

Talking with Triangle Labs

Dan: Tell to me about Triangle Labs including when the company was started and then a little bit about what you guys do there.

Bob and John-Michael: Our Company was started in 1994 in Silicon Valley. The plan was to set ourselves apart from the mass production houses that were so prevalent at that time. We wanted to specialize in high technology, high difficulty, and high reliability RF/Microwave PCBs.

Dan: So you were ahead of your time then, building RF/Microwave boards before anyone else was building them? In 1994 the world was not exactly wireless, right?

Bob and John-Michael: That's right and the other thing we wanted to do was to build very large boards, circuit boards up to 41 inches wide by 96 inches long. We did this for the top four primary government contractors.

Dan: Wow, interesting. So I get it, you guys are working on some real bleeding edge, not cutting edge, but rather *bleeding edge* technology. What are some examples of that?

Bob and John-Michael: Sure Dan, we are currently seeing a great deal of interest from the scientific community. We work with NASA for example, where they need 1 Mil lines and spaces on Ohmega and Ticer laminates. We can produce these tight dimensions on large 40" X 80" circuits. Obviously maintaining line tolerances of +/- 10% from top to bottom parallelism is very difficult, but we are able to do it using the latest LDI technology. Oh and we should also mention that we are producing 30 Micron lines and spaces as well (.001") and will push the envelope in the future when we reach our goal of 15 Micron lines and spaces (.0005").

Dan: Okay you win, we are not sure we know of anyone else who is doing that, very good. Since you seem to have a good handle on tomorrow's technology today I think you're the perfect people to ask where do you think PCB technology is headed both tomorrow and in the distant future?

Bob and John-Michael: Here is what we are seeing: large panels; say 36" by 36" and up to 25-30 layers for extremely tight tolerances and registration, even in some cases down to 5 Microns. We see solder mask being used as a more integrated component of the circuit design parameters. At Triangle we're recommending the use of our cutting edge LDI technology in conjunction with the new LDI inks that Taiyo has developed to help us achieve those potential 15 Micron lines and spaces that may one day be achieved for frequency dependent RF/Microwave circuits.

Dan: Okay since you brought up Taiyo let me ask you, how long have you been using Taiyo products?

Bob and John-Michael: Right from the very beginning in 1994. We have worked closely all through those years with Taiyo America to develop products that were previously unavailable. They have helped us to push the technology envelope with tighter and tighter tolerances and greater overall board requirements; we consider this a great partnership.

Dan: Tell me why you chose Taiyo in the first place?

Bob and John-Michael: Because they provide us with outstanding technical support. We can honestly say that in 21 years of doing business we have never received a defective batch of solder mask from them. We adamantly specify Taiyo products; in fact we take exception to any customer print that calls out any other solder mask. We do not feel comfortable using any other products. We have the most experience with Taiyo products, so much good experience that we would not be comfortable changing our award winning processing guidelines by using any other product. That is just not going to happen.

Dan: What's next? How can Taiyo help you further? What products would you like to see Taiyo develop next?

Bob and John-Michael: We're glad you asked that question Dan. First of all we would love to see a dual function product that acts as a solder mask but can be used for conformal coating as well. Secondly, we could use an LPI solder mask that can be easily stripped after coating. And finally, a solder mask that can be imaged down to 1 Mil lines and spaces.

Dan: Good enough. That's a tall order but we'll see what we can do.

For more information about Triangle Labs and their astounding capabilities go to www.trilabs.net.