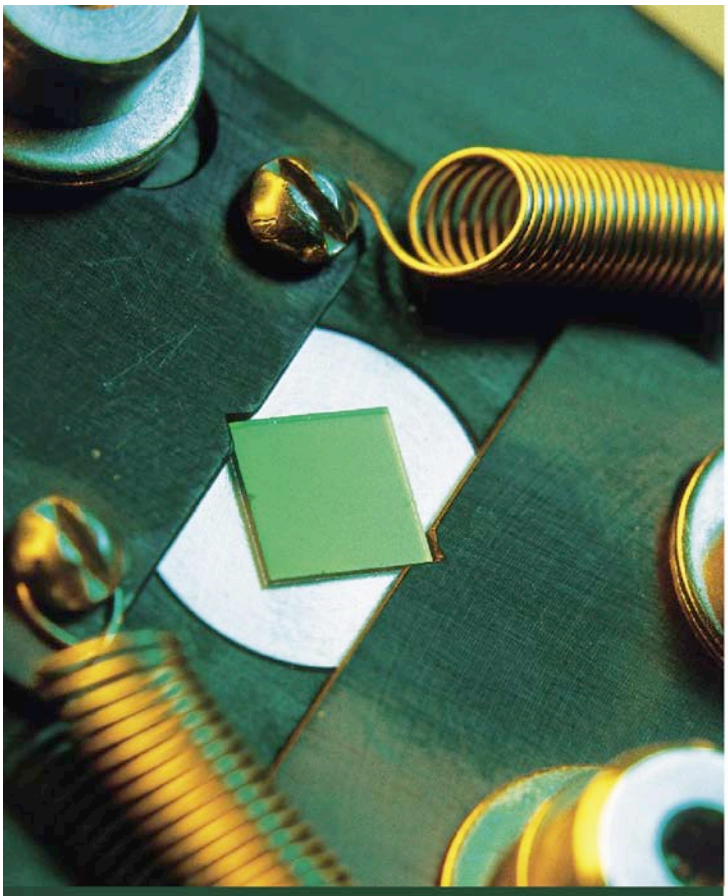


nanoopto

SubWave™ IRCF

Low Edge Shift IR Cut Filter for High Performance, High Volume Digital Imaging Applications

Applications

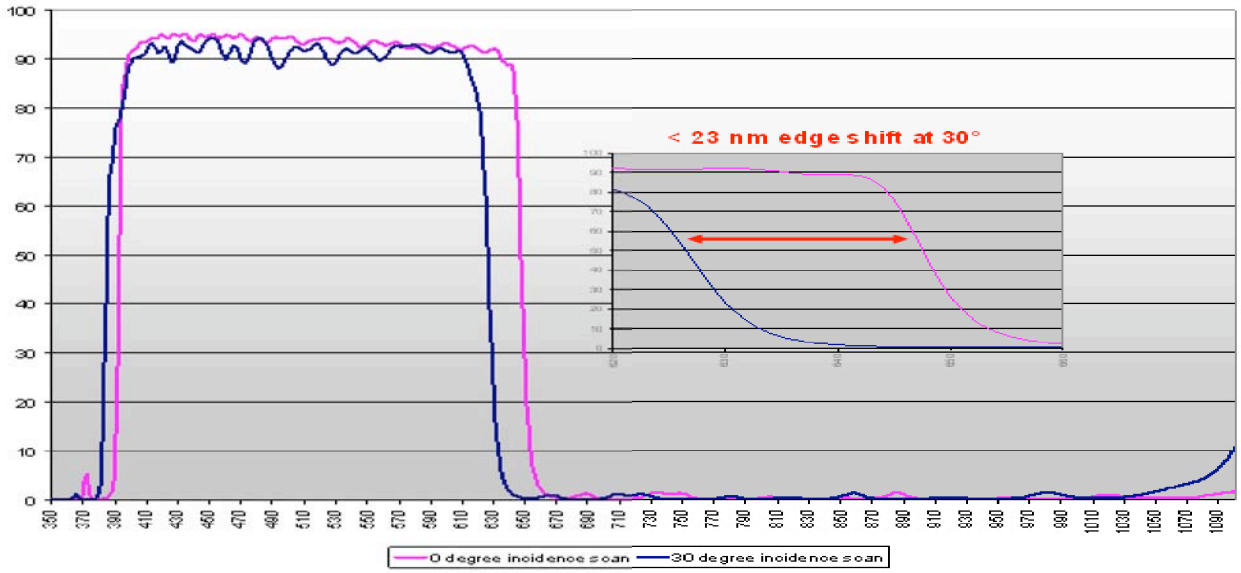
- Consumer electronics
- Security imaging
- Industrial imaging

Benefits

- Reduced camera module thickness
- Improved optical performance
- Readily customized for new applications

By applying nano-optics – subwavelength-featured optical elements – to selectively block unwanted, infrared wavelengths and transmit visible wavelengths, NanoOpto lets you reduce the size and cost of diverse consumer, professional, and industrial imaging systems while retaining or improving their overall performance. NanoOpto's IR Cut Filter (IRCF) equals competitively-priced, conventional IRCFs in transmission and rejection performance, while reducing edge shift to increase the crispness and color saturation of images. Reduced edge shift additionally lets you package our IRF closer to the image plane of your CCD or CMOS imaging device, making your imaging package shorter from front to back.

Conventional IRCFs generally employ thin film designs which, due to manufacturing difficulties, cannot consistently achieve our IRCF's level of edge-shift performance. We are now working to further extend this performance advantage and to deliver further reductions in overall imaging system size. NanoOpto already has the capability to integrate devices such as our IRF with other optical devices, both our own nano-optics, and conventional optics. Moreover, we fabricate our devices using a methodology derived from volume manufacturing which plans for continual cost reductions as volumes rise. For all these reasons, our IRCF offers you advantages now that only promise to compound through time and further development.



The edge shift of the SubWave IRCF is less than 23 nm for an angle of incidence of 30°.

Parameter	Specification	Comments
Optical performance		
Pass wavelength range	420 nm to 625 nm	Other wavelength ranges are available by special order
Transmission in pass range	> 90%	Nominally > 95% for normal incidence
Cut-off wavelength range	675 nm to 1000 nm	
Transmission in cut-off range	< 3%	
Cut-off wavelength	650 nm ± 10 nm	At normal incidence
Edge shift	< 23 nm	At 30° incidence
Physical specifications		
Size - x, y dimensions	From 1 mm to 25 mm	
Thickness - device	0.2 mm to 1.2 mm	Substrate thickness per customer requirement
Field of view	0° ± 35°	
Substrate	BK7 or equivalent	Substrates can be selected to be application specific
Environmental specifications		
Operating temperature	-40° to 80° C	
Standards	---	Environmental robustness exceeds general consumer electronics requirements

For additional information, contact us at: Sales@NanoOpto.com or (□) +1 732 627 0808

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