

## Imaging IRB Filter

### The Challenge

Materion Barr Precision Optics & Thin Film Coatings 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 you the highest blocking of IR-radiation with optimized color balance available. Our color neutral IRB filters replace IR-absorbing glass, thus increasing overall transmission and reducing assembly size and cost. Filters are available with anti-reflection (AR) coatings for maximum transmission.

### Benefits

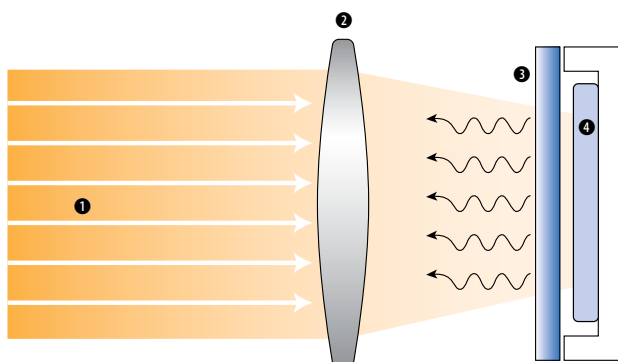
- Low defect density allows IR filter lid integration
- Cost effective solution for low cost sensors
- Excellent IR-blocking
- Reduced filter thickness for more compact CCD/CMOS devices
- Optimized spectral performance
- Steep cut-on/cut-off slopes
- Replacement of absorbing glass
- Customized designs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

### Applications

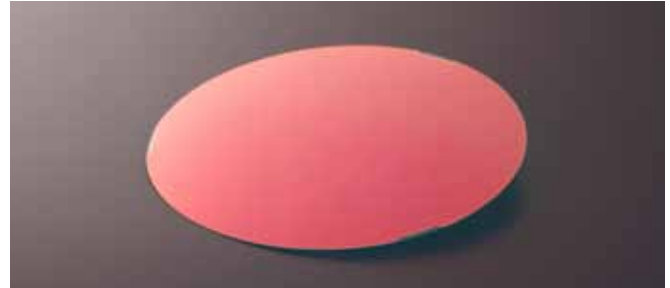
IRB filters remove infrared radiation and improve signal-to-noise ratio in CCD/CMOS systems. Filters can be:

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

### Schematic of filter integration to sensor package



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



### 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

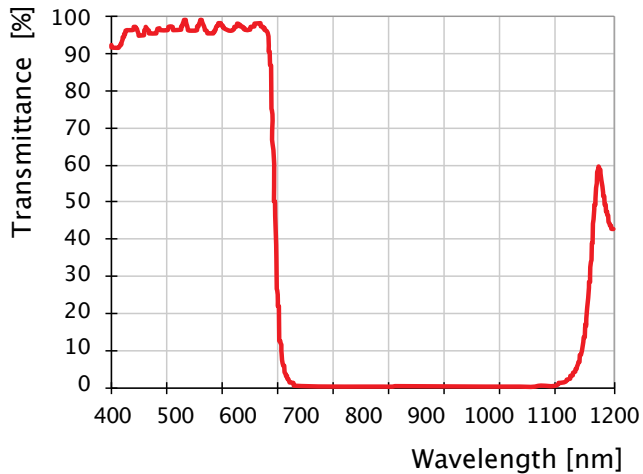
#### Size

- Common CCD/CMOS and custom sizes
- Thickness: 0.7/0.4/0.3mm and customized thickness

#### Options

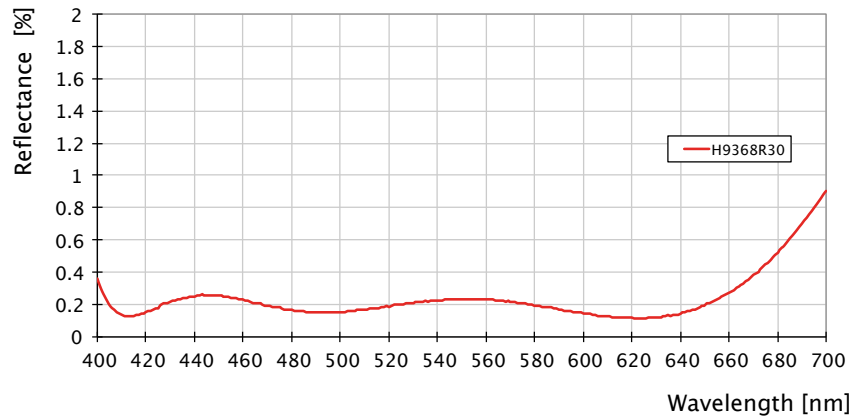
- IRB filters can be supplied with metallic aperture defined by lithography Tested to MIL-C-14806

IRB-I: 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

AR coating (AOI 15°)



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

**Materion** is a global advanced materials company, dedicated to providing solutions that enable our customers' technologies and drive their growth. Our products include precious and non-precious specialty metals, precision optical filters, inorganic chemicals and powders, specialty coatings, specialty-engineered beryllium alloys, beryllium and beryllium composites, and engineered clad and plated metal systems. The Materion business is structured to enhance our ability to provide customers with innovative, best total-cost solutions.

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