

**The best time to plant a tree
is 20 years ago. The second
best time is now**
(Chinese proverb)

CEO's Note

Dear Readers,

CCD and CMOS are the two technologies when it comes to electronic image capturing. Both technologies have their advantages and disadvantages in a given application. CCDs have a better image quality over the CMOS imagers, which is for example the image uniformity. Thus, CCD imagers are mainly used in high-end applications. On the other hand, CMOS has its strengths in low power consumption, high flexibility, high integration level, and therefore, small system size.

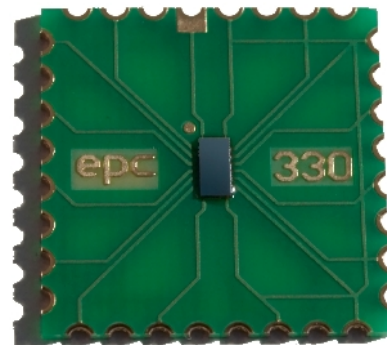
No wonder that all the manufacturers mainly point the strengths and benefits of their technology offered. Only a few companies like ESPROS offer both of them on one chip (refer also to the epc901 article). Our OHC15L technology combines all positive aspects of CCD and CMOS on one piece of Silicon. Many renown companies and institutions make already use of the outstanding advantages. Be it by using our standard products, by a customer designed product, or by designing their own product by themselves based on our OHC15 technology. We are ready to go. Are you as well?

Beat De Coi

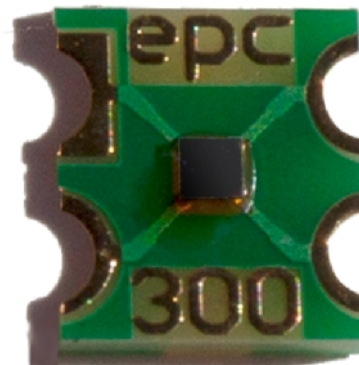
epc3xx Photodiodes in Sample Packages

Our epc3xx photodiode arrays are now available in easy to use sample packages. Our products are usually delivered in bare-die CSP packages. While this package is optimized for machine assembly on SMD lines it is not the optimal choice for testing and lab handling. The CSP dies are fragile and the minuscule solder balls are next to impossible to solder by hand. We have addressed that problem and offer now two photodiode types in a package that can be handled much easier. The photodiodes are assembled on a small piece of standard PCB. The PCB carrier serves as stabilizing carrier, protecting the fragile diodes. Furthermore, the carrier features electrical contacts on the edges that allow for easy soldering of the diode contacts, even by hand. With these sample packages it has become much easier to test our photodiodes in a lab environment or use them in test system setups during product development. The PCB contacts are spaced in a QFN raster and are manufactured as vias. Therefore, SMD assembly is also possible with this packaging type, for example for small series.

The photodiode array sample packages come in two varieties. The smaller epc300-LCC4 features a single epc300 photodiode. This type is recommended when the optical characteristics of the actual diode need to be investigated or when a small single diode is required by a specific test setup. The larger epc330-LCC32 carries a epc330 photodiode array. This product can be operated as one large diode or it can be wired as photodiode array or matrix by contacting the single diodes on the chip individually.



epc330-LCC32 Sample Package (chip size 4x2 mm)



epc300-LCC4 Sample Package (chip size 1x1 mm)

ESPROS Photonics Visiting Three Conferences

The recent months gave us plenty of possibilities to present our technology and our achievements to a large professional audience. We did not miss the the chance to make the best use of these platforms

In December 2011 epc was invited to hold a presentation at the yearly CMOS imager workshop, hosted by the **French Space Agency CNES**. This appearance can be considered epc's "coming out" as it was the very first time that we delivered broad insight into our work to the professional CMOS specialist world. The presentation summarized the key advantages of the ESPROS Photonic CMOS™ technology and also gave a on overview on the current achievements. The feedback from the present professional was extremely positive as epc could demonstrate its technical position to be beyond the current state of the art in CMOS imaging.

The **SPIE** imager conference, held in January 2012 in the San Francisco bay area gave us another good opportunity

to spread the word about our progress in CMOS imaging. We presented a poster and delivered a paper on our proprietary 3D Time of Flight (ToF) technology. Once more we were confirmed that ToF is hot topic in the industrial and scientific imager world. Our epc600 ToF imager chip and the outlook on further developments spurred interest in application fields ranging from automotive to health care , from industrial safety to general robotics, and many more. Alongside our stay close to the silicone valley we also managed to organize individual meetings with interested companies. Names need to be disclose here but we can proudly say that we met with people representing enterprises that rank among the largest in the world.

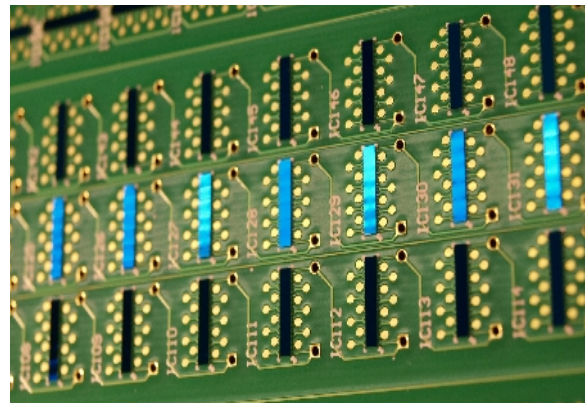
Last but not least we attended the **OPTRO 2012** in Paris in February 2012. The markets addressed with this event are mainly security and defense. Again we raised enough interest to give us confidence that our technology may also find its way in these markets in the future.

NEW: epc901 – CCD line imager

The epc901 IC is a high-performance CCD line sensor capable of storing a total of 4 frames in the frame store elements for ultra high-speed image acquisition. The chip is the result of a customer specific ASIC development project. This product is a prime example of the capability of epc's ESPROS Photonic CMOS™ technology by combining features of CCD and CMOS into one process technology.

The main features of our epc901:

- Photosensitive array with backside illumination
- 1024x1 pixels
- Pixel size 7.5 x 120µm
- Correlated-double sampling (CDS) stage per pixel
- Capability to store a total of 4 acquired images on-chip (in charge domain)
- Single-ended or differential analog video output
- Simple 5-pin control interface for acquisition and read-out of analog data
- 2 on-chip temperature sensors with 12 bit resolution
- Single and multi-byte register read write access; Software reset



epc901 assembled on PCB

The main application areas are linear encoders, triangulation sensor systems, or any fast and precise line CCD application. After all, the epc901 delivers pictures with continuous rate of 50 kFrames per second. In burst mode, the internal frame buffer is capable of acquiring data with a rate of up to 1 Mframes per second (4 images).

+++ interesting job opportunities on www.espros.ch +++