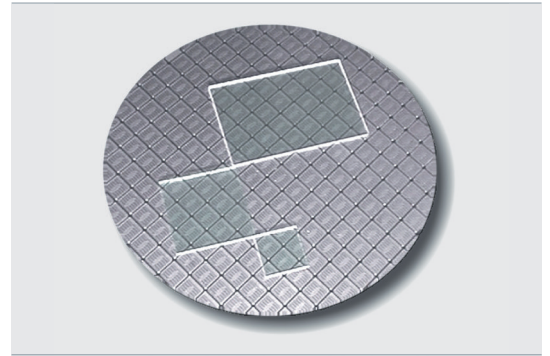


Imaging IRB Filter

Materion Balzers Optics 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 PC-video cameras. Integrated into the sensor package the filters are designed to provide the highest blocking of IR-radiation with optimized color balance. Materion Balzers Optics 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 in 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 IRB-2 and IRB-3 filters

Glass

e.g. low defect borosilicate glass

Size

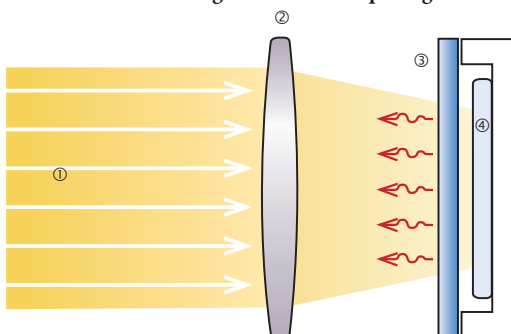
Common CCD/CMOS and custom sizes

Thickness: e.g. 0.7 mm

Options

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

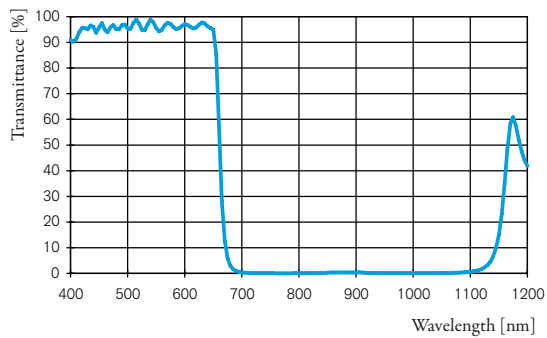
Schematic of filter integration to sensor package



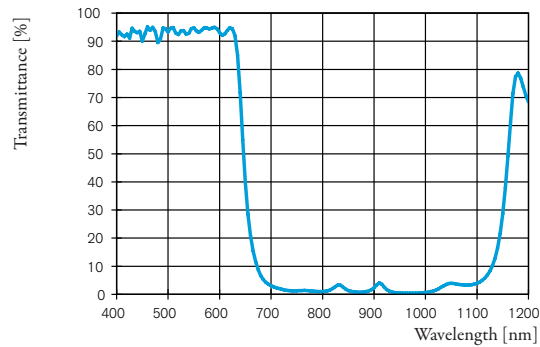
- ① Visible + IR light
- ② Lens
- ③ IR-blocking filter
- ④ Sensor

**MATERION**

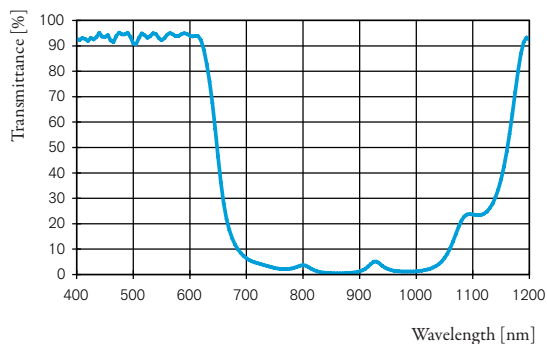
// BALZERS OPTICS

IRB-1: Broadband high blocking IR filter

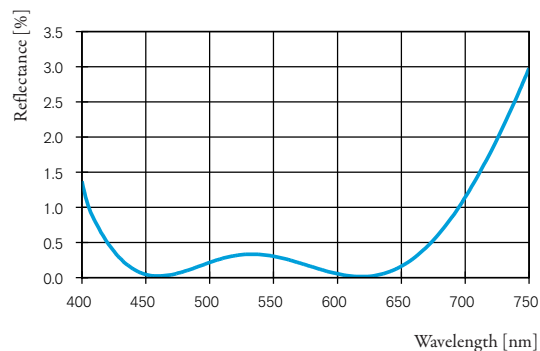
T abs.	> 65%	400 – 420 nm
T avg.	> 85%	420 – 640 nm
T	= 50%	660 ± 10 nm
T abs.	< 0.5%	720 – 1100 nm
T avg.	< 0.3%	720 – 1000 nm

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 ± 15 nm
T abs.	< 10%	720 – 1000 nm
T avg.	< 5%	720 – 1000 nm

AR coating (AOI 15°)

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