



ADCO CIRCUITS

Electronic Designers & Assemblers

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Meeting the Lead-Free Challenge with ADCO Circuits

With the European Unions RoHS (Restriction on Use of Certain Hazardous Substances) forcing the elimination of lead (Pb) from some electronic equipment, ADCO Circuits has been working on several initiatives to ensure that we are prepared to assist customers with the transition. As with any electronic product, it comes down to design, process specification, and product validation.

ADCO's engineering and purchasing staff is ready to assist in electronically scrubbing current bills of materials to develop lead-free alternates. Once completed, data fields specifically designed to track lead free components in our advanced ERP (Enterprise Resource Planning) system, in conjunction with our automated stockroom, will enable ADCO to certify to lead free content when it comes time to ship the product.

The larger, and more critical tasks, are the development of circuit board material specifications that will work with the new lead-free solder process, and the qualification plan that ensures the new assembly design will meet long-term reliability requirements.

One of the main differences between lead and lead-free solder alloys is their liquidus temperature. Traditional tin/lead solder alloys melt at 183°C and are reflowed at peak temperatures of 210-235°C. The typical lead-free alternative is a tin/silver/copper solder alloy that melts at 217°C and is reflowed at peak temperatures of 235-260° C. This large temperature difference results in a much smaller process window and the assembly experiences much higher temperature excursions that could affect long-term reliability. Standard industry practices need to be reviewed in light of these new process environments.

As an example, recent studies have found that for bare circuit boards, additional factors, other than the glass transition stage (Tg), should be considered for long term reliability. These include Time to Delamination and Decomposition Temperature. ADCO is ready to assist in the review of current industry data and choose the most cost effective laminate that will stand up to these challenging environments and meet customer specific reliability requirements.

To help with the design validation process, ADCO's quality and engineering teams will work with the customer to create a detailed qualification plan that may include Environmental Stress Screening (ESS), Interconnect Stress Test (IST) or other testing that simulate the required reliability.

ADCO Circuits understands the effects of these industry changes and looks forward to working with customers in an open environment to ensure product reliability, reduce risk, and keep costs at a minimum. We have validated our high-temperature soldering processes and can shorten your time to fielding lead-free designs before the July 2006 deadline.

If you have additional questions on lead-free, please do not hesitate to call or email Marc Damman at 248.829.4677 or sales@adcoircuits.com

Sincerely,

Marc Damman

Marc Damman
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