

LENS OB-SWIR25/2 – P/N C0838

General Description

This family of high resolution SWIR lenses image from 0.9 – 2.3 μm making them especially well-suited for PCB inspection, special laser applications, surveillance and alignment and tracking. A high F/N and excellent transmission characteristics allow superior imaging in these wavelengths of interest.



Optical and mechanical parameters

| | |
|-------------------------|-----------------------------|
| Focal length | 25 mm |
| Image format (diagonal) | 20.5 mm |
| F.O.V. (diagonal) | 44.6 degrees |
| Max aperture | F/N = 2 |
| Object format | N.A. |
| Min working distance | 1000 mm |
| Zoom value | N.A. |
| Focus | Manual |
| Iris | Max F/N = 2 Min F/N = 22 |

| N. of elements | 10 |
|------------------|----------------|
| Dimensions | Dia 80 x 95 mm |
| Weight | 0.7 Kg |
| Options | |
| Motorized focus | Upon request |
| Motorized iris | Upon request |
| Motorized zoom | N.A. |
| Other mount type | Upon request |
| Customization | Upon request |

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| P/N | wavelength range | mount type | note |
|-----------|------------------|------------|---------------------|
| C0838.001 | 900-1700 nm | Canon FD | With iris diaphragm |
| C0838.002 | | Nikon | |
| C0838.003 | | M42 Screw | |
| C0838.005 | 1700-2300 nm | Canon FD | |
| C0838.006 | | Nikon | |
| C0838.007 | | M42 Screw | |
| C0838.010 | 900-2300 nm | Canon FD | |
| C0838.011 | | Nikon | |
| C0838.012 | | M42 Screw | |

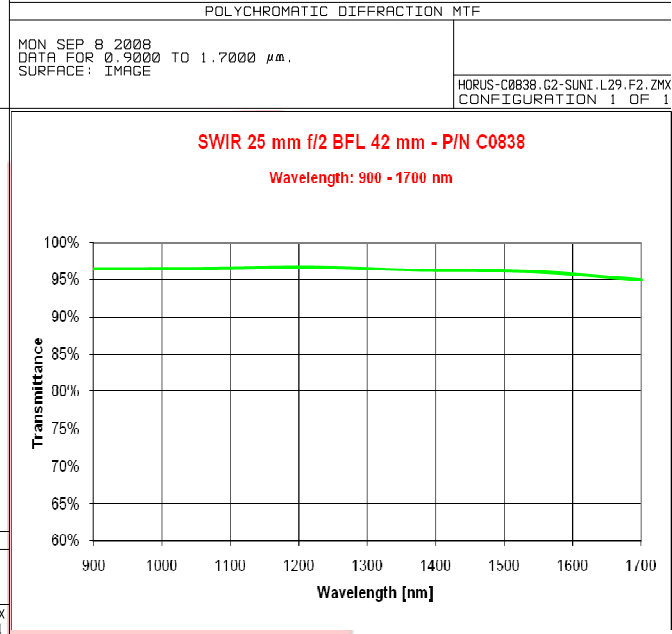
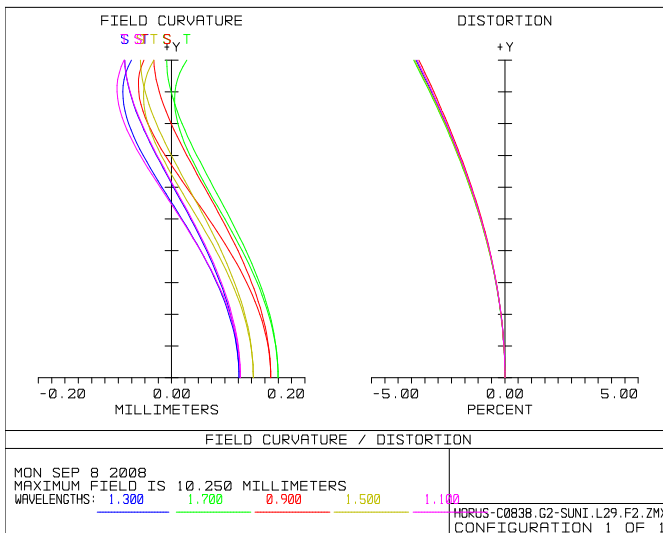
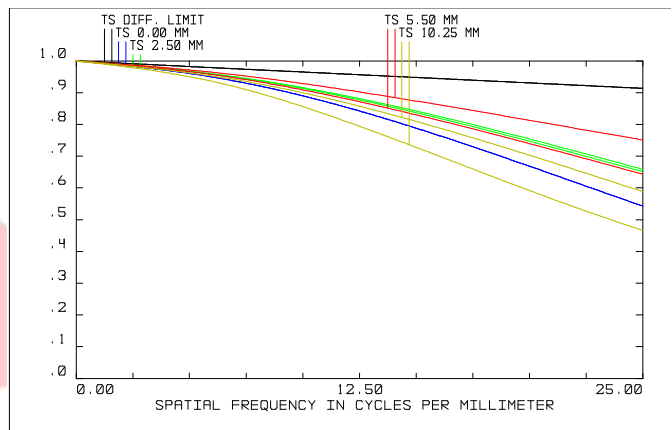
Specification are subject to change without notice

