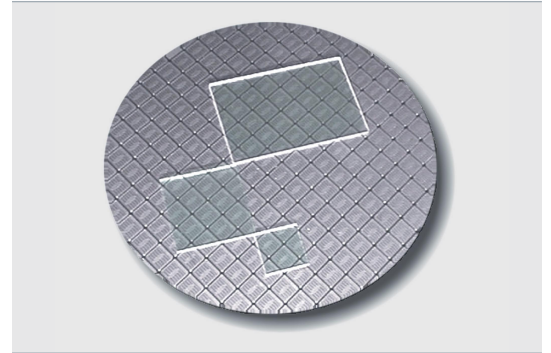


Imaging IRB Filter

Infrared Blocking Filters to Protect Optical Sensors

Ocean Thin Films has developed a new generation of low defect infrared blocking (IRB) filters for CCD/CMOS optical sensors utilized in cellular phones, digital still cameras and video cameras. Integrated into the sensor package the filters are designed to provide the highest blocking of IR-radiation with optimized color balance. OTF color neutral IRB filters replace IR-absorbing glass – increasing overall transmission and reducing assembly size and cost. Filters are available with anti-reflection (AR) coatings for maximum transmission.



Benefits

- Low defect density allows IR filter lid integration
- Cost effective solution for low cost sensors
- Excellent IR-blocking
- Reduced filter thickness for more compact CCD/CMOS devices
- Optimized spectral performance
- Steep cut-on/cut-off slopes
- Replacement of absorbing glass
- Customized designs possible

Applications

IRB filters remove infrared radiation and improve signal-to-noise ratio in CCD/CMOS systems.

Filters can be:

- Integrated to CCD/CMOS sensor package
- Placed in the optical path

Technical Data

Spectral specifications

Three basic spectral designs are available as well as specific customer designs

IRB - 1

Broadband high blocking IR filter

IRB - 2

High performance IR-Blocking filter

IRB - 3

Low cost IR-Blocking filter

AR coatings

Available on second surface of filters

Glass

e.g. low defect borosilicate glass

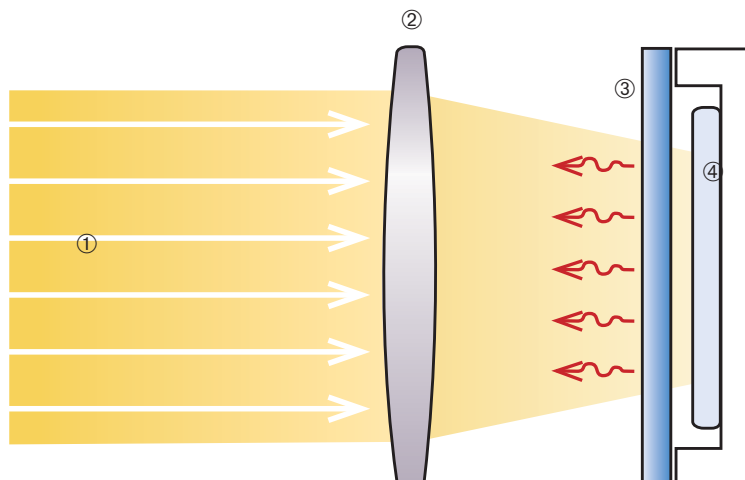
Size

Common CCD/CMOS and custom sizes Thickness: e.g. 0.7 mm

Options

IRB filters can be supplied with metallic aperture defined by lithography as well as with solderable frame

