

Microsemi Corporation

November 5, 2015

Product/Process Change Notification No: PCN1506

Change Classification: Major

Subject: Transition from Corner Gate Mold (CGM) to Pin Gate Mold (PGM) process for A3PE3000, APA1000, and APA750 devices in FG896/FGG896 packages at Amkor Korea (ATK4)

Description of Change

Devices listed in [Appendix A](#) are currently assembled with the corner gate mold process at ATK4. They will be converted to the PGM process at ATK4.

The package mold cap will change slightly and the lead-free solder ball will use SAC305 instead of SAC405.

Reason for Change

The ATK4 facility will discontinue supporting BGA packaging using the CGM process and will focus on supporting BGA packaging using the center Pin Gate Mold (PGM) process only.

The devices shown in this PCN have relatively long wires, and PGM process has optimum performance in preventing yield loss due to wire sweep. Also, the BGA with PGM mold is singulated using a dicing approach instead of the traditional punch type, which results in a smoother substrate edge finish.

Microsemi SoC intends to continue to use ATK4 for the assembly of these devices using PGM.

Additionally, there are Microsemi SoC devices in FGG896 that utilize the SAC305 lead-free solder balls that are fully qualified and run with the PGM process in production mode. Microsemi SoC intends to standardize the use of SAC305 for BGA devices running the PGM process at ATK4.

Application Impact

The slight increase in the mold compound coverage will not affect the fit and function as defined in the product data sheets. There is no change to the total package thickness and to the X and Y dimensions of the substrates. Refer to [Figure 1](#) for the description of body size.

There is no impact to the thermal and electrical performance of the device.

Method of Identifying Changed Product

The current packages have relatively large metallized area (mold gate) on the pin in one corner.

The packages processed with PGM have a dimple at the center of the package. Refer to [Figure 1](#).



Figure 1 Comparison of FGG896 packaged devices that use the Corner Gate Mold (left and center), and the Pin Gate Mold (right)

Products Affected by this Change

Refer to [Appendix A](#) for affected products.

Production Shipment Schedule

Microsemi SoC may start shipping components with Pin Gate Mold process by **March 31, 2016**.

Products made with the Corner Gate Mold or/and Pin Gate Mold process may be shipped after **March 31, 2016** depending on inventory availability.

Qualification Data

Qualification data derived from a similar device is currently available.

Additional qualification data using a larger die is expected to be available on or **February 28, 2016**.

Contact Information

If you have further questions related to this topic, contact Microsemi's Technical Support at soc_tech@microsemi.com.

Regards,

Microsemi Corporation

Any projected dates in this PCN are based on the most current product information at the time this PCN is being issued, but they may change due to unforeseen circumstances. For the latest schedule and any other information, please contact your local Microsemi Sales Office, the factory contact shown above, or your local distributor.

This Product/Process Change Notification is confidential and proprietary information of Microsemi and is intended only for distribution by Microsemi to its customers, for customers' use only. It must not be copied or provided to any third party without Microsemi's prior written consent.

Appendix A: All ProASIC3E and ProASIC^{PLUS} Devices

A3PE3000-2FG896	M1A3PE3000-FFG896	APA1000-FFG896	APA750-FFG896
A3PE3000-2FG896I	M1A3PE3000-FFGG896	APA1000-FFG896I	APA750-FFG896I
A3PE3000-2FGG896	M1A3PE3000-FGG896	APA1000-FFG896X175	APA750-FFG896X79
A3PE3000-2FGG896ES	M1A3PE3000-FGG896I	APA1000-FFG896X79	APA750-FFGG896
A3PE3000-2FGG896I	M7A3PE3000-1FG896	APA1000-FFGG896	APA750-FG896
A3PE3000-FFGG896	M7A3PE3000-1FG896I	APA1000-FFGG896X175	APA750-FG896A
A3PE3000-FG896	M7A3PE3000-1FGG896	APA1000-FG896	APA750-FG896ES
A3PE3000-FG896ES	M7A3PE3000-1FGG896I	APA1000-FG896A	APA750-FG896ESX80
A3PE3000-FG896I	M7A3PE3000-2FG896	APA1000-FG896ES	APA750-FG896I
A3PE3000-FG896M	M7A3PE3000-2FG896I	APA1000-FG896ESX80	APA750-FG896PP
A3PE3000-FGG896	M7A3PE3000-2FGG896	APA1000-FG896I	APA750-FG896X79
A3PE3000-FGG896ES	M7A3PE3000-2FGG896I	APA1000-FG896M	APA750-FGG896A
A3PE3000-FGG896I	M7A3PE3000-FFG896	APA1000-FG896PP	APA750-FGG896I
A3PE3000-FGG896IX218	M7A3PE3000-FFGG896	APA1000-FG896X79	-
A3PE3000-FGG896M	M7A3PE3000-FG896	APA1000-FG896X80	-
M1A3PE3000-1FG896	M7A3PE3000-FG896I	APA1000-FGG896	-
M1A3PE3000-1FGG896	M7A3PE3000-FGG896	APA1000-FGG896A	-
M1A3PE3000-1FGG896I	M7A3PE3000-FGG896I	APA1000-FGG896I	-
M1A3PE3000-2FG896	A3PE3000-2FG896IDX402	APA1000-FGG896M	-
M1A3PE3000-2FG896I	A3PE3K-2FG896IDX402	-	-
M1A3PE3000-2FGG896	A3PE3000-FG896IX3	-	-
M1A3PE3000-2FGG896I	A3PE3000-2FG896IX28	-	-