Electro-Optics Technology, Inc.

TORNOS Broadband

Optical Isolators
520 nm to 885 nm

Innovative High Quality Laser Solutions

NEW!

EOT's TORNOS Broadband optical isolators are designed for use across a broad spectral range where optical feedback can adversely affect laser performance. The TORNOS Broadband provides passive broadband isolation across the entire spectral range of the isolator.

The three models of the TORNOS Broadband cover from 520 nm to 885 nm. The Broadband features ports for access to the rejected beam and a standard mounting clamp making this product ideal for laboratory and R&D use. The broadband technology is optimized for isolation and allows for completely passive use across any wavelength in the spectral range of the device. This product maintains industry-leading transmission at the center wavelength.

Some common applications for the TORNOS Broadband are Ti:Sapphire laser systems, R&D and laboratory use where multiple wavelengths are of interest, and OEM systems that use the rejected beam such as regenerative amplifiers.

FEATURES

- Passive broadband performance
- All isolators contain rejected beam escape ports
- Mounting clamp
- 90° to 0° polarization
- Standard waveplate for manipulation of polarization

OPTIONS

- Customization available

APPLICATIONS

- R&D and Laboratory use
- Ti:Sapphire Lasers
- Regenerative Amplifiers
- Multiple wavelength interrogation

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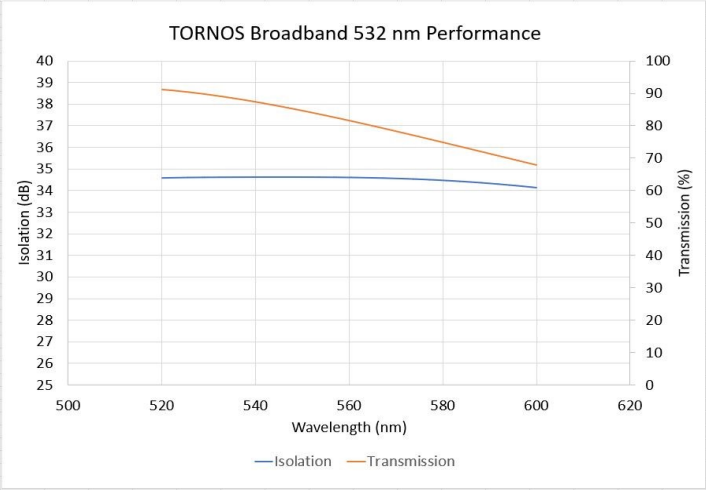
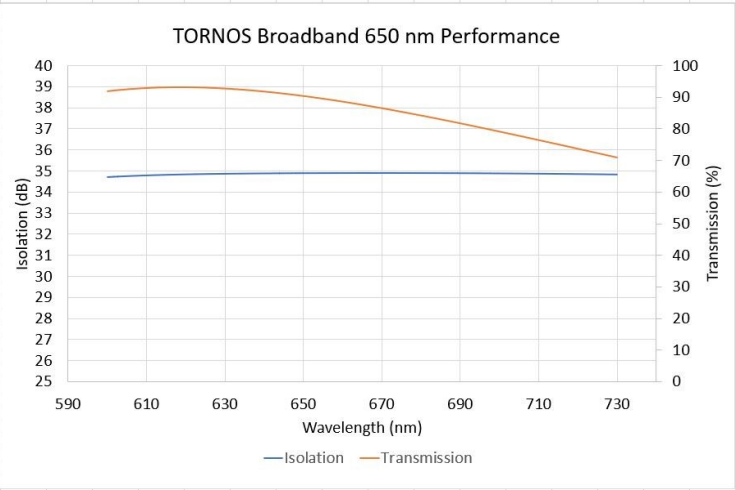
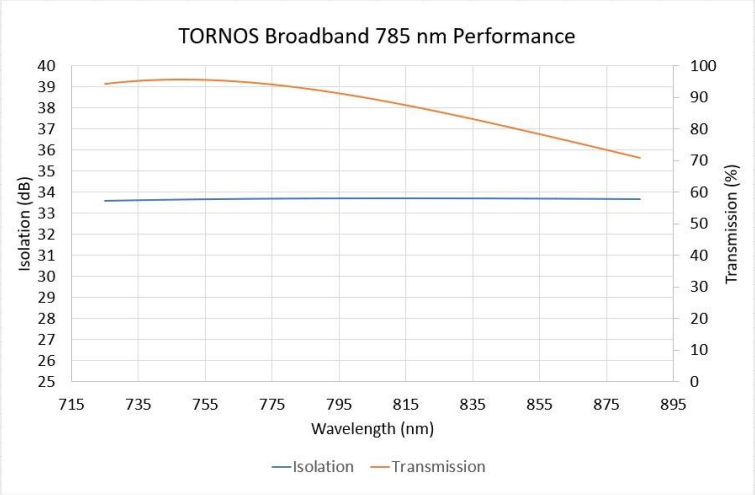
SPECIFICATIONS

Clear Aperture	Center Wavelength	Spectral Range	Isolation[a]	Transmission at Center Wavelength[b]
4 mm	532 nm	520 nm to 595 nm	>32 dB	≥90%
4 mm	650 nm	595 nm to 730 nm	>32 dB	≥87%
4 mm	785 nm	730 nm to 885 nm	>32 dB	≥92%

Product specifications are subject to change. All products are RoHS compliant.
[a] At cross spectral range at 22 °C
[b] At center wavelength at 22 °C







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TORNOS Compact

Faraday Rotators & Isolators
633 nm to 1064 nm

EOT's TORNOS Compact Faraday rotators and isolators are designed for wide-ranging end applications where optical feedback can adversely affect laser performance. The TORNOS Compact provides high transmission in the forward direction while strongly attenuating light traveling in the reverse direction, protecting lasers from the deleterious effects of back reflections.

