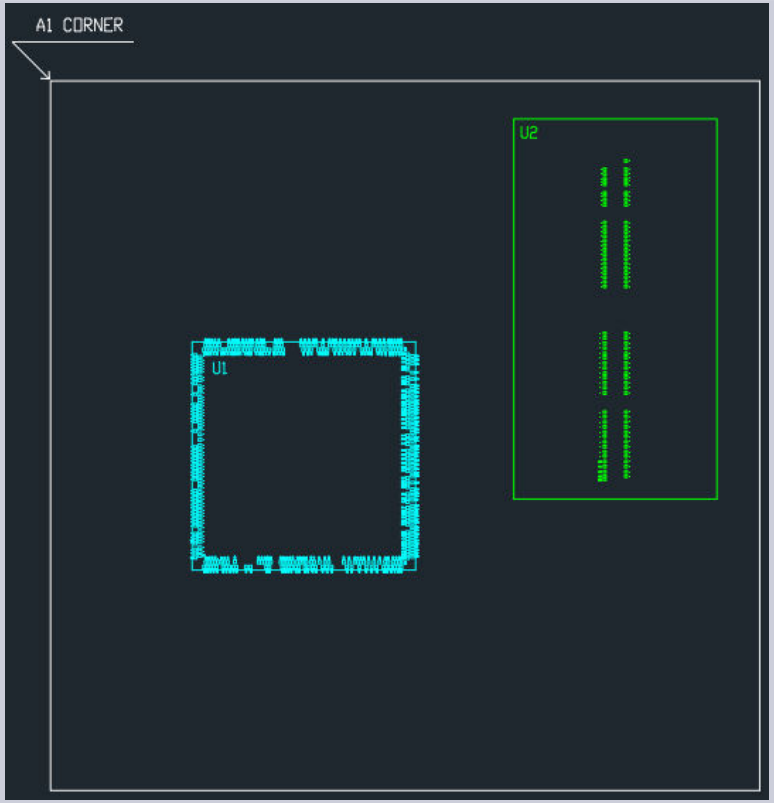
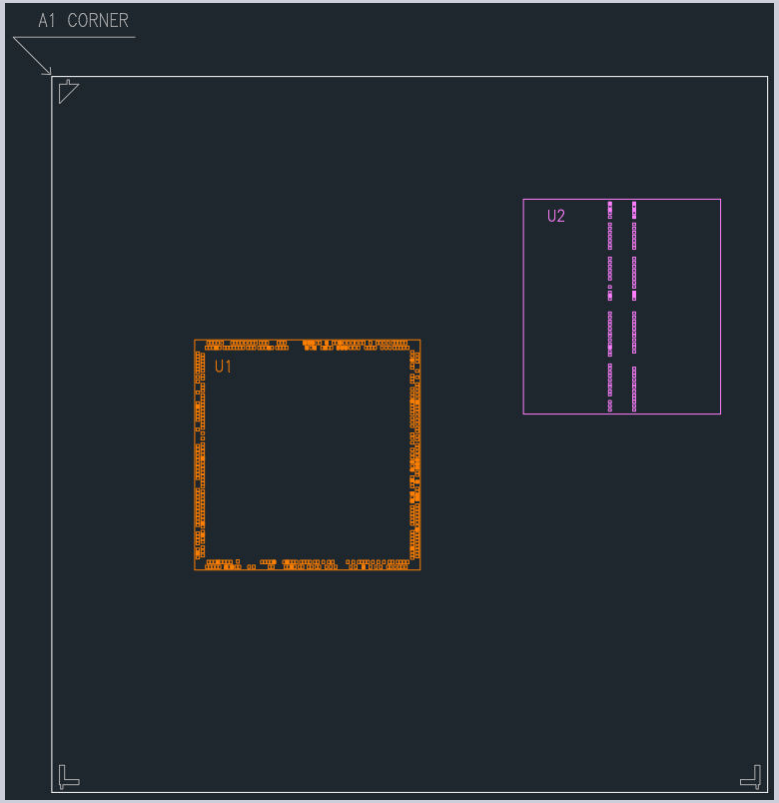
Note: Not-to-scale

Pre and Post Change Comparison - ATSAMA5D28C-D1G-CU, ATSAMA5D27C-D1G-CU, ATSAMA5D28C-D1G-CUR, ATSAMA5D27C-D1G-CUR

