



PDN-06092017-DCSG-03

Product Discontinuation Notification

Issue Date: June 9, 2017
Reissued: July 28, 2017

Dear valued customer:

This notification is being re-issued with updated effective date.

Please be advised that due to change in our assembly vendor's bumping flow, we will be discontinuing products listed in this notification. However, we are offering fully compatible replacement for all the device impacted by this notification.

Our assembly vendor will move from Bump Printing process to Lead Free Bump Plating process. Moving to new process (bump plating) will make replacement devices fully Lead Free (Green). This change from printing to full lead free plating has no risk to customers as no change is being made to Die silicon, substrate design and solder ball metallurgy.

Parts Affected:

See the list of impacted devices/products below:

Current Device#	Replacement Device#
PEX8636-AA50RBC F	PEX8636-AA50RBC G
PEX8664-AA50RBC F	PEX8664-AA50RBC G
PEX8680-AA50RBC F	PEX8680-AA50RBC G
PEX8612-BB50RBC F	PEX8612-BB50RBC G
PEX8616-BB50RBC F	PEX8616-BB50RBC G
PEX8624-BB50RBC F	PEX8624-BB50RBC G
PEX8624-BB50RBI F	PEX8624-BB50RBI G
PEX8632-BB50RBC F	PEX8632-BB50RBC G
PEX8648-BB50RBC F	PEX8648-BB50RBC G
PEX8648-BB50RBI F	PEX8648-BB50RBI G
PEX8649-AA50RBC F	PEX8649-AA50RBC G (see note)
PEX8696-AA50RBC F	PEX8696-AA50RBC G (see note)

Note: "PEX8649-AA50RBC G" & "PEX8696-AA50RBC G" devices already exist

Reason for this change:

This change is driven by change in environmental laws in many countries, customers' desire to move to full lead-free compliance and leaded processes going obsolete/underutilized.

Effect of Change on Fit, Form, Function, Quality, or Reliability:

Device fit, form, function and quality of the product will not be affected by this change. The device specification will remain the same, which will ensure product electrical and functional performance remains the same.

Current Data Sheets and other collateral apply to new devices as well. Broadcom will not issue a new Data Sheet but a Data Sheet Addendum with new part#s and ordering information will be issued.

Broadcom has favorable reference reliability data of products using the same process. No adverse reliability and performance is expected.

Effective Dates:

Ordering and Shipments	Revised Dates
Last time order/buy (LTB) with current part #s	January 8, 2018
Current parts (printing process) production stops	April 30, 2018
Last time ship (LTS) for current part #s with printing process	June 30, 2018
New replacement part #s with full lead-free plating process shipment start	June 1, 2018

Sample Availability:

Upon request – Request must be made by **September-15, 2017**.

Product Comparison:

1. The table below provides a material property comparison for all impacted devices:

Process Factor	Printing - Present	Plating - New
Bumping		
PI material	Nil	HD4000E
Solder type	Solder paste (Eutectic)	Plating solution (ULA-LF)
Bump UBM	Ti/NiV/Cu	Ti/Cu/Ni
Bump composition	Sn/Pb	Sn1.8Ag
Assembly		
Underfill	UA03	UA32
Chip attach flux	WF-6070	WF-6400
Substrate		
Substrate PreSolder (Bump)	Pb-Sn	SAC SOP

2. The tables provide substrate material changes for:

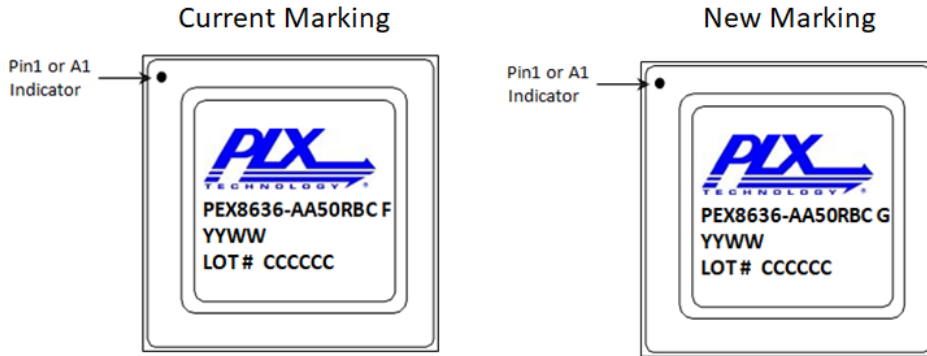
a) PEX8649-AA50RBC F substrate builds up layers changes only. (Appendix 1)

