Summit Microelectronics
Lead-Free, Green & RoHS Program

April 19, 2005

Please refer to www.summitmicro.com for more updated information.

1. What do you mean by “Lead-free”?

This refers to product offered without any lead (Pb) intentionally added to the finish of the package leads. The concentration of Pb is below 900ppm in the finish of the package leads of a Summit lead-free product. By comparison, the industry-standard Pb concentration of the solder is 85% Sb and 15% Pb.

2. What about the European Union’s Hazardous Substances (RoHS) Directive?

Summit’s vendors are in 100% compliance with RoHS. For a product to qualify as RoHS-compliant, the following concentration requirements need to be met: lead < 1000ppm, mercury < 1000ppm, cadmium < 100ppm, hexavalent chromium < 1000ppm, PBB < 1000ppm, PBDE <1000ppm.

3. What do you mean by “Green”?

For a product to qualify as “Green” it has to meet the above “RoHS” requirements as well as the following ones: bromine & chlorine < 900ppm, antimony < 900ppm, inorganic phosphorous and tributylene trioxide not intentionally added. Summit offers “green” products that meet all of the above requirements.

4. Specifically what environmental attributes are available with Summit’s products?

“L” This designator is currently used for all existing packages except the CSP ones. “L” indicates a 100% Sn (i.e. no Pb) solder finish on the package leads and “Green” mold compound.

“V” This designator is currently used for Ultra-CSP only. “V” indicates that no Pb is added to the solder finish of the balls and that SnAgCu is added to the solder finish. Solder balls contain: S 96.8%, Ag 2.6%, Cu 0.6%.

5. Is Summit ready to supply these products?

Yes, Summit’s assembly partners are qualified and ready to ship “lead-free”, “green” and “RoHS” products. The following packages offered by Summit are currently available: TQFP, QFN, SOIC, SSOP and Ultra CSP.

6. Where do you place the environmental attribute designator?

The designator is included as applicable at the end of the part-number, after the CSIR number.

Example: SMT4004AFT-123L

Note: No designator is used for products containing Pb on the finish of the leads, such as the industry-standard with 85% tin, 15% lead solder, and/or for products that may contain halogen or antimony flame retardants in the package mold compound.

7. Why is Summit offering Pb-free products now?

The use of Pb in industrial processes is being increasingly restricted in the interest of environmental cleanliness, with Europe and Asia at the forefront of this effort. Summit is therefore offering product options that are consistent with these objectives.

8. What is the impact of offering a Pb-free finish on the package leads?

Packages, assembled as lead-free, have a peak re-flow temperature of 255°C (+5°C/-0°C). This higher melting temperature pushes the performance limit of the systems used in printed circuit board assembly. Furthermore, this peak re-flow temperature level also has an adverse impact on the moisture performance of the packages. All Summit Pb-free products meet a minimum of “moisture sensitivity level three” (MSL-3). This means that Summit Pb-free product must be “baked and bagged,” also called “dry packed” to assure that no moisture is absorbed by the package during shipment or storage of the product, before it is assembled into the end product by the customer. Further qualification testing is currently under-way by Summit’s packaging vendors to confirm a moisture performance better than MSL-3. Ultra CSP in lead free packaging has already been qualified for MSL-1, hence it does not require dry packing.

9. Does Summit add an additional charge for any of these Pb-free or Green product variants?

No.

10. What is the Minimum Order Quantity for these Pb-Free and Green products?

The minimum order requirement is $500 per line item for all packages except CSP and $10,000 per line item for CSP-based products. Please check with our sales centers and/or sales partners for additional requirements on CSP-packaged parts.