Pre change	Post Change
 U2 size : 153.2x290.6mils	 U2 size : 150.3x164 mils

Note: Not-to-scale

Pre and Post Change Comparison - ATSAMA5D27C-D5M-CU, ATSAMA5D27C-D5M-CUR

Pre change	Post Change
	
U2 size : 160.07x160.7mils	U2 size : 109.1x129.6 mils

Note: Not-to-scale

QUALIFICATION REPORT SUMMARY

PCN #: ASER-13ZAYE268

Date:
April 20, 2022

Qualification of a new die size and mold compound for Die # 2 for selected catalog part numbers (CPN) ATSAMA5D28C-D1G-CU, ATSAMA5D27C-D1G-CU, ATSAMA5D28C-D1G-CUR, ATSAMA5D27C-D1G-CUR, ATSAMA5D27C-D5M-CU & ATSAMA5D27C-D5M-CUR available in 289L TFBGA (14x14x1.2mm) and U2 component for selected catalog part number (CPN) ATSAMA5D27-SOM1 available in 176L MODULE (40x38x6.34mm) packages.

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Package Qualification Report

Purpose: Qualification of a new die size and mold compound for Die # 2 for selected catalog part numbers (CPN) ATSAMA5D28C-D1G-CU, ATSAMA5D27C-D1G-CU, ATSAMA5D28C-D1G-CUR, ATSAMA5D27C-D1G-CUR, ATSAMA5D27C-D5M-CU & ATSAMA5D27C-D5M-CUR available in 289L TFBGA (14x14x1.2mm) and U2 component for selected catalog part number (CPN) ATSAMA5D27-SOM1 available in 176L MODULE (40x38x6.34mm) packages.

CCB: 4902 & 4902.001

Misc.	Assembly site	ASEK
	BD Number	BD-000186-01_289L_TFBGA_4BB_ASE
	MP Code (MPC)	3413A74BBD02
	Part Number (CPN)	ATSAMA5D28C-D1G-CU
	MSL information	MSL 3, 260C
	Reliability Site	MPHIL
	Qual ID	QTP4581 Rev. A
Substrate	Core Material	CCL-HL832NX (A-HS)
	Core Thickness	0.26mm
	Part Number	A30115-0
	SM Material	AUS308
	Paddle Size #1	211X214 mils
	Paddle Size #2	192x368 mils
	Number of Layers	4
Bond Wire	Material	CuPdAu
Die Attach	Part Number (Die1)	ATB-125
	Conductive	Non-Conductive
	Part Number (Die2)	ATB-125
	Conductive	Non-Conductive
MC	Part Number	KE-G1250NAS
PKG	PKG Type	289 TFBGA
	PKG width/size	14x14
	Solder Ball Material	SAC1205 (LF35)

