



Product Change Notification: ALAN-14DVPU428

Date:

18-Dec-2024

Product Category:

General Purpose Fpgas

Notification Subject:

TRB 6461 Final Notice: Qualification of E705GR as an additional substrate material for selected MPF300T, MPF300TL, MPF300TLS and MPF300TS device families available in 484L BGA (23x23x3.39mm and 23x23x2.87mm) packages.

Affected CPNs:

[ALAN-14DVPU428_Affected_CPN_12182024.pdf](#)

[ALAN-14DVPU428_Affected_CPN_12182024.csv](#)

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 E705GR as an additional substrate material for selected MPF300T, MPF300TL, MPF300TLS and MPF300TS device families available in 484L BGA (23x23x3.39mm and 23x23x2.87mm) packages.

Pre and Post Summary Changes:

	Pre Change	Post Change	
Assembly Site	Amkor Technology Korea (K4), INC (ATK)	Amkor Technology Korea (K4), INC (ATK)	Amkor Technology Korea (K4), INC (ATK)

Method to Identify Change: Traceability Code

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

Revision History: March 23, 2023: Issued initial notification.

December 18, 2024: Issued final notification. Revised the affected parts list to add MPF300TLS-FCG484I, MPF300T-FCG484EX52, MPF300TL-FCG484E, MPF300TS-FC484M, MPF300T-1FCG484IS0322, MPF300T-FCG484X547, MPF300TS-1FCG484I, MPF300TL-FCG484I, MPF300T-1FCG484IX548, MPF300TS-FCG484I, and removed MPF200T-1FCG484E, MPF200T-1FCG484I, MPF200T-FCG484E, MPF200T-FCG484I, MPF200T-1FCVG484E, MPF200T-1FCVG484I, MPF200T-FCVG484E, and MPF200T-FCVG484I catalog part numbers. Updated notification subject and description of change. Attached the qualification report. The initial PCN was issued under with PCN ID: **ALAN-14DVPU428** via eSign#E000165526. Provided estimated first ship date to be on December 30, 2024.

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

Attachments:

[PCN_ALAN-14DVPU428 Qualification_Report.pdf](#)

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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.

Affected Catalog Part Numbers (CPN)

MPF300T-FCG484X547
MPF300TS-1FCG484I
MPF300TL-FCG484I
MPF300T-FCG484E
MPF300T-1FCG484IX548
MPF300T-FCG484I
MPF300TS-FCG484I
MPF300T-1FCG484E
MPF300TLS-FCG484I
MPF300T-1FCG484I
MPF300T-FCG484EX52
MPF300TL-FCG484E
MPF300TS-FC484M
MPF300T-1FCG484IS0322



QUALIFICATION REPORT SUMMARY

PCN# ALAN-14DVPU428

**Date:
July 23, 2023**

Qualification of E705GR as an additional substrate material for selected MPF300T, MPF300TL, MPF300TLS and MPF300TS device families available in 484L BGA (23x23x3.39mm and 23x23x2.87mm) packages.

Purpose: Qualification of E705GR as an additional substrate material for selected MPF300T, MPF300TL, MPF300TLS and MPF300TS device families available in 484L BGA (23x23x3.39mm and 23x23x2.87mm) packages.

TRB No.: 6461

Qualification Vehicle:	MPF300T-FCG484	Package:	FCG484, 23x23mm, 1.0mm pitch
Wafer lot number:	KL6F6, KH92H, KH92H	Date Code:	2307, 2308, 2309

Foundry Information		Package Information			Package Test Information
Name & location	Process node/code	Name & location	Package name	Bonding diagram and Rev	Name & Location
UMC	28 nm	Amkor K4	FCG484	1-8A-12002 Rev-4	MCHP SJ

Environmental Testing	Test Condition	No. of Qual Lots	# Failures / Sample Size	Test Duration Pull Point	Results
Preconditioning JESD22-A113	30°C /60% RH, 96 hrs., 260°C Reflow (MSL-4)	3	0 / 270	96 hrs	Passed
Temperature Cycle¹ JESD22-A104	-55°C to 125°C Cond. B, 700 cycles	3	0 / 90	700 cycles	Passed
Unbiased HAST¹ JESD22-A118	110°C, 85%RH, 264 hrs	3	0 / 90	264 hrs	Passed
High Temp Storage¹ JESD22-A103	150°C, 1000 hrs	3	0 / 90	1000 hrs	Passed

Assembly Process	Monitoring	Sample Size	Failure/ Tested Qty	Criteria (per assembly spec)	Results
Laser groove/wafer saw	Kerf Width	1 wfr, 5 pts	0/5	Assembly spec	Passed
Chip Attach 1. X-ray 2. Flux imprint 3. Die Peel	Amkor standard	100% 1pc/set up 1pc/set up	0/3 lots 0/set up 0/set up	Assembly spec	Passed
Flip Chip Underfill		5 units/lot	0/15	No voids/white bumps	Passed