Schematic of filter integration to sensor package

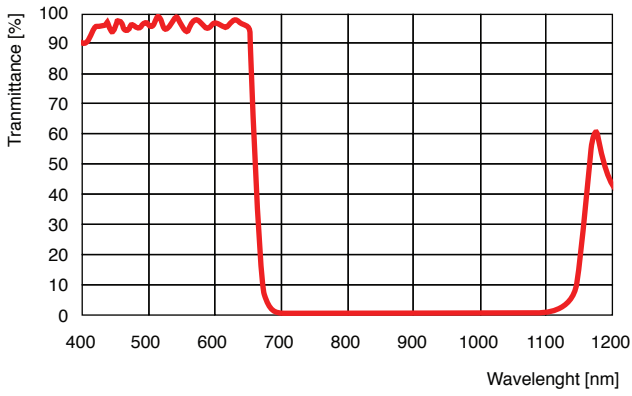


Schematic of filter integration to sensor package

1. Visible + IR light
2. Lens
3. IR-Blocking filter
4. Sensor

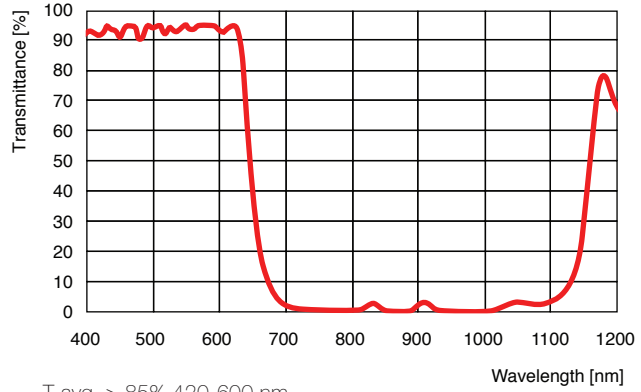
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IRB-1: Broadband high blocking IR Filter



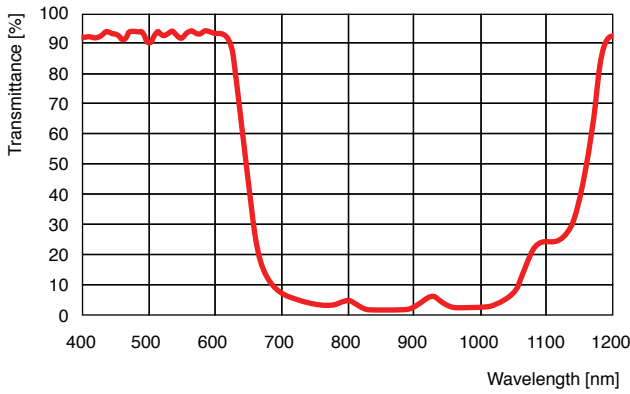
T abs. >65% 400-420 nm
 T avg. >85% 420-640 nm
 T = 50% 660± 10nm
 T abs < 0.5% 720-1100 nm
 T avg. < 0.3% 720-1000 nm

IRB-2: High performance IR-blocking filter



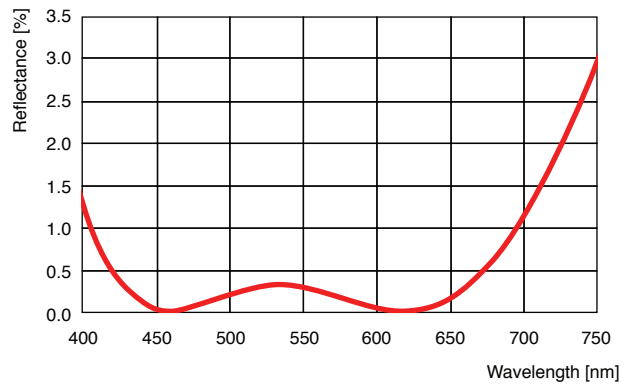
T avg. > 85% 420-600 nm
 T =50% 650± 10 nm
 T abs. < 5% 720-1000 nm
 T avg. < 2% 720-1000 nm
 T abs. < 10% 1000-1100 nm

IRB-3: Low cost IR-blocking filter



T avg. >85% 430-600 nm
 T =50% 650 ± 15nm
 T abs. <10% 720-1000 nm
 T avg. < 5% 720-1000

AR coating (AOI 15°)



R abs. < 2% 400-430 nm
 R avg. < 0.6% 430-630 nm
 R abs. < 2% 630-680 nm

oceanthinfilms.com

E: info@oceanthinfilms.com

8060 Bryan Dairy Road
 Largo, FL 33777
 T: +1.727.545.0741

16080 Table Mountain Parkway
 Suite 100, Golden, CO 80403
 T: +1.303.273.2995