MICROCHIP

Package Qualification Report

Manufacturing Information

Lot	Assembly Lot #
1	ASE223100048.000
2	ASE223100047.000
3	ASE223100046.000

Result ☑ Pass ☐ Fail ☐ _____

SAMA5D2 (92U03) with DDR2 25nm 1Gb (Side by Side) device using 289 Balls TFBGA 14x14mm at ASEK pass reliability test per AEC-Q006 which was conducted at MPHL rel lab. This package qualified 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
Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Electrical Test :** 25°C, 85°C System: D10 tester / Thermonics Bake 150°C, 24 hrs System: HERAEUS 30°C/60%RH Moisture Soak 192hrs. System: Climats Excal 5423-HE 3x Convection-Reflow 260°C max System: Mancorp CR.5000F **Electrical Test :** 25°C, 85°C System: D10 Tester / Thermonics	JESD22-A113 IPC/JEDEC J-STD-020E	231 units per lot	Lot 1 0/265 Lot 2 0/265 Lot 3 0/265	Pass Pass Pass	
Temperature Cycle	**Stress Condition:** (Standard) -55°C to +125°C, **500 Cycles** System: Votsch VTS^{2}7012 **Electrical Test :** 85°C System: D10 Tester / Thermonics	JESD22-A104	77 units per lot	Lot 1 0/90 Lot 2 0/89 Lot 3 0/90	Pass Pass Pass	
	Acoustic Microscopy		22 units per lot	Lot 1 0/22 Lot 2 0/22 Lot 3 0/22	Pass Pass Pass	
	Internal Package Analysis / Cross-section		5 units per lot	Lot 1 0/5 Lot 2 0/5 Lot 3 0/5	Pass Pass Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond *Shear* (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Temperature Cycle	**Stress Condition:** (Standard) -55°C to +125°C, **1000 Cycles** System: Votsch VTS^{2}7012 **Electrical Test :** 85°C System: D10 Tester / Thermonics	JESD22-A104	70 units per lot	Lot 1 0/79 Lot 2 0/78 Lot 3 0/77	Pass Pass Pass	
	Acoustic Microscopy		22 units per lot	Lot 1 0/22 Lot 2 0/22 Lot 3 0/22	Pass Pass Pass	
	Internal Package Analysis / Cross-section		5 units per lot	Lot 1 0/5 Lot 2 0/5 Lot 3 0/5	Pass Pass Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond *Shear* (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	
HAST	**Stress Condition:** (Standard) +110°C/85%RH, **264 hrs** System: HIRAYAMA HASTEST PC-422R8 **Electrical Test :** 25°C, 85°C System: D10 Tester / Thermonics	JESD22-A118	77 units per lot	Lot 1 0/90 Lot 2 0/90 Lot 3 0/90	Pass Pass Pass	
	Acoustic Microscopy		22 units per lot	Lot 1 0/22 Lot 2 0/22 Lot 3 0/22	Pass Pass Pass	
	Internal Package Analysis / Cross-section		5 units per lot	Lot 1 0/5 Lot 2 0/5 Lot 3 0/5	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
HAST	**Bond Strength:** 3 units per test Wire Pull (>4.0g) Bond *Shear* (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/7 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	
	Stress Condition: (Standard) +110°C/85%RH, **528 hrs** System: HIRAYAMA HASTEST PC-422R8 **Electrical Test :** 25°C, 85°C System: D10 Tester / Thermonics	JESD22-A118	70 units per lot	Lot 1 0/79 Lot 2 0/79 Lot 3 0/79	Pass Pass Pass	
	Acoustic Microscopy		22 units per lot	Lot 1 0/22 Lot 2 0/22 Lot 3 0/22	Pass Pass Pass	
	Internal Package Analysis / Cross-section		5 units per lot	Lot 1 0/5 Lot 2 0/5 Lot 3 0/5	Pass Pass Pass	
	Bond Strength: 3 units per test Wire Pull (>4.0g) Bond *Shear* (>10g) Stitch Pull (>3g) System: Dage		6 units per lot	Lot 1 0/6 Lot 2 0/6 Lot 3 0/6	Pass Pass Pass	
UHAST	**Stress Condition:** (Standard) +110°C/85%RH, **264 hrs**. no bias System: HIRAYAMA HASTEST PC-422R8 **Electrical Test :** 25°C System: D10 Tester	JESD22-A118	77 units per lot	Lot 1 0/84 Lot 2 0/85 Lot 3 0/85	Pass Pass Pass	
	Stress Condition: (Standard) +110°C/85%RH, **528 hrs**. no bias System: HIRAYAMA HASTEST PC-422R8 **Electrical Test :** 25°C System: D10 Tester	JESD22-A118	70 units per lot	Lot 1 0/84 Lot 2 0/85 Lot 3 0/85	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HTSL	**Stress Condition:** Bake 150°C, **504 hrs.** System: HERAEUS **Electrical Test :** 25°C, 85°C System: D10 Tester / Thermonics	JESD22-A10	45 units per lot	Lot 1 0/59 Lot 2 0/60 Lot 3 0/65	Pass Pass Pass	
	Internal Package Analysis / Cross-section		5 units per lot	Lot 1 0/5 Lot 2 0/5 Lot 3 0/5	Pass Pass Pass	
	Stress Condition: Bake 150°C, **1008 hrs**. System: HERAEUS **Electrical Test :** 25°C, 85°C System: D10 Tester / Thermonics	JESD22-A103	44 units per lot	Lot 1 0/54 Lot 2 0/55 Lot 3 0/60	Pass Pass Pass	
	Internal Package Analysis / Cross-section		5 units per lot	Lot 1 0/5 Lot 2 0/5 Lot 3 0/5	Pass Pass Pass	
Bond Strength	Wire Pull (>4.0g) Bond *Shear* (>10g) Stitch Pull (>3g) System: Dage		5 units 3 lots 30 bonds		Pass	
Physical Dimension	Physical Dimension, 10 units per 3 lots	JESD22 B100 and B108	10 units per lot	30	Pass	