



1140 NW 3<sup>rd</sup> Avenue  
Canby, Oregon 97013  
866-784-5887  
[www.screamingcircuits.com](http://www.screamingcircuits.com)

## ***RoHS and Lead-Free at Screaming Circuits®***

**Warning:** If you are a producer of electrical or electronic products, immediate action is necessary to ensure your products comply with the European Union RoHS directive by the July 1, 2006 deadline. Compliance with RoHS requires coordination and cooperation across your entire organization as well as the full support of your strategic suppliers.

Sure, we've all heard that scare tactic several times before. But seriously, why does it matter?

### **For starters, it's Not Just In Europe**

The move to eliminate hazardous substances from circuit boards and other electronic products is gaining momentum. In addition to the RoHS Directive in Europe, the following countries and various states in the United States are also planning to adopt similar standards.

- China –July 2006
- Japan – End of 2005
- California –January 2007

There are also other states in the United States, such as Arizona, and other countries that are evaluating the regulations.

It's not just lead either. Cadmium, Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBBs), and Polybrominated Diphenyl Ethers (PBDE) are also on the list.

### **Impact on Your Next PCB Assembly**

When lead and other metals are removed from the solder used in assembling the PCB, the solder needs to be heated an additional 30 degrees Celsius to reflow (To approx. 260 degrees Celsius). This additional heat requirement poses new process issues, and causes serious problems with all the materials used, from the PCB materials to each component on the board.

### **Main considerations**

Well, if managing components for a build weren't a pain already, it just got a lot worse:

- Parts can be lead free, but not RoHS complaint. For example, parts can be devoid of lead, but unable to withstand the higher temperatures required for true RoHS processing. Or, the part could be lead free but still contain amounts of one or more of the other banned substances.
- Moisture sensitive parts are now 2 levels more sensitive, on average. For example, your Level 3 IC, is now Level 1. So, when parts had 120 hours before, they've got 48 before going through reflow now.

- BGAs get nasty. Since BGAs are the only part that already contains solder, they are particularly painful as they can only go through leaded or lead-free processing. Better make sure you buy the right part!
  - For example, we are now experiencing component manufacturers changing their BGA products to lead-free and not offering leaded options. So, choosing a leaded or lead-free BGA will determine the decisions you need to make for other parts, the PCBs and assembly too.
- Inspection. The old visual standards no longer apply. The finished appearance of a quality RoHS solder joint has a texture that resembles a leaded cold solder joint. Operators and inspectors need to be trained to recognize the appearance of good and bad quality RoHS solder joints.

So, it's probably clear by now that lead free is going to be a big change for our industry, from start to finish. By working with Screaming Circuits on your next build, you can stay ahead of the pack and deliver quality, lead free (and RoHS compliant!) products to your customers when they need it!

### **Screaming Circuits can help**

Screaming Circuits offers assembly of lead-free (Pb-Free) and RoHS-compliant circuit board assemblies. Our manufacturing and assembly processes meet lead-free and RoHS standards. We use IPC 610D soldering standards.

#### **Lead-Free services include:**

- Lead-Free Rigid or Flexible Circuit
- Board Assembly (SMT or THT/PHT)
- Lead-Free Wave Soldering
- Lead-Free Rework
- Lead Free Printed Circuit Boards
- Lead-Free Materials Analysis

Our Lead-Free service utilizes special assembly procedures to assure compliance with Lead-Free and RoHS standards. In addition to assembly, Screaming Circuits also provides support to help you transition to lead-free and RoHS compliant circuit boards.

We can assist you if you need help in determining if the materials in your Bill-of-Materials meet lead-free manufacturing requirements. We can even research lead-free components for you and send you a Bill-of-Materials with the appropriate components as part of our Turn-Key service.

**Profiling:** To ensure proper oven reflow temperature profiling, we ask for one additional pc board along with an extra set of any temperature critical parts; i.e. BGAs, heat slug parts, etc. These can be actual parts, non-functional actual parts or thermally equivalent dummy parts. Most manufacturers of large and expensive components can supply non-functioning "Mechanical Samples" specifically for this purpose. Additionally, suppliers, such as Top Line, or Practical Components provide thermally equivalent parts specifically for this purpose.

**Place your assembly order at [www.screamingcircuits.com](http://www.screamingcircuits.com) for RoHS compliant prototypes in as little as 24 hours.**