| P/N | wavelength range | mount type | note |
|------------|-------------------------|-------------------|-------------------------------|
| C0838.071 | 900-1700 nm | Canon FD | With motorized iris |
| C0838.072 | | Nikon | |
| C0838.073 | | M42 Screw | |
| C0838.081 | 1700-2300 nm | Canon FD | |
| C0838.082 | | Nikon | |
| C0838.083 | | M42 Screw | |
| C0838.091 | 900-2300 nm | Canon FD | |
| C0838.092 | | Nikon | |
| C0838.093 | | M42 Screw | |
| C0838.074 | 900-1700 nm | Canon FD | With motorized focus |
| C0838.075 | | Nikon | |
| C0838.076 | | M42 Screw | |
| C0838.084 | 1700-2300 nm | Canon FD | |
| C0838.085 | | Nikon | |
| C0838.086 | | M42 Screw | |
| C0838.094 | 900-2300 nm | Canon FD | |
| C0838.095 | | Nikon | |
| C0838.096 | | M42 Screw | |
| C0838.077 | 900-1700 nm | Canon FD | With motorized iris and focus |
| C0838.078 | | Nikon | |
| C0838.079 | | M42 Screw | |
| C0838.087 | 1700-2300 nm | Canon FD | |
| C0838.088 | | Nikon | |
| C0838.089 | | M42 Screw | |
| C0838.097 | 900-2300 nm | Canon FD | |
| C0838.098 | | Nikon | |
| C0838.099 | | M42 Screw | |

More details are available upon request and technical drawings are open for the customers and their needs.

MTF, Field Curvature, Distortion and Transmission from 900 to 1700 nm

The calculated MTF values are displayed below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



Optical parameters for wavelength range 0.9 – 1.7 μm

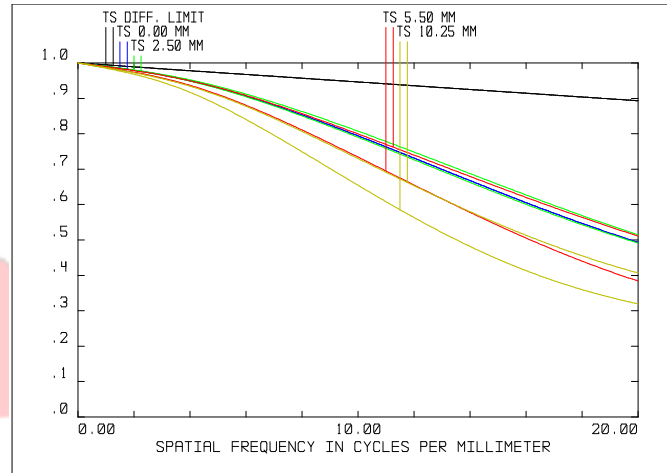
| | |
|------------------------------------|-------------------|
| Resolution | MTF > 45%@25lp/mm |
| Distortion | < 3.5% |
| Average axial chromatic aberration | <0.0278 mm |

| | |
|------------------------------------|--------|
| Glass Transmission without coating | > 95% |
| Antireflection Coating | R ≤ 1% |
| Vignetting | 0% |

