

**TECHSPEC® 4mm UC Series Fixed Focal Length Lens**

#33-300



4mm FL, #33-300

Our ultra-compact, TECHSPEC® UC Series Fixed Focal Length Lenses are designed to optimize performance, cost, and size without sacrificing quality or feel. Designed for pixels that are  $\leq 2.2\mu\text{m}$ , these lenses provide high levels of resolution ( $>200$  lp/mm) across the sensor and are compatible with all standard C-Mount cameras. TECHSPEC® UC Series Fixed Focal Length Lenses feature focus and iris adjustments, as well as recessed set screws, and are manufactured for use at typical machine vision working distances. While they are optimized for 1/2.5" sensors, many focal lengths will work on sensors up to 1/1.8". The TECHSPEC® UC Series Fixed Focal Length Lenses are an outstanding option for use on all smaller format camera sensors, along with both short and long working distance applications, making them ideal for inspection, [factory automation](#), biomedical devices, and a broad range of other applications.

**Note:** For fixed aperture instrumentation versions, see our [TECHSPEC® UCi Series Fixed Focal Length Lenses](#).

Outer Diameter (mm):	40.00
Front Thread:	M40 x 0.5 (Male)
Mounting Diameter (mm):	30.0
Optimized Sensor Format:	1/2.5"
Type:	Fixed Focal Length Lens
Coating:	$\lambda/4$ MgF <sub>2</sub>

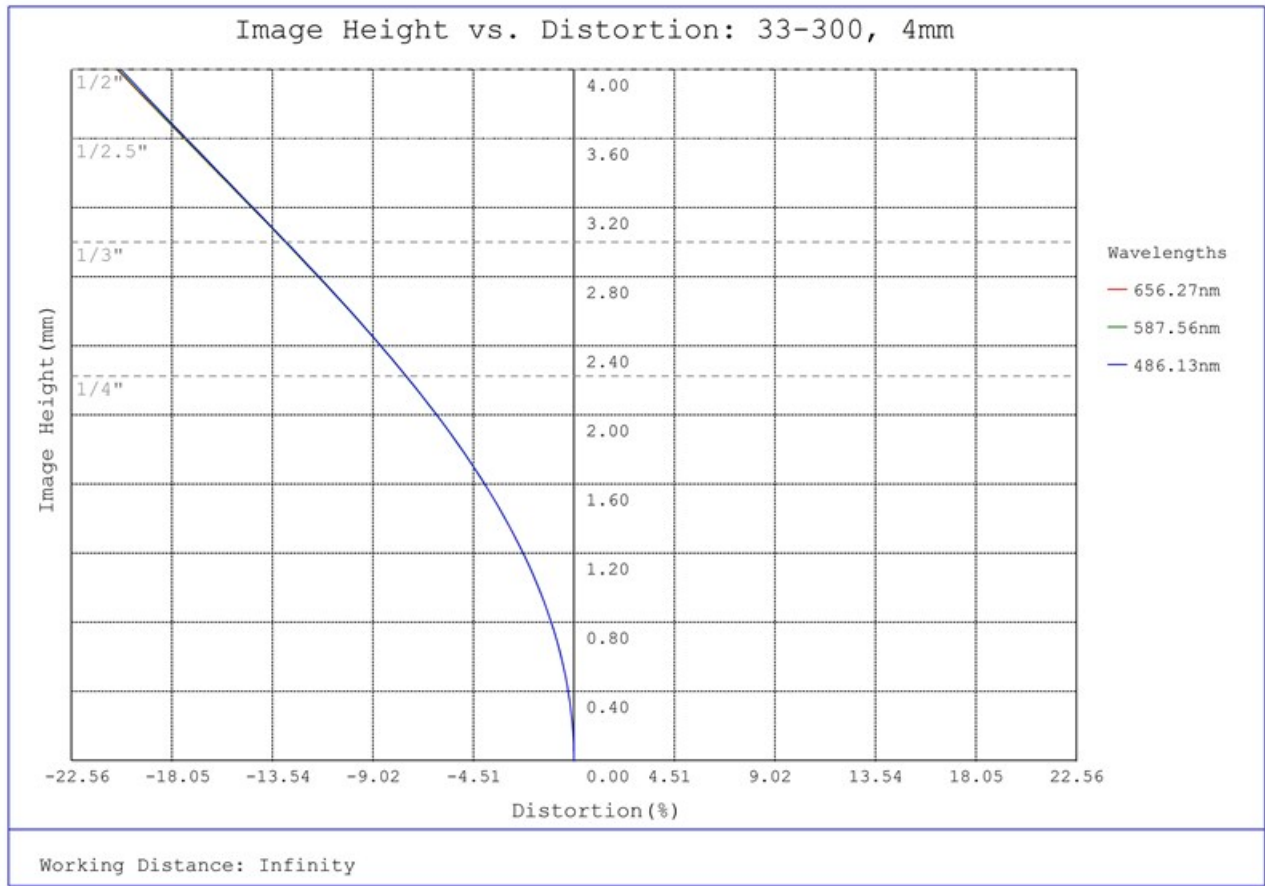
Maximum Length (mm):	40.6
Imaging Lens Type:	High Performance Lens with Compact Form Factor
Storage Temperature (°C):	-20 to +60 For questions regarding operating temperature please contact our support team

