Miniature Color CMOS Video Imager NTSC / PAL / VGA / SVGA Formats
Design Note #45

Miniature CMOS imagers from Orchid Technologies permit new levels of scientific discovery.

"CMOS imaging at high speeds and in low light conditions challenges the best of designers. Orchid really shines when it comes to getting a tough product concept up and running."

- Microlens Products
- Engineering Manager

CMOS Imager in Scientific Applications

Color CMOS Imagers for use in scientific applications take many shapes. Our micro-miniature CMOS imager operates perfectly in tiny, noisy, remote locations. A remote CMOS imager presents power, noise rejection, control signal, and circuit board size design challenges. Add to that high speed shutter capabilities, automatic gain control, and automatic color correction, and we have an entire micro-miniature camera subsystem.

CMOS Imager on Flex Print

Implementation of this ball grid array CMOS imager was performed on foldable flexprint. Working with only two routing layers, multiple signals were routed out through the flexprint system onto our custom interface circuitry. Every aspect of this design required careful consideration, testing, and review. Each selected part had to perform double and triple duty in order to achieve small size and low operating power.

CMOS Imager Bayer Data Format

Remote serial bus programming of this miniature CMOS imager permit precision control of critical imaging functions. Color imaging data in Bayer Format is available at the output. R/G/B Gain Adjustment, Scan Rate, Scan Size, AGC Control, Shutter Control, and Timing Modifications are just a few of the parameters that can be adjusted by system software.

NTSC / PAL / VGA / SVGA Output Formats

Processed Bayer encoded image data can be converted to one of many standard video formats at full frame rate of 30 frames per second. Standard NTSC, PAL, VGA and SVGA outputs are supported. Convolution filters add features such as edge enhance, LUT lookup, false color and motion recognition. Final formatted outputs are available as 75 Ohm composite video, component video (also called S-Video), RGB Video and Digital CCIR656 formats with or without embedded sync.

Orchid Technologies – When Size Matters!

This imager is small. The photo below is almost twice actual size!! The development of custom electronics technology solutions for our OEM clients is Orchid's entire business. High-performance CMOS Imager Circuit design with rapid design cycles, demanding technical requirements, and unforgiving schedules set us apart. Call Orchid Technologies today. We'll put a custom CMOS or CCD Imager design in your hands tomorrow!

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Custom Engineering From Concept to Production