



Lead Elimination in Tantalum Capacitors

Vishay Sprague Tantalum Capacitor Division, Lead Elimination Program

A recent draft report on the proposal for the European Parliament and Council directive on the restriction of the use of hazardous substances calls for an effective date of January 1, 2006 for total elimination in the use of lead in electrical and electronic equipment.

Japanese manufacturers have taken a very proactive approach and set their deadlines for banning lead use to the 2001 year-end.

While no specific regulation has been defined for the U.S., several major original equipment manufacturers have already taken the initiative to reduce/eliminate usage of lead in electronic components.

Following the industry trend, Vishay Sprague, a major Tantalum capacitor manufacturer, has made extensive efforts to convert all its major products to a lead (Pb)-free termination finish.

During the year 2000, Vishay Sprague performed technical assessment and qualification of lead (Pb)-free termination materials for currently manufactured and newly developed Tantalum capacitors.

This project has yielded the conclusion that pure tin plating is a viable option to satisfy the industry requirement for lead (Pb)-free termination finish.

All tested products have demonstrated acceptable solderability, solder joint strength, and did not support whisker growth.

In addition, reflow temperatures as high as 260 °C, associated with usage of lead (Pb)-free solder pastes, did not have a detrimental effect on the electrical performance of the tested capacitors.

Consequently, as of the first quarter of 2001, the manufacturing process for Conformal Coated Products (Series 195D, 552D, 572D, 591D, 592D, 594D, 595D, 597D and 695D), has been fully converted to pure tin plated terminations.

A new range of Molded Leadless Chips (Series 292D) has already been developed and introduced to the market in June 2001 with lead (Pb)-free terminations.

Vishay Sprague has introduced Organic Polymer Chips (Series 255D) to the market with lead (Pb)-free terminations in 2002.

Vishay Sprague has recently started the implementation of lead (Pb)-free terminations in Molded chips (Series 293D, 593D) and it intends to accomplish this major material and process conversion in the course of 2005. At the same time, Vishay Sprague will continue to support those customers who require products built to military or any other particular specifications which cannot currently be converted to lead (Pb)-free versions.

Vishay Sprague Tantalum Capacitor Division, Lead Elimination Program appreciates any feedback and is prepared to continue its efforts to measure up to customer expectations and industry standards.