## Optical

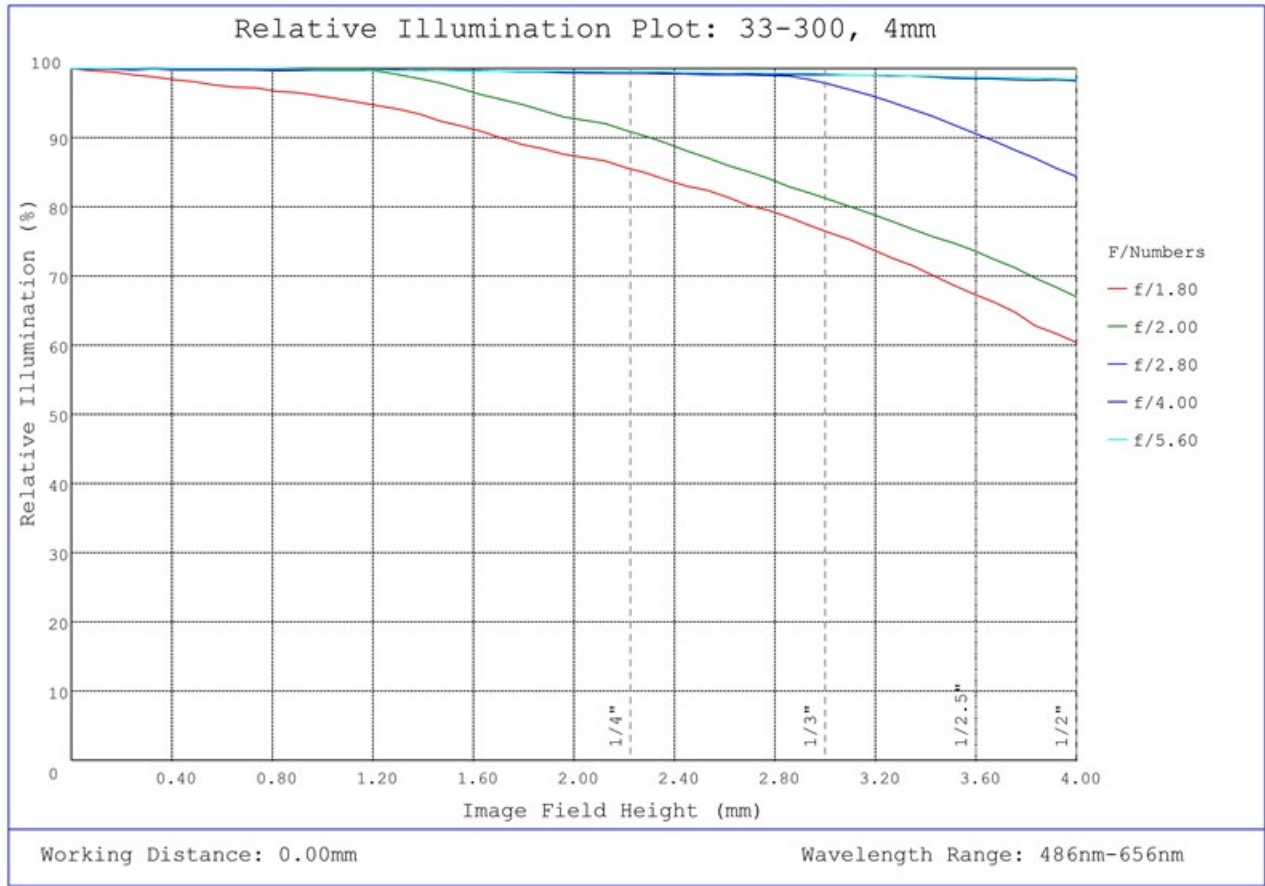
Horizontal Field of View, 1/2" Sensor:	23.0mm - 84.8°
Horizontal Field of View, 1/3" Sensor:	15.6mm - 65.4°
Maximum Image Circle (mm):	8.00
Numerical Aperture NA, Object Side:	0.0894
Horizontal Field of View @ Max Sensor Format:	23.0mm - 84.8°
Horizontal Field of View, 1/2.5" Sensor:	20.0mm - 77.8°
Focal Length FL (mm):	4.00
Primary Magnification PMAG:	0.343
Maximum Sensor Format:	1/2"
Working Distance (mm):	0 - ∞
Aperture (f/#):	f/1.8 - f/11
Distortion (%):	<17.5% (on 1/2.5" Sensor)
Coating Specification:	λ/4 MgF <sub>2</sub>
Entrance Pupil Position (mm):	12.69
Horizontal Field of View, 1/4" Sensor:	11.2mm - 49.7°
Object Space Principal Plane (mm):	16.04
Image Space Principal Plane (mm):	5.84
Field of View at Max Sensor Format:	Horizontal: 23.1mm - 84.8° Vertical: 15.7mm - 65.3° Diagonal: 33.7mm - 101.6°
Maximum Distortion (%):	-20.43
Exit Pupil Position (mm):	-12.68
Lens Wavelength Range:	VIS

