Service Solutions

Green Packaging

Green/Pb Free Technology Solution

A combination of governmental legislation and consumer sentiment has driven the electronics industry in general and semiconductor packaging specifically to adopt more environmentally friendly materials and processes. Amkor is a leader in the movement towards Green and Pb-Free packaging. All Amkor surface mount products are offered with fully ROHS/Green/Pb-Free compliant options that meet JEDEC package reliability requirements at 260°C reflow temperature.

The legislation and directives mainly focus on two issues, the elimination of certain elements and compounds, and the recycling of products at "end of life". For semiconductor assembly it is the elimination of these banned materials (shown below) that is the primary concern.

The two key issues are the removal of lead (Pb) from package terminations, and brominated flame-retarding compounds from encapsulants and substrates. Although not specifically banned, Amkor considers removal of antimony necessary for making a package "green".



Partial List of Banned Substances		
Lead	Pb	
Mercury	Hg	
Cadmium	Cd	
Hexavalent Chromium	Cr ⁺⁶	
Poly brominated biphenyls	PBB	
Poly brominated diphenyl ethers	PBDE	

Amkor Response

Material	ROHS	PB-Free
Leadframes		Matte Sn, PPF
Die Attach	Halogen Free	
Mold Compound	Halogen Free	
Liquid Encapsulants	Halogen Free	
Underfill	Halogen Free	
Laminate Substrates	Halogen Free	
Solder Balls		Pb-Free Solder Balls
Solder Bumps		Pb-Free Solder Paste

Visit Amkor Technology online for locations and to view the most current product information.





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