BGA Ball Shear (Pb-free)	JESD22-B117	(10 balls/unit, 3 units)	0/30	Min 630gf	Passed
Coplanarity	JESD22-B100	5 units/lot	0/5 per lot	Per POD	Passed



Product Change Notification / ALAN-14DVPU428

Date:

23-Mar-2023

Product Category:

General Purpose FPGAs

PCN Type:

Manufacturing Change

Notification Subject:

eSign E000165526 Initial Notice: Qualification of E705GR as an additional substrate material for selected MPF300T-1FCG484xx, MPF200T-FCG484Exx, MPF200T-1FCVG48xx, and MPF200T-FCVG484xx device families available in 484L BGA (19x19x3.32mm and 23x23x2.87mm) packages.

Affected CPNs:

[ALAN-14DVPU428_Affected_CPN_03232023.pdf](#)

[ALAN-14DVPU428_Affected_CPN_03232023.csv](#)

Notification Text:

PCN Status:Initial 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 E705GR as an additional substrate material for selected MPF300T-1FCG484xx, MPF200T-FCG484Exx, MPF200T-1FCVG48xx, and MPF200T-FCVG484xx device families available in 484L BGA (19x19x3.32mm and 23x23x2.87mm) packages.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	Amkor Technology Korea (K4), INC (ATK)	Amkor Technology Korea (K4), INC (ATK)	Amkor Technology Korea (K4), INC (ATK)
Substrate Core material	E700GR	E700GR	E705GR
Dielectric	ABF-GX13	ABF-GX13	ABF-GX92
Solder mask	AUS703	AUS703	SR-FK

Impacts to Data Sheet:None

Change Impact:None

Reason for Change:To improve manufacturability by qualifying an additional E705GR substrate core material.

Change Implementation Status:In Progress

Estimated Qualification Completion Date:May 2023

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary:

	March 2023					>	May 2023				
Workweek	9	10	11	12	13		18	19	20	21	22
Initial PCN Issue Date				X							
Qual Report Availability											X
Final PCN Issue Date											X

Method to Identify Change:Traceability code

Qualification Plan:Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

Revision History:March 23, 2023: Issued initial 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_ALAN-14DVPU428 Qualification_Plan.pdf](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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Affected Catalog Part Numbers (CPN)

MPF300T-1FCG484E
MPF300T-1FCG484I
MPF300T-FCG484E
MPF300T-FCG484I
MPF200T-1FCG484E
MPF200T-1FCG484I
MPF200T-FCG484E
MPF200T-FCG484I
MPF200T-1FCVG484E
MPF200T-1FCVG484I
MPF200T-FCVG484E
MPF200T-FCVG484I



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QUALIFICATION PLAN SUMMARY

PCN# ALAN-14DVPU428

**Date:
January 18, 2023**

Qualification of E705GR as an additional substrate material for selected MPF300T-1FCG484xx, MPF200T-FCG484Exx, MPF200T-1FCVG48xx, and MPF200T-FCVG484xx device families available in 484L BGA (19x19x3.32mm and 23x23x2.87mm) packages.

Purpose: Qualification of E705GR as an additional substrate material for selected MPF300T-1FCG484xx, MPF200T-FCG484Exx, MPF200T-1FCVG48xx, and MPF200T-FCVG484xx device families available in 484L BGA (19x19x3.32mm and 23x23x2.87mm) packages.

eSign#: E000165526

Test Name	Test Criteria	Test Condition	# of Lots	Sample Size per lot	Test Duration Pull Point	Acceptance Criteria
MSL-4 (Pre-con)	JESD22-A113	30°C/60%RH, 96 hrs., 245°C Reflow	3	225	96 hrs	Pass QA e-test
UnBiased HAST	JESD22-A118	110°C, 85%RH, 264 hrs, Vccmax	3	25	264 hrs	Pass QA e-test
Temperature Cycle	JESD22-A104	-55°C to 125°C Cond. B, 700 cycles	3	25	700 cycles	Pass QA e-test
High Temp Storage	JESD22-A103	150°C, 1000 hrs	3	25	1000 hrs	Pass QA e-test

Assembly Process	Monitoring	Sample Size	Failure/ Tested Qty	Criteria (per assembly spec)	Comments
Laser groove/wafer saw	Kerf Width	1 wfr, 4 pts	0/4	Assembly spec	
Chip Attach 1. Flux thickness 2. Flux imprint 3. Die Peel	Amkor standard	3 readings/lot 1pc/set up 1pc/set up	0/3 lots 0/set up 0/set up	Assembly spec	
Flip Chip Underfill		5 units/lot	0/15	No voids/white bumps	
BGA Ball Shear (Pb-free)	JESD22-B117	5 balls/ package X 10 packages X 3 lots	0/30	Min 630gf	
Coplanarity				Per POD	All units from all lots inspect