

PROCESS CHANGE NOTIFICATION

PCN0903

ALTERNATIVE ASSEMBLY SITE FOR THE EPC CONFIGURATION FAMILY

Change Description

Altera is introducing Amkor, Philippines (ATP) and Amkor, Korea (ATK) as additional assembly sources for the EPC configuration devices. The EPC devices are currently assembled out of Taiwan (ASEK). In addition to the assembly sites, Altera has qualified the bill of materials utilized by Amkor. These alternate materials include the mold compound, die attach epoxy, and bond wire diameter.

Recommended Action

No action is recommended as a result of this change. Both the additional assembly sites and the construction material set change have been verified through the successful completion of full qualification. Supporting reliability data are included in this notification.

This change does not affect the form, fit or function of the devices affected by this PCN.

Reason for Change

Altera is implementing this to improve manufacturing efficiency and to enable Altera to better support long-term demand for the affected products. This change also supports Altera's supply-chain risk-mitigation strategy by establishing the capability to produce equivalent product from multiple qualified locations. Amkor is an existing, fully qualified strategic manufacturing partner for Altera products.

Products Affected

The product lines affected by this change are listed in Table 1. A list of ordering part numbers is included in Appendix 1.

Table 1: Affected Product Lines

Product Line	Pin Count	Package Type	Sample Availability
EPC4	Q100	PQFP	Oct 2009
EPC8	Q100	PQFP	Oct 2009
EPC16	U88	UBGA	Oct 2009
	Q100	PQFP	Oct 2009

For device samples please visit <http://www.samplecomponents.com/scripts/SampleCenter.dll?Altera>

Product Traceability

This change is scheduled to occur no earlier than December 2009. The product will transition to the new material as the current inventory is consumed. Customers may receive products with this change beginning with a date-code marking of 0949 or later on the top of the package. See Figure 1. The 0949 date-code marking indicates the earliest date that the new material may be used for any of the affected devices. Figure 2 shows the date-code traceability for country of origin.

Figure 1. Date-Code Marking

Altera Date Code Marking Format

A XβZαα**0949**T

Figure 2. Date-Code traceability for the Country of Origin

Package Type	Altera Datecode Marking Format	2 nd Character of datecode “X”	Country of Origin
UBGA 88	A XYYWWT	E, B	Taiwan
PQFP 100	A XβZααYYWWT		
UBGA 88	A XYYWWT	C	Korea
PQFP 100	A XβZααYYWWT	H	Philippines

Table 2. Summary of Current vs. Alternate Bill of Material

Item	Package Type	Existing Source ASEK (Taiwan)	Additional Source ATK (Korea)
Mold Compound	UBGA 88	Kyocera G1270	Nitto GE100LFCS
Die Attach Epoxy		Ablestik 2025D & QMI 536	Ablestik 2300 & Hitachi FH920
Au Bondwire Diameter		1.0 mils	0.8 mils

Item	Package Type	Existing Source ASEK (Taiwan)	Additional Source ATP (Philippines)
Mold Compound	PQFP 100	Sumitomo G700	Sumitomo G700
Die Attach Epoxy		Ablestik 2288A	Ablestik 3230
Au Bondwire Diameter		1.2 mils	1.0 mils

Qualification Data

Qualification data is summarized in Table 3.

Table 3. Summary of Qualification Data

Product Family	Product Line	Representative Packages	Qualification Test	Readout	Results
Configuration Devices	EPC16	UBGA88	High Temp Bake 150° C	1000hrs	0/45
			PCL 3 + Unbiased HAST (130° C/85%RH)	96hrs	0/45
			PCL 3 + Temp Cycle "B" (-55° C to 125° C)	1000cyc	0/45
			PCL3 + Temp Humidity Bias (85° C/85%RH)	1000hrs	0/45
			Lifetest	1000hrs	0/77
Configuration Devices	EPC16	PQFP100	High Temp Bake 150° C	1000hrs	0/45
			PCL 3 + Autoclave (121° C/100%RH)	96hrs	0/45
			PCL 3 + Temp Cycle "B" @ 245C reflow	1000cyc	0/90
			HAST (130° C/85%RH)	96hrs	0/45

Contact

For more information, please contact Altera Customer Quality Engineering at customer-quality@altera.com.

In accordance with JESD46-C, this change is deemed acceptable to the customer if no acknowledgement is received within 30 days from this notification.

Revision History

Date	Rev	Description
10/07/2009	1.0.0	Initial Release
11/09/2009	1.0.1	Correct Typo's – Table 2. change FH320 to FH920

Appendix 1. Affected Ordering Part Numbers

EPC Configuration Device

EPC16QC100	EPC16QI100	EPC16UC88N	EPC4QC100N	EPC8QC100DM
EPC16QC100DM	EPC16QI100N	EPC16UI88AA	EPC4QI100	EPC8QC100N
EPC16QC100II	EPC16UC88	EPC16UI88N	EPC4QI100N	EPC8QI100
EPC16QC100N	EPC16UC88II	EPC4QC100	EPC8QC100	EPC8QI100N

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