## Mechanical

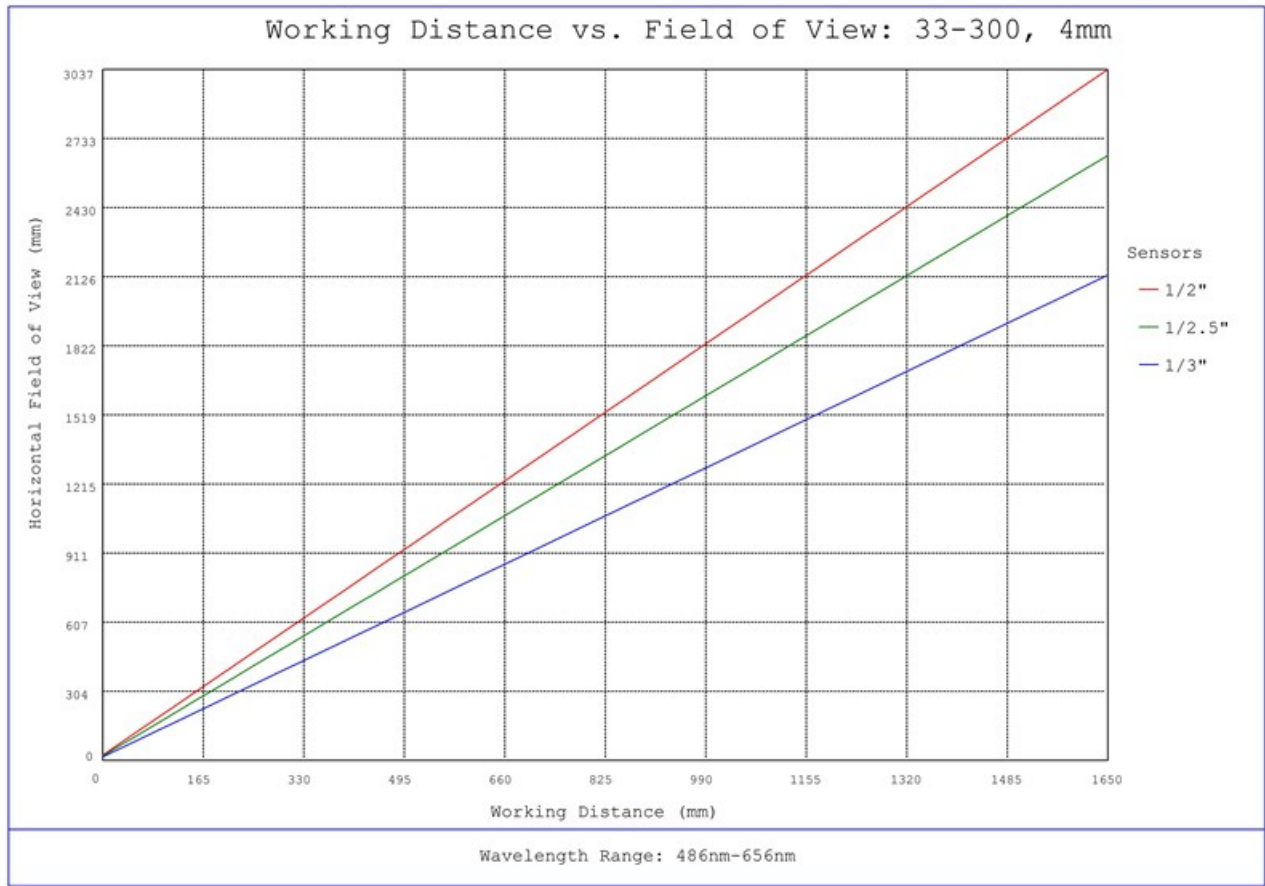
Iris Option:	Variable
Length (mm):	40.60
Filter Thread:	M62 x 0.75 with adapter <a href="#">#33-308</a>
Maximum Diameter (mm):	40
Weight (g):	72
Maximum Rear Protrusion (mm):	2.8
Number of Elements (Groups):	8 (7)
Mount:	C-Mount