Device	Current Part Number	New Part Number	Reference Qualified Part Number
	PEX8649-AA50RBC F	PEX8649-AA50RBC G	PEX8696-AA50RBC G
Build up layer	GX3	GX13	GX13

b) PEX8636-AA50RBC F/ PEX8664-AA50RBC F/ PEX8680-AA50RBC F substrate builds up layer and core material changes only. The color of the core when view from the substrate side changing from black (E679FGBR) to clear color (E679FGR). (Appendix 1 and 2)

Device	Current Part Number	New Part Number	Reference Qualified Part Number
		PEX8636-AA50RBC F PEX8664-AA50RBC F PEX8680-AA50RBC F	PEX8636-AA50RBC G PEX8664-AA50RBC G PEX8680-AA50RBC G
Build up layer	GX3	GX13	GX13
Core Material	E679FGBR	E679FGR	E679FGR

3. Impacted device marking ending with “F” suffix changing to new part number ending with “G” suffix. An example of PEX8636-AA50RBC F marking changes as below.



An example of ordering info and marking is explained below:

A.1 Product Ordering Information

Contact your local [PLX Sales Representative](#) for ordering information.

Table A-1. Product Ordering Information

Part Numbers	Description
PEX8696-AA50RBC F	PEX 8696 96-Lane, 24-Port PCI Express Gen 2 Multi-Root Switch (5.0 GT/s) Switch, 1,156-ball HFCBGA Enhanced Noise Immunity 35 x 35 mm ² package; RoHS
PEX8696-AA50RBC G	PEX 8696 96-Lane, 24-Port PCI Express Gen 2 Multi-Root Switch (5.0 GT/s) Switch, 1,156-ball HFCBGA Enhanced Noise Immunity 35 x 35 mm ² package; RoHS and Green
where	<ul style="list-style-type: none"> PEX – PCI Express Product Family 8696 – Part Number AA – Silicon Revision 50 – Signaling Rate (5.0 GT/s) R – Enhanced Noise Immunity B – Flip-Chip Ball Grid Array C – Commercial Temperature F – Lead-free 2nd Level Interconnect (2LI) Solder bump First Level Interconnect (FLI) contains lead per RoHS exemption for Flip-Chip G – Lead-free (RoHS 6/6 and Green compliant)
PEX 8696-16U8D BB RDK	PEX 8696 Base Board Rapid Development Kit with x16 Edge Connector
x1 Adapter	PCI Express x16 to x1 Adapter
x4 Adapter	PCI Express x16 to x4 Adapter
x8 Adapter	PCI Express x16 to x8 Adapter

(Appendix 1): Datasheet for GX3 and GX13

Items (Based on supplier's data)		Units	Ajinomoto	
			GX3	GX13
CTE	a1 (25-150 degC)	ppm/deg.C	60	46
	a2 (150-240 degC)		135	120
Tg	TMA	deg.C	153	156
Tg	DMA	deg.C	180	177
Film Properties	Young's Modulus	Gpa	3.5	4
Dielectric Properties	DK (5.8GHz)	GHz	3.4 (@1GHz)	3.1
	Df (5.8GHz)	GHz	0.023 (@1GHz)	0.019

(Appendix 2): Datasheet for E679FGBR and E679FGR

**E679FGR and E679FGBR are identical
except for color**

Grade		E679FGR	E679FGBR
Color		-	Black
Tg [deg'C]	DMA	205-225	205-225
	TMA	163-173	163-173
CTE [ppm/deg'C] * below Tg [a1]	XY	13-16	13-16
	Z	25-35	25-35
CTE [ppm/deg'C] *above Tg [a2]	XY	9-11	9-11
	Z	110-150	110-150
Young's modulus [GPa]		20-26	20-26
Flexural modulus [GPa]		25-31	25-31
Flexural strength [MPa]		450-550	450-550
Tensile strength [MPa]		200-300	200-300
Moisture absorption [wt%]	@ MSL1	0.4-0.6	0.4-0.6
	12um Cu	0.75-0.85	0.75-0.85
Application		BGA	BGA
Nor/LF/HF		Halogen free	Halogen free

E679FGBR



E679FGR



These changes have been reviewed and approved by Broadcom Limited engineers and managers per Broadcom Limited procedure: Change Control and Customer Notification, A-5962-6052-80.

Please contact your Broadcom Limited field sales engineer or Contact Center (<http://www.broadcom.com/contact/>) for any questions or support requirements. Please return any response as soon as possible, but not to exceed 30 days.