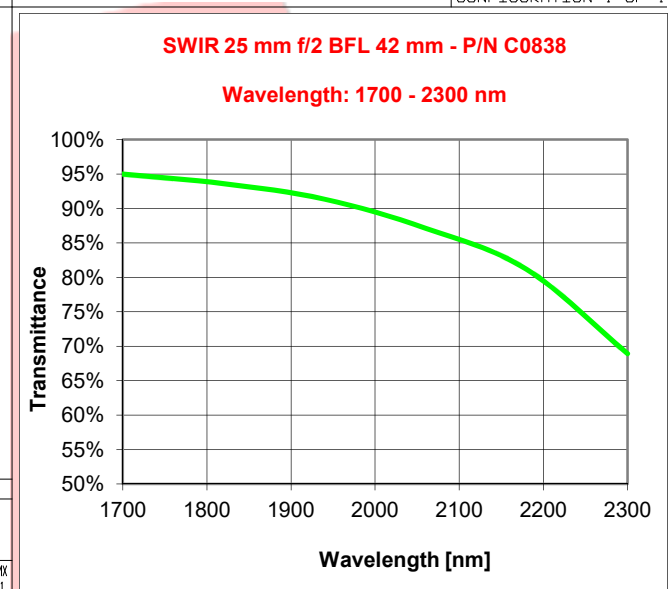
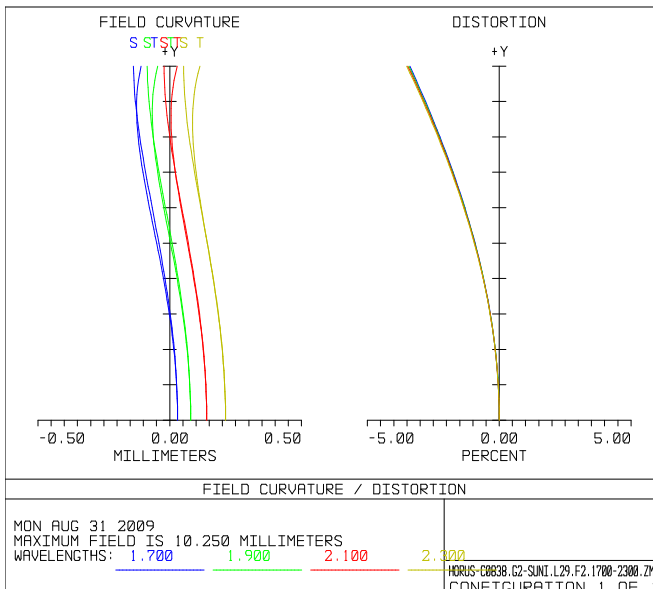
Specification are subject to change without notice

MTF, Field Curvature, Distortion and Transmission from 1700 to 2300 nm

The calculated MTF values are displayed Below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



POLYCHROMATIC DIFFRACTION MTF
 MON AUG 31 2009
 DATA FOR 1.7000 TO 2.3000 μm.
 SURFACE: IMAGE
 HORUS-C0838.G2-SUNI.L29.F2.1700-2300.ZMX
 CONFIGURATION 1 OF 1



Optical parameters for wavelength range 1.7 – 2.3 μm

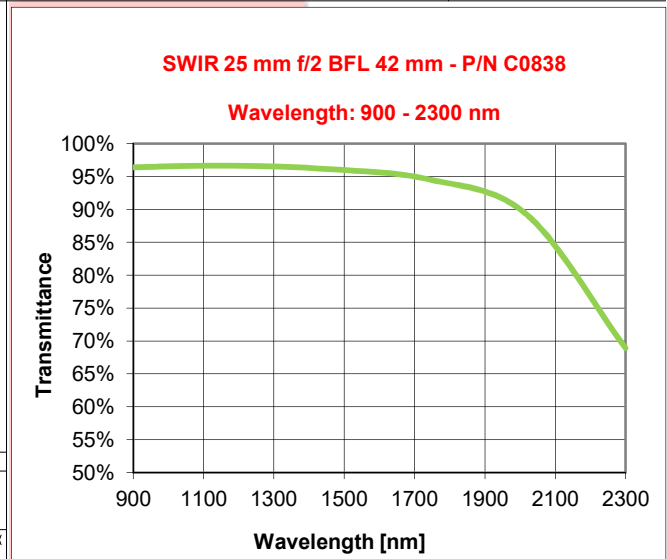
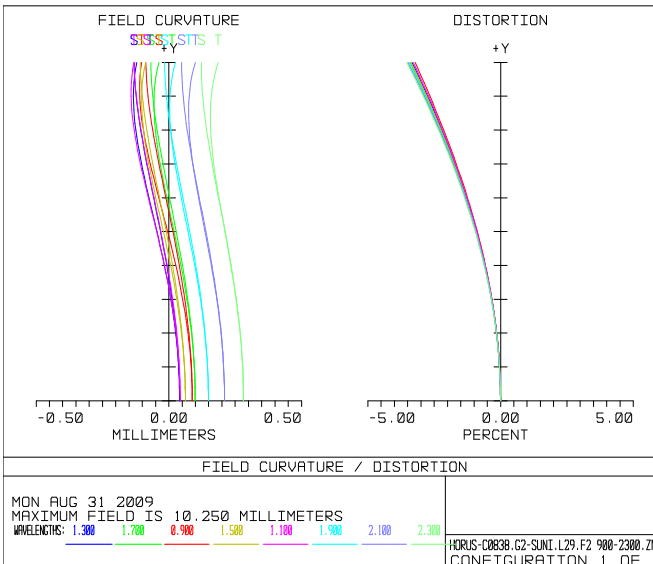
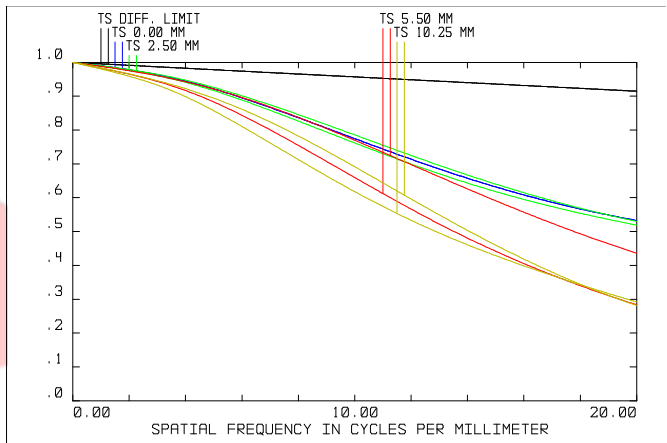
| | |
|------------|---------------------|
| Resolution | MTF > 35% @ 20lp/mm |
| Distortion | < 2.5% |