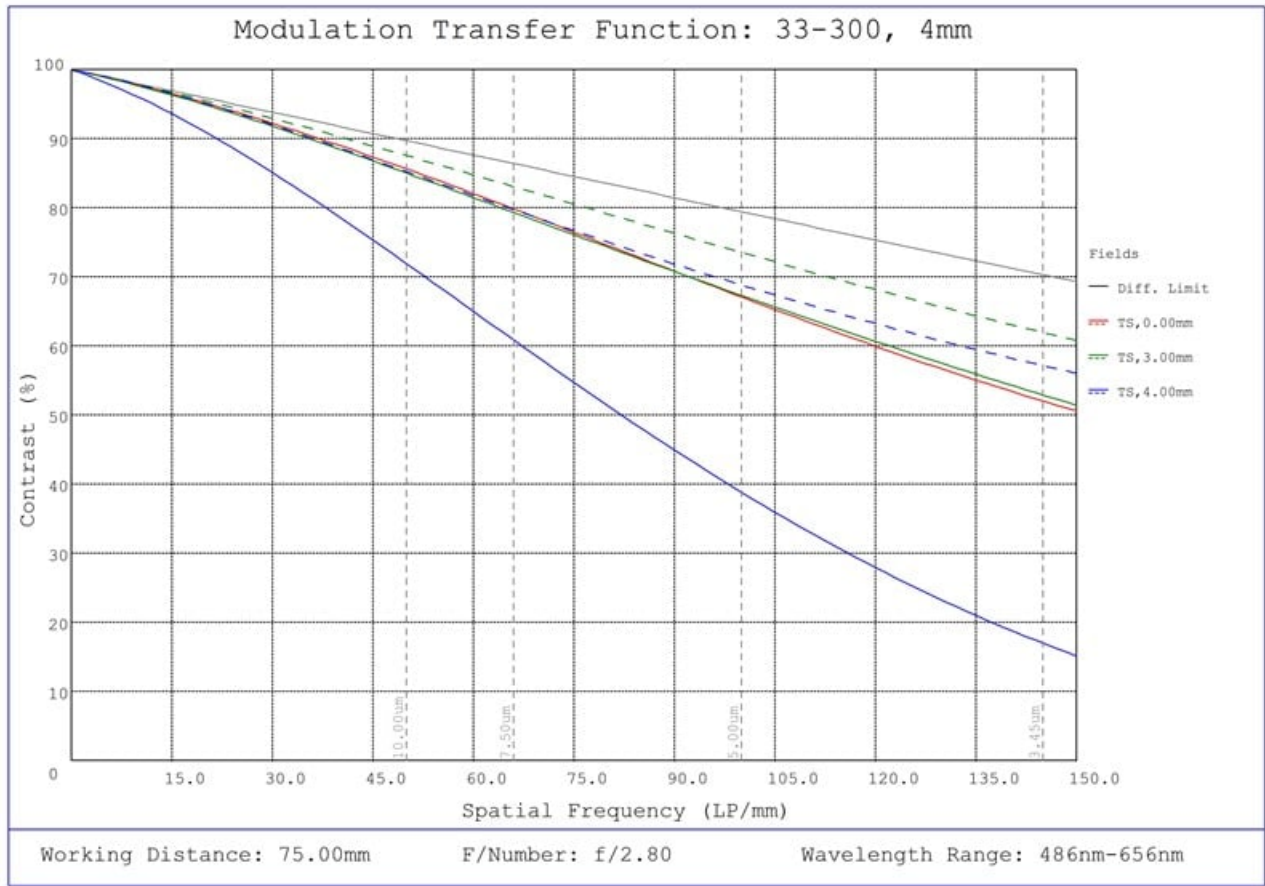
#33-300, 4mm UC Series Fixed Focal Length Lens, Distortion Plot



