June 13, 2016

Subject: **PCN# 07B-16, 90-Day Notification of Intent to Utilize an Alternate Qualified Material Set, Assembler and Test Facility for the MachXO2-1200ZE 25 WLCSP Package Devices**

Dear Lattice Customers,

In accordance with our Product Change Notification (PCN) policy, Lattice is providing this 90-day notification of our intent to utilize an alternate qualified material set, alternate assembly and test facility for the MachXO2-1200ZE 25-ball Wafer Level Chip Scale (WLCSP) package devices.

United Test and Assembly Center, Ltd. (UTAC) has been building the Lattice MachXO2-1200ZE 25 WLSCP devices at their Singapore facility. Very recently, UTAC has informed Lattice that one of their suppliers is discontinuing a key material used to build our 25 WLCSP devices and **UTAC will discontinue building the current material set by October 2016.**

Lattice is moving the assembly fabrication of the MachXO2-1200ZE 25 WLSCP devices to Amkor Technologies, Taiwan (ATT) and testing operation to King Yuan Electronics Company (KYEC).

Amkor Technologies, Taiwan (ATT) is the primary source of Lattice's MachXO3 WLCSP devices. ATT utilizes industry standard raw materials, assembly and test processes.

King Yuan Electronics Company (KYEC) has been a Lattice test partner since September 2013. KYEC uses the same Automated Test Equipment (ATE), test hardware and test program software as is currently used at other Lattice test sites.

All external package dimensions and package footprints remain the same and are published on the Lattice web site (www.latticesemi.com).

AFFECTED DEVICES / PACKAGES

The affected device is listed below. This PCN also affects any custom devices (i.e. factory programmed, special test, non-standard speed grade, etc), which are derived from this device.

LCMXO2-1200ZE-1UWG25ITR

ALTERNATE QUALIFIED MATERIAL SET

The complete material set used is described in Exhibit A.

QUALIFICATION DATA

Reliability testing for the qualification of these ATT-manufactured devices using the new material set has completed. A summary of the qualification data is available here.

DATA SHEET SPECIFICATIONS

This PCN has no impact on any data sheet specifications.

PCN TIMING

Conversion timing for this PCN is 90 days from the date of this Notice. Initial products with this new material set from Amkor Technologies, Taiwan will ship no earlier than August 31, 2016. Should samples be required to complete evaluation of this PCN, such sample requests must be received **no later than July 31, 2016**. Samples will be available on July 31 2016.

Sample order OPN is as follows:
LCMXO2-1200ZE-1UWG25ITR50WLA

CONVERSION TIMING – Summary

- **Sample Request Cut-off Date: July 31, 2016**
- **PCN Expiration Date: August 31, 2016**

UTAC BUILT DEVICES DISCONTINUANCE TIMING

Customers will have 2 months to place their Last Time Buy (LTB) orders for these devices built at UTAC. All LTB orders for these devices will be non-cancellable and non-returnable. Orders placed by August 1, 2016 can be scheduled for shipment through May 31, 2017. Orders received after August 1, 2016 will be accepted on a “best effort” basis only.

DISCONTINUANCE TIMING - SUMMARY

- **Last Time Buy Order Date: August 1, 2016**
- **Last Shipment Date: May 31, 2017**

RESPONSE

In accordance with JESD46-D, this change is deemed accepted by the customer if no acknowledgement is received within 30 days from this Notice. Lattice PCNs are available on the Lattice PCN web page. Please sign up to receive e-mail PCN alerts by registering here. If you already have a Lattice web account and wish to receive PCN alerts, you can do so by logging into your account and making edits to your subscription options.

CONTACT

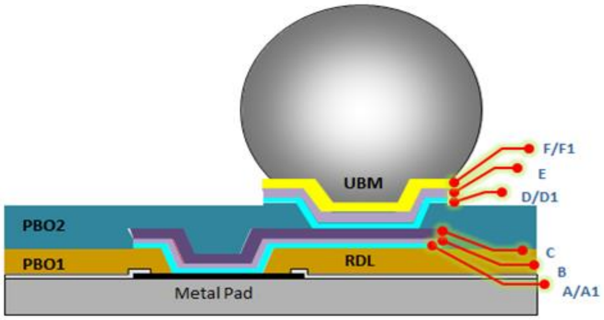
If you have any questions or require additional information, please contact pcn@latticesemi.com.

Sincerely,
Lattice Semiconductor PCN Administration

EXHIBIT “A” – ATT ALTERNATE QUALIFIED MATERIAL SET

STACKUP	**UTAC/PTI**	**ATT**
	MXO2-1200-25WLCSP	MXO2-1200-25WLCSP/ MXO3-4300-81WLCSP
Passivation1		
Material	PBO	PBO
Thickness	7.5	7.5
RDL		
Material	TiW/Cu/Cu	**Ti/Cu/Cu**
Thickness		
TiW (A)	0.1	-
Ti (A1)	-	0.1
Cu Seed (B)	0.2	0.2
Cu E-Plated (C)	4	4
Passivation2		
Material	PBO	PBO
Thickness	7.5	7.5
UBM		
Material	TiW/Cu/Ni/Cu	**TiW/Cu/Cu**
Thickness		
TiW (D)	0.1	0.1
Ti (D1)	-	-
Cu Seed (E)	0.2	0.2
Cu E-Plated (F)	-	8.6
Ni/Cu E-Plated (F1)	2 / 3	-
Solderball		
Composition	SAC105	**SAC405**

Unit in um



Note: The highlighted cells in the “ALTERNATE QUALIFIED” section identify the changes associated with this PCN. Dimension values are TYPICAL.

PCN History

PCN#	Issue Date	Description
06A-16	May 31, 2016	Initial release
06B-16	June 13, 2016	Removal of MachXO2-1200HC device, no history of production shipment.