| | |
|------------------------------------|--------|
| Glass Transmission without coating | > 68% |
| Antireflection Coating | R ≤ 1% |

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MTF, Field Curvature, Distortion and Transmission from 900 to 2300 nm

The calculated MTF values are displayed Below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



Optical parameters for wavelength range 0.9 – 2.3 μm

| | |
|------------|-------------------|
| Resolution | MTF > 30%@20lp/mm |
| Distortion | < 3.5% |

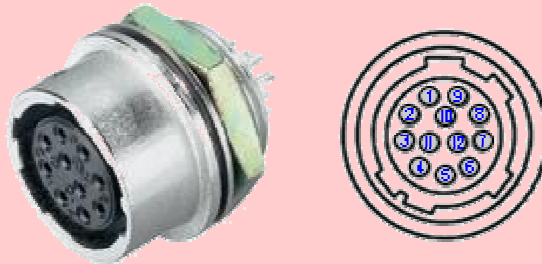
| | |
|------------------------------------|--------|
| Glass Transmission without coating | > 68% |
| Antireflection Coating | R ≤ 1% |

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Electrical data & Interfaces

| IRIS FUNCTION | |
|--------------------------|----------------------------------|
| Motor model | Faulhaber 1516T009SR |
| Motor nominal voltage | 9 VDC |
| Motor maximum power | 0.54 W |
| Current limit | 0.19 A |
| Feedback | 10 kOhm multi-turn potentiometer |
| Potentiometer model | Spectrol 533-10K ±5% |
| Gearhead reduction ratio | 592:1 |

| FOCUS FUNCTION | |
|--------------------------|----------------------------------|
| Motor model | Faulhaber 1516T009SR |
| Motor nominal voltage | 9 VDC |
| Motor maximum power | 0.54 W |
| Current limit | 0.19 A |
| Feedback | 10 kOhm multi-turn potentiometer |
| Potentiometer model | Spectrol 533-10K ±5% |
| Gearhead reduction ratio | 592:1 |

Hirose HR10A-10P-12P connector Pin list

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| PIN | MOTORIZED IRIS | MOTORIZED FOCUS | MOTORIZED IRIS & FOCUS |
|-----|----------------------------|----------------------------|----------------------------|
| 1 | Vcc | Vcc | Vcc |
| 2 | Gnd | Gnd | Gnd |
| 3 | NA | Analog Focus position | Analog Focus position |
| 4 | Analog Iris position | NA | Analog Iris position |
| 5 | Identification resistor #1 | Identification resistor #1 | Identification resistor #1 |
| 6 | Identification resistor #2 | Identification resistor #2 | Identification resistor #2 |
| 7 | NA | Focus Motor + | Focus Motor + |
| 8 | NA | Focus Motor – | Focus Motor – |
| 9 | Iris Motor + | NA | Iris Motor + |
| 10 | Iris Motor – | NA | Iris Motor – |

Every shipped motorized lens will be provided with potentiometers values of end positions for both focus and iris motor

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