#33-300, 4mm UC Series Fixed Focal Length Lens, Relative Illumination Plot



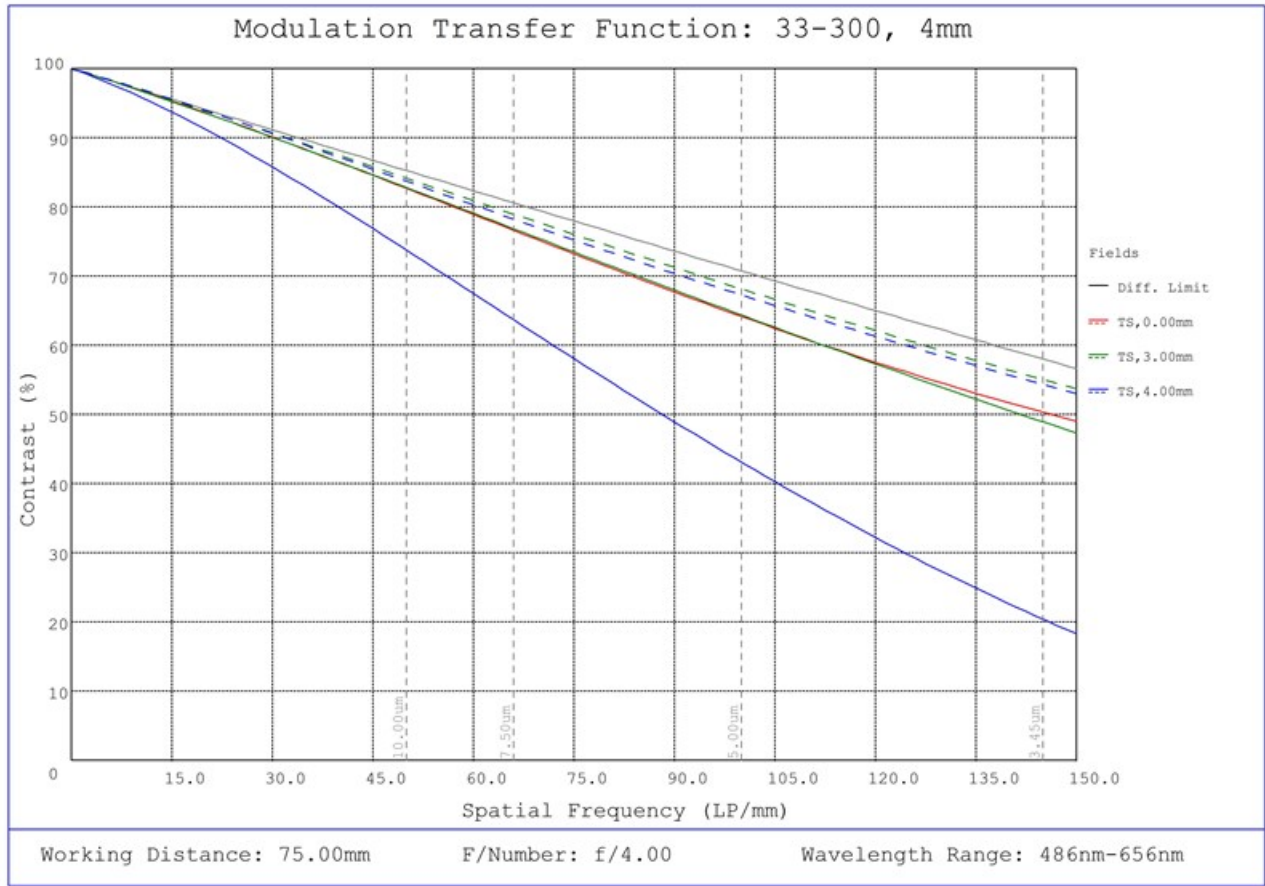
#33-300, 4mm UC Series Fixed Focal Length Lens, Working Distance versus Field of View Plot



#33-300, 4mm UC Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 75mm Working Distance, f2.8



#33-300, 4mm UC Series Fixed Focal Length Lens, Depth of Field Plot, 75mm Working Distance, f2.8

