



## PROCESS CHANGE NOTICE PCN0214

### Copper Lid for Selected Altera® BGA and FineLine BGA® Packages

#### Change Description:

Altera will be transitioning to an industry-standard copper lid, for its flip-chip BGA and flip-chip FineLine BGA package offerings.

#### Reason for Change:

In order to have multiple sources for Altera's BGA and FineLine BGA products, Altera has introduced Amkor in Korea, Amkor in Philippines, and ASE in Taiwan. To facilitate volume ramp-up at these sources and increase design options, Altera will convert to the industry-standard copper lid used at these suppliers for Altera's flip-chip BGA and flip-chip FineLine BGA packages. Although total package weight will increase (see table below), the BGA and FineLine BGA packages will continue to conform to Altera's existing package-outline dimensions and moisture-sensitivity ratings. AlSiC lid packages will phase out as Cu lid transition is completed for each product. All AlSiC lid packages are currently built in Japan.\*

Package Size (mm)	AlSiC (gr)	Cu (gr)
45	9.6	16.1
40	9.3	14.6
35	8.2	12.4
33	7.7	11.5
29	5.8	8.9
27	4.9	7.7

#### Products Affected:

See the attached appendix for a detailed list of products affected and transition start date.

#### Product Traceability and Transition Dates:

The new copper lid can be differentiated visually based on its nickel plate finish compared to the previous AlSiC composite material finish. Transition to the new lid will begin January, 2003. Devices can be distinguished by country of origin in top-side marking as well as box label.

\* EP20K400EFC672 is an exception. Country of Origin, currently: Japan, Taiwan.

**Contact:**

For additional information regarding the changes described in this document, qualification data, and/or daisy chain sample requests, please contact your local Altera sales representative.

## APPENDIX I – Affected Flip-Chip BGA & Flip-Chip FineLine BGA Products

Product	Package	Transition Start date
EP1M120	484-Ball FineLine BGA	Jan 2003
EP1M350	780-Ball FineLine BGA	Jan 2003
EPXA10	1020-Ball FineLine BGA	Feb 2003
EPXA4	1020-Ball FineLine BGA	Feb 2003
EPXA4	672-Ball FineLine BGA	Jan 2003
EP2A15	724-Ball BGA	April 2003
EP2A15	672-Ball FineLine BGA	Jan 2003
EP2A25	724-Ball BGA	Jan 2003
EP2A25	672-Ball FineLine BGA	Jan 2003
EP2A40	724-Ball BGA	Jan 2003
EP2A40	672-Ball FineLine BGA	Jan 2003
EP2A40	1020-Ball FineLine BGA	Jan 2003
EP2A70	1508-Ball FineLine BGA	Feb 2003
EP20K1000E	652-Ball BGA	Jan 2003
EP20K1000E	672-Ball FineLine BGA	Jan 2003
EP20K1000E	1020-Ball FineLine BGA	Jan 2003
EP20K1500E	652-Ball BGA	Feb 2003
EP20K1500E	1020-Ball FineLine BGA	Feb 2003
EP20K600E	672-Ball FineLine BGA	Jan 2003
EP20K600E	1020-Ball FineLine BGA	Jan 2003
EP20K400	672-Ball FineLine BGA	Jan 2003
EP20K400E	672-Ball FineLine BGA	Jan 2003
EP20K400C	672-Ball FineLine BGA	Jan 2003
EP20K1000C	652-Ball BGA	Jan 2003
EP20K1000C	672-Ball FineLine BGA	Jan 2003
EP20K1000C	1020-Ball FineLine BGA	Jan 2003
EP20K600C	672-Ball FineLine BGA	Feb 2003
EP20K600C	652-Ball BGA	Feb 2003
EP20K600C	1020-Ball FineLine BGA	Feb 2003

**Note: The Stratix™ flip-chip BGA and flip chip FineLine BGA devices were introduced using a copper lid.**