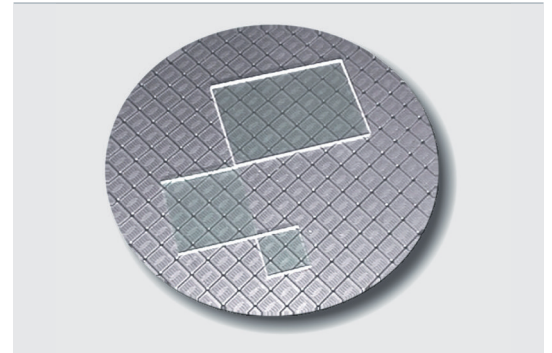


## Imaging IRB Filter

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

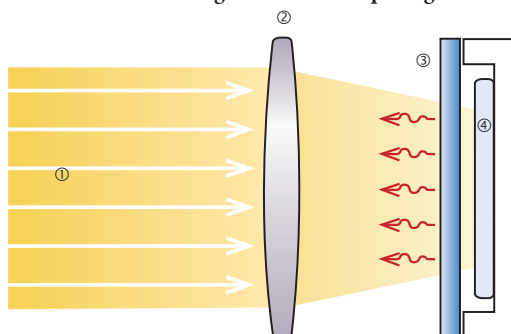
Common CCD/CMOS and custom sizes

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

Optics Balzers AG  
Neugrüt 35  
LI-9496 Balzers

Liechtenstein  
T +423 388 9200  
F +423 388 9390  
info.mbo@materion.com  
www.materionbalzersoptics.com

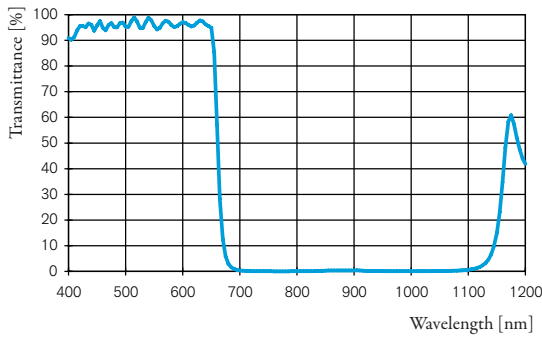
MBO 004 PE (2206-1)

1/2

Subject to technical change without notice

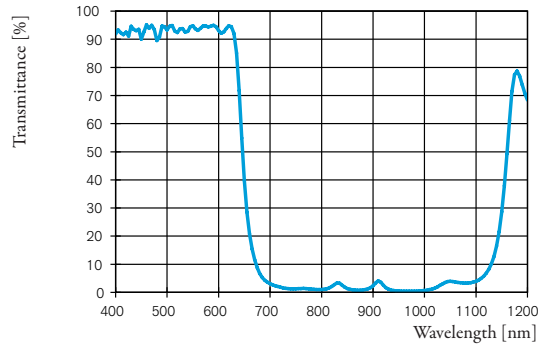


**IRB-1: Broadband high blocking IR filter**



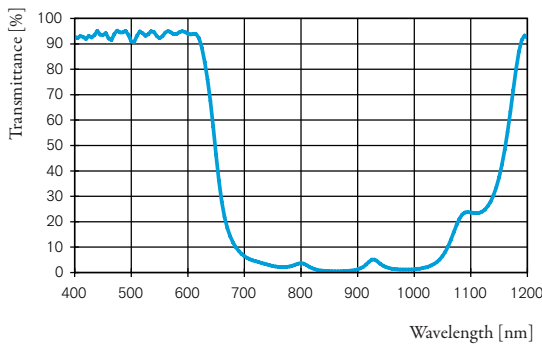
T abs.	> 65%	400– 420 nm
T avg.	> 85%	420– 640 nm
T	= 50%	660± 10 nm
T abs.	< 0.5%	720–1100 nm
T avg.	< 0.3%	720–1000 nm

**IRB-2: High performance IR-blocking filter**



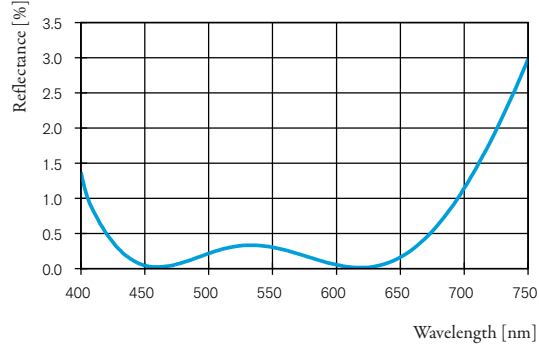
T avg.	> 85%	420– 600 nm
T	= 50%	650± 10 nm
T abs.	< 5%	720–1000 nm
T avg.	< 2%	720–1000 nm
T abs.	< 10%	1000–1100 nm

**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

Optics Balzers AG  
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LI-9496 Balzers

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