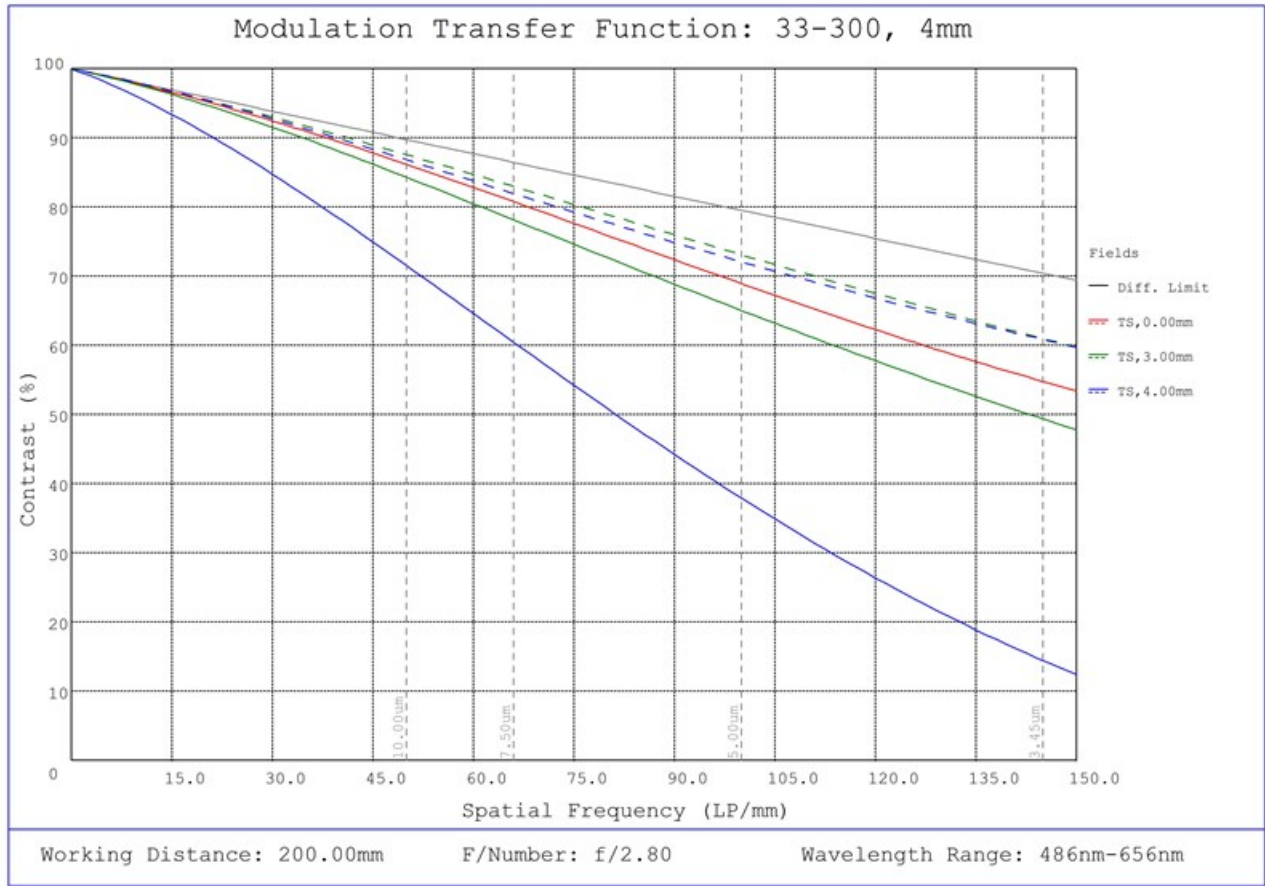


#33-300, 4mm UC Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 75mm Working Distance, f4





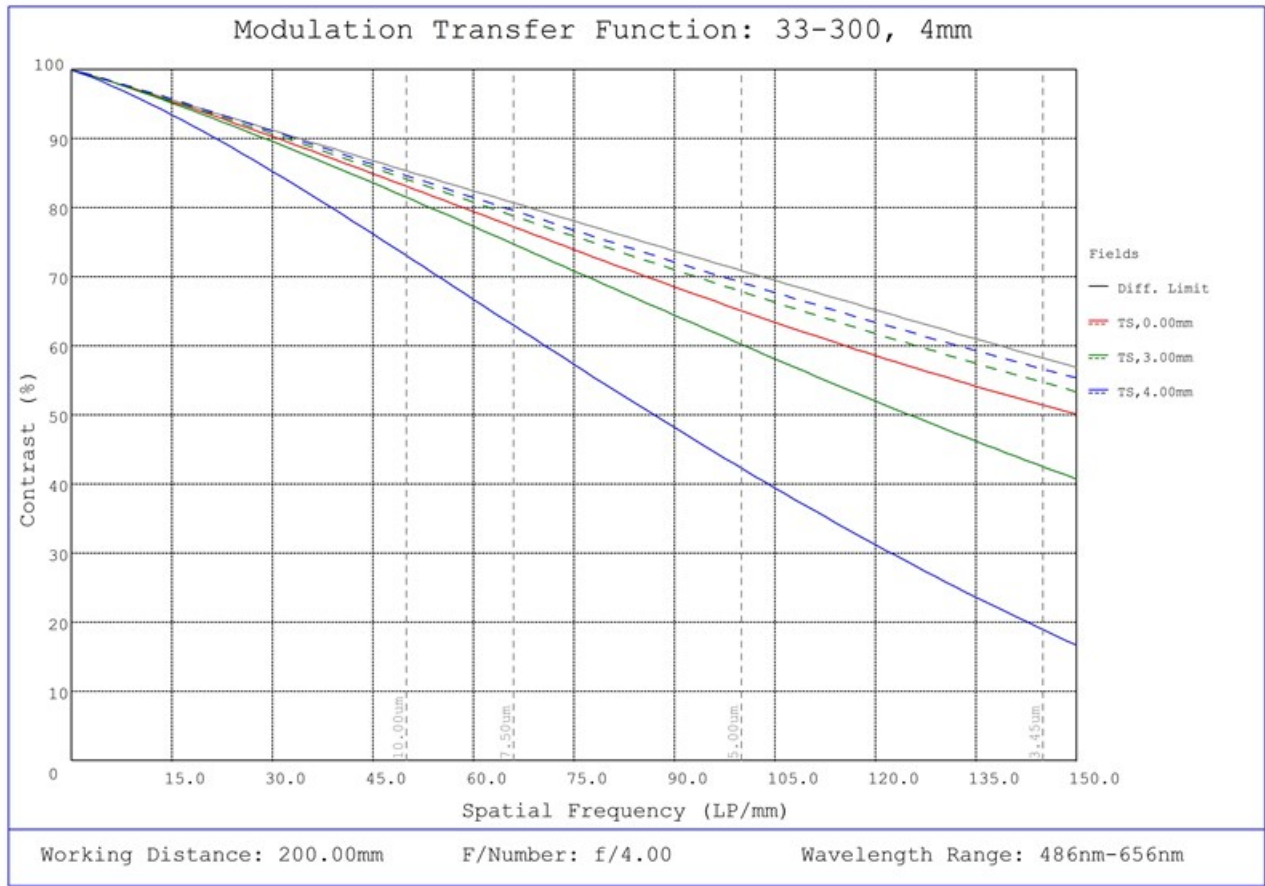
#33-300, 4mm UC Series Fixed Focal Length Lens, Depth of Field Plot, 75mm Working Distance, f4



