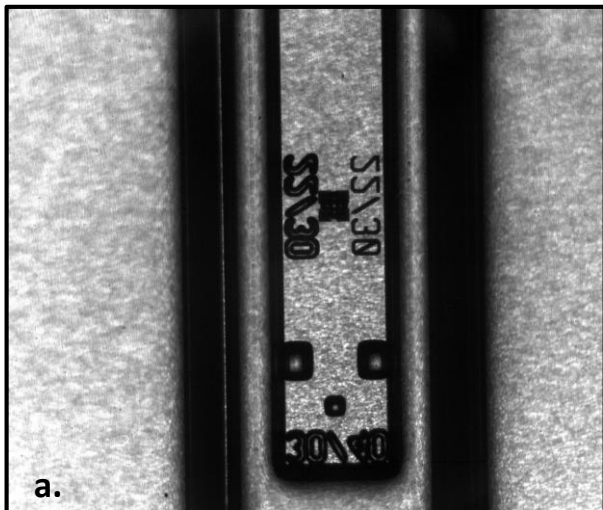




Acuros™ CQD™ SWIR Camera Applications Note

SWIR Application Note - 001

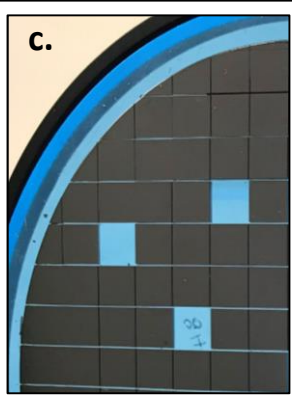
Inspection of Bonded Silicon Wafer Pairs and Alignment Marks



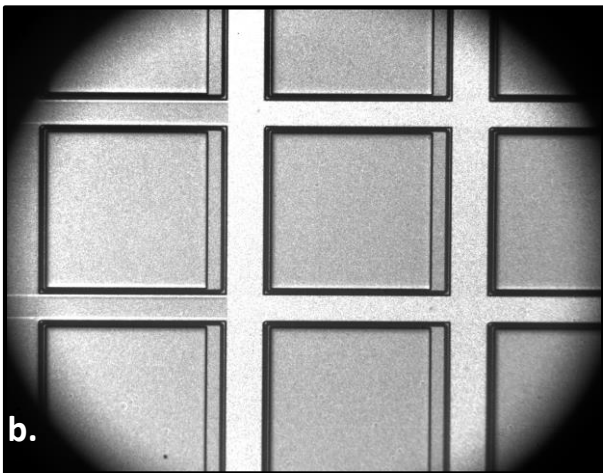
The Acuros CQD 1280 SWIR Camera (at right) includes: 1280 x 1024 FPA, 1.31Mp resolution, 90fps frame rate, 70dB dynamic range, 15micron pixel pitch, 400-1700nm spectral range, GigE Vision or USB3 Vision interface. Acuros CQD quantum dot sensor comes equipped with single-stage thermo-electric cooler.



SWIR images looking directly through bonded silicon wafers showing (a.) alignment marks and (b.) bonded seal rings used in wafer level vacuum packaging. Metal seal rings used for alignment and bonding do not transmit SWIR light and therefore image as black. Backlight with SWIR LED light from Effilux [www.effilux.com], Navitar Resolv4K system, Acuros™ CQD™ 1280 SWIR camera.



Visible camera image (c.) of bonded wafer pair. Note that seal rings and alignment marks are not visible as silicon is opaque in the visible wavelength band.



The Resolv4K lens (at right) made and sold by **Navitar Inc.** www.navitar.com designed for superior visible wavelength axial color correction, and dramatically increased wavelength focusing ability with visible, Vis-NIR and SWIR options. SWIR option goes even further beneath the surface to see damage and defects, in food and silicon wafer inspection among other applications.

