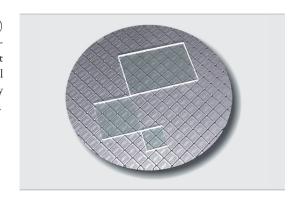


// BALZERS OPTICS

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

IRR-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

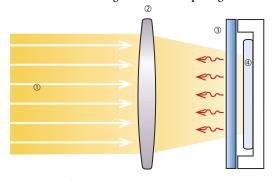
Common CCD/CMOS and custom sizes

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
- Sensor

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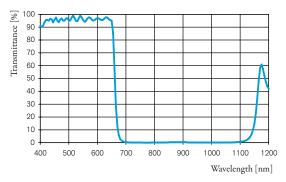
Liechtenstein T +423 388 9200 F +423 388 9390 info.mbo@materion.com www.materionbalzersoptics.com

MBO 004 PE (2206-1)

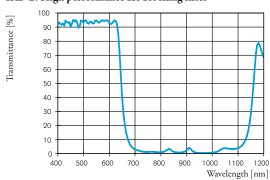


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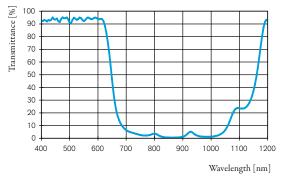
IRB-1: Broadband high blocking IR filter



IRB-2: High performance IR-blocking filter

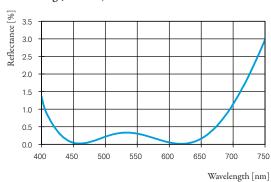


IRB-3: Low cost IR-blocking filter



 $\begin{array}{lll} T \ avg. & >85\% & 430-600 \ nm \\ T & =50\% & 650\pm \ 15 \ nm \\ T \ abs. & <10\% & 720-1000 \ nm \\ T \ avg. & <5\% & 720-1000 \ nm \end{array}$

AR coating (AOI 15°)



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

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