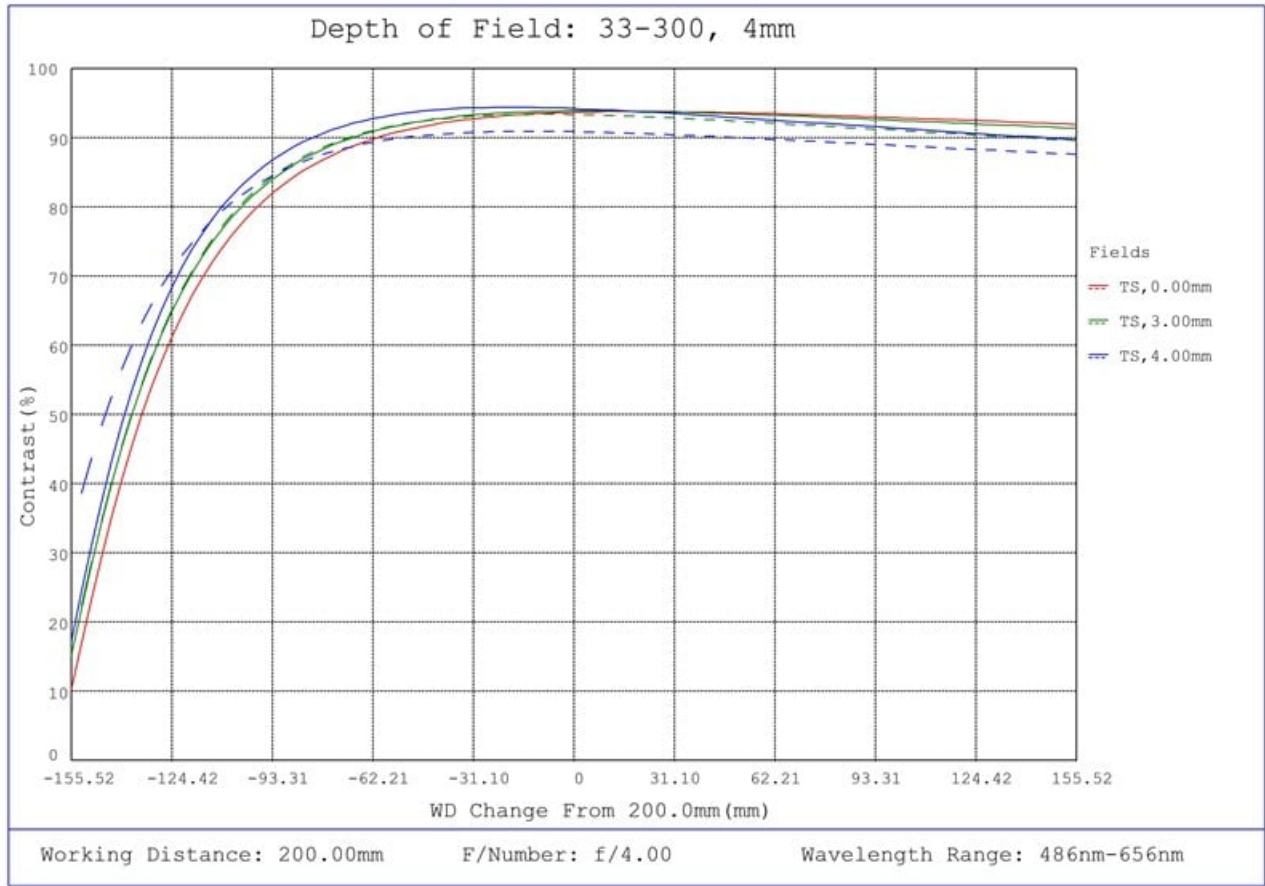
#33-300, 4mm UC Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 200mm Working Distance, f2.8



#33-300, 4mm UC Series Fixed Focal Length Lens, Depth of Field Plot, 200mm Working Distance, f2.8



#33-300, 4mm UC Series Fixed Focal Length Lens, Modulated Transfer Function (MTF) Plot, 200mm Working Distance, f4



#33-300, 4mm UC Series Fixed Focal Length Lens, Depth of Field Plot, 200mm Working Distance, f4



NOTES:

1. INCLUDES RECESSED SET SCREW OPTION.
2. LENS MAY MOVE MORE THAN INDICATED UNTIL IT REACHES BUILT-IN STOPS.
3. LENS SHOWN IN THE INFINITE WD POSITION.

