



PROCESS CHANGE NOTIFICATION PCN0517 INTRODUCING KINSUS BT SUBSTRATE FOR BGA 600 AND 652 PACKAGES

Change Description:

Altera is introducing the Kinsus BT-based EBGA substrate as an additional substrate source for Altera's ball grid array (BGA) cavity-down 600 and 652 packages. Kinsus is a fully qualified substrate supplier which is used for Altera® FineLine BGA® packages and has demonstrated the ability to consistently meet Altera's quality, reliability, and supply requirements. Altera has successfully qualified this new substrate design. The qualification data is shown in Appendix 1.

When attached to the heat spreader, this cavity-down BT-based substrate will have slightly increased thickness compared to the current tape-based substrates. Packages assembled with the new Kinsus BT-based EBGA substrate will be 0.4 mm thicker than the current 1.6-mm-thick packages, which is within the current package thickness specification. Also, there will be no change to the moisture-sensitivity rating of this package due to this change.

In accordance with JESD46-B, lack of acknowledgement of this notification within 30 days constitutes acceptance of the change.

Reason for Change:

Altera is adding the BT-based substrates as an additional source to tape-based substrates.

Affected Products:

Following product lines will be affected by this change.

Package	Pin	Product Line
BGA	600	EPF10K100A EPF10K130E EPF10K200E EPF10K200S
	652	EP20K400 EP20K400C EP20K400E EP20K600C EP20K600E

Product Traceability and Transition Dates:

This change will be implemented in June 2006. Beginning with the top-mark date code of 0625, products assembled with the Kinsus BT substrate will begin shipping to customers. See Figure 1.

Figure 1: Product Date Code Marking

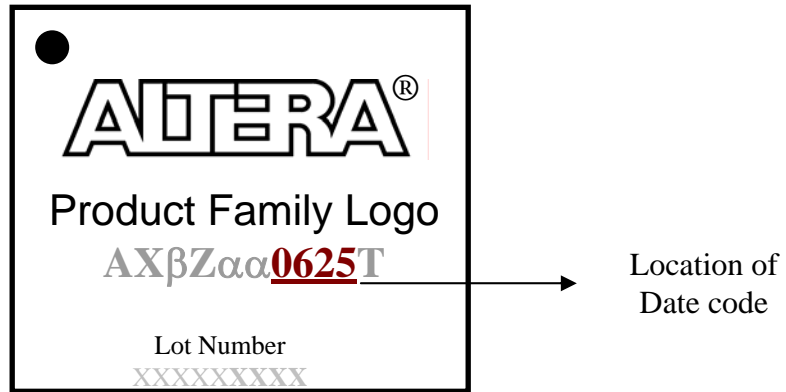
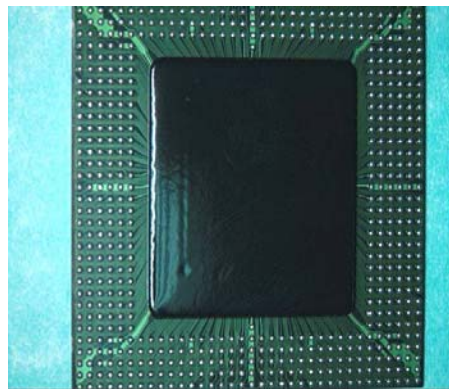


Figure 2 shows comparative images of the Kinsus BT and tape-based substrates.

Figure 2: Kinsus BT and Tape-Based Substrates



Kinsus BT-based substrate



Current tape-based substrate

Contact:

The Kinsus EPGA substrate datasheet is available on the Kinsus website, www.kinsus.com.tw.

For more information on this change, contact your local Altera sales representative or Altera Customer Quality Engineering at customer-quality@altera.com.

Appendix 1 – Qualification Data

Representative Package	Qualification Test	Read Out	Results
BGA652	<u>Unbiased HAST</u> 130° C/85% RH	192 hrs	0/50
	<u>Biased HAST</u> PCL 3 and 130° C/85% RH	192 hrs	0/50
	<u>Temperature Cycle</u> PCL 3 and Temperature Cycle Condition B	1000 cycles	0/50