FOCUS ADJUSTMENT

M40x0.5  
MALE  
FILTER THREAD

TO LENS VERTEX 1.21mm  
[.047in]

FILTER THREAD 3.3mm  
[.13in]

MAX OUTER DIAMETER  $\phi$  40mm  
[1.575in]

OVERALL LENGTH  
40.62mm[1.599in] @ 0mm WD  
39.39mm[1.551in] @ INFINITE WD

24.2mm  
[.953in]

17.3mm  
[.681in]

9.3mm  
[.366in]

7.98mm[.314in] @ INFINITE WD  
6.75mm[.266in] @ 0mm WD

3.9mm  
[.154in]

4mm  
[.157in]

1"-32 UN-2A  
C-MOUNT

$\phi$  14.5mm  
[.571in]

$\phi$  29.5mm  
[1.161in]

IRIS ADJUSTMENT

$\phi$  30mm  
[1.181in]

3.25mm IRIS LOCK SCREW 1

4.1mm FOCUS LOCK SCREW 1

$\phi$  29.5mm  
[1.161in]



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SPECIFICATIONS SUBJECT TO CHANGE  
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DIMENSIONS ARE FOR REFERENCE ONLY.  
FOR DETAILED SPECIFICATIONS,  
PLEASE REFER TO THE SPEC SHEET.

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DO NOT MANUFACTURE  
PARTS TO THIS DRAWING**

TITLE	4mm UC Series Fixed Focal Length Lens	
DWG NO	33300	SHEET 1 OF 1

Enable 3D View



June 07, 2023

To Whom It May Concern,

This document certifies that the product stated below has been reviewed as requested by Edmund Optics:

<i>Stock No.</i>	<i>Description</i>
33-300	4mm UC Series Fixed Focal Length Lens

This item is EU RoHS (2015/863/EU) compliant without the use of exemptions.

This certification means that:

- EO's suppliers have confirmed the material composition of this product.
- EO has implemented rigorous procedures to document this compliance.
- The information provided may, or may not, be based upon actual test data, or on information from our Vendors, Raw Material Suppliers or Subcontractors.

A handwritten signature in cursive script, appearing to read 'J. Budd'.

Jay Budd, Director of Corporate Compliance

June 07, 2023

Edmund Optics Inc. - 101 E Gloucester Pike, Barrington, NJ 08007 | 1-800-363-1992 | [Compliance@edmundoptics.com](mailto:Compliance@edmundoptics.com)





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This document certifies that the product stated below has been reviewed as requested by Edmund Optics:

<i>Stock No.</i>	<i>Description</i>
33-300	4mm UC Series Fixed Focal Length Lens

This item does not contain any of the substances listed on the Reach SVHC list as of 16 July 2019 in quantities exceeding 0.1% weight by weight.

Please note the following:

- Entry 11 of Annex V of the REACH regulation as amended by regulation 987/2008, exempts “non-hazardous” glass components from registration.
- Items considered to be packing materials and which do not form part of, or are not required for the operation of, the product, are not considered to be within scope of this declaration.
- EO does not routinely analyze products for substances not purposely added or specified within the design specifications, drawings and assembly procedures.

This certification means that:

- EO's suppliers have confirmed the material composition of this product.
- EO has implemented rigorous procedures to document this compliance.
- The information provided may, or may not, be based upon actual test data, or on information from our Vendors, Raw Material Suppliers or Subcontractors.

A handwritten signature in cursive script, appearing to read 'Jay Budd'.

Jay Budd, Director of Corporate Compliance

June 07, 2023

Edmund Optics Inc. - 101 E Gloucester Pike, Barrington, NJ 08007 | 1-800-363-1992 | [Compliance@edmundoptics.com](mailto:Compliance@edmundoptics.com)



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<i>Stock No.</i>	<i>Description</i>
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Edmund Optics certifies that all articles included in this shipment are in compliance with the terms and conditions of this order. The company also certifies that the articles included in this shipment are in accordance to all agreed upon specifications and quality assurance provisions. Please call 1-800-363-1992 should any questions arise from this shipment.

A handwritten signature in black ink, appearing to read 'Jeff Harvey'.

Jeff Harvey- EVP of Operations