Our TORNOS Compact devices deliver industry-best laser reliability and performance. The TORNOS Compact covers a variety of wavelengths in the NIR. A range of devices is available which allow for optimal isolation and transmission at specific wavelengths, depending on the model, and within the spectral bandwidth of the device. Our standard models are available at wavelengths common to many applications. We can also supply the TORNOS Compact optimized for non-standard wavelengths upon request.

Some common applications for the TORNOS Compact are the elimination of frequency instability in single frequency lasers such as laser diodes and OPSLs, the prevention of mode-hopping in external cavity diode lasers, and the elimination of parasitic oscillations due to ASE in amplified laser systems.

The TORNOS Compact isolators contain optically-contacted polarizing beam splitter cubes resulting in high transmission as compared to other available isolators. The TORNOS Compact's industry-leading high transmission results in more photons for your application. This allows diodes to be run at lower currents extending diode lifetime. The compact design makes it highly suitable for OEM integration.

FEATURES

- High transmission
- Extends the life of your diode
- Compact design

OPTIONS

- Optional waveplate for manipulation of polarization
- Mounting Clamp Available
- Customization available

APPLICATIONS

- Raman Spectroscopy
- DNA Sequencing
- Imaging
- Environmental Sensing
- Mapping
- Microscopy
- 3D Metrology
- Protecting pump lasers in amplified systems
- Cold Atom

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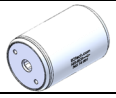
AVAILABLE MODELS

Model	Product	Wavelengths
	2 mm NIR Rotator	785 nm
	2 mm NIR Isolator	633 nm and 785 nm
	4 mm NIR Isolator	785 nm
	4 mm NIR+ Isolator	850 nm
	2 mm NIR+ Rotator & Isolator	1064 nm

SPECIFICATIONS

Rotators

Standard Wavelength	Spectral Range	Tunable Temperature	Transmission[a]	Forward Power Handling
785 nm	780 nm to 790 nm	10 °C to 30 °C	≥98%	5 W
1064 nm	1059 nm to 1069 nm	10 °C to 30 °C	≥98%	5 W

Isolators

Standard Wavelength	Spectral Range	Tunable Temperature	Isolation[a]	Transmission[a]	Forward Power Handling
633 nm	628 nm to 638 nm	10 °C to 30 °C	≥33 dB	≥95%	5 W
785 nm	780 nm to 790 nm	10 °C to 30 °C	≥33 dB	≥95%	5 W
850 nm	845 nm to 855 nm	10 °C to 30 °C	≥33 dB	≥95%	5 W
1064 nm	1059 nm to 1069 nm	10 °C to 30 °C	≥33 dB	≥95%	5 W

Product specifications are subject to change. All products are RoHS compliant.
[a] At specified wavelength and temperature
NOTE: For non-standard wavelengths, contact EOT for more information.

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TORNOS

Faraday Rotators & Isolators
500 nm to 1030 nm

EOT's TORNOS Faraday Rotators rotate the plane of polarized light 45° in the forward direction and an additional 45° of non-reciprocal rotation in the reverse direction while maintaining the light's linear polarization. When placed between crossed polarizers, a Faraday rotator becomes an optical isolator.

An optical isolator provides high transmission in the forward direction and strongly attenuates any light traveling in the reverse direction, effectively protecting laser diodes from the deleterious effects of back reflections.

TORNOS Optical Isolators can be ordered with dichroic glass polarizers to minimize the size of the device for low power applications or they can be ordered with polarizing beam splitter cube polarizers for applications where maximum transmission is required and power levels do not permit the use of dichroic glass polarizers. By aligning the output polarizer orthogonal to the backward traveling light, isolation can be maximized within the usable wavelength range of the optical isolator.

FEATURES

- Wavelength tunability
- Attain 60 dB using two isolators in series
- Mounting clamp
- All isolators contain rejected beam escape ports

OPTIONS

- Choice of dichroic glass polarizers or polarizing beam splitter cube polarizers
- Input/Output waveplates available
- Customization available

APPLICATIONS

- Environmental Sensing
- Microscopy
- Spectroscopy
- DNA Sequencing
- Laboratory and R&D use
- Protecting pump lasers in amplified systems

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SPECIFICATIONS

Rotators			
Center Wavelength	**Isolation at 22 °C[a]**	**Transmission at 22 °C[b]**	**Pulsed Damage Threshold**
532 nm	≥ 30 dB	>97%	3 J/cm^2 at 10 ns
650 nm	≥ 30 dB	>98%	3 J/cm^2 at 10 ns
780 nm	≥ 30 dB	>98%	3 J/cm^2 at 10 ns
850 nm	≥ 30 dB	>98%	3 J/cm^2 at 10 ns
980 nm	≥ 30 dB	>98%	3 J/cm^2 at 10 ns

Isolators					
Center Wavelength	**Spectral Range**	**Isolation at 22 °C[c]**	**Transmission at 22 °C[b]**	**Polarizer Type**	**Damage Threshold[d]**
650 nm	630 nm to 700 nm	>30 dB	>72.5%	Dichroic Glass	25 W/cm^2 CW
780 nm	740 nm to 860 nm	>30 dB	>82%	Dichroic Glass	25 W/cm^2 CW
850 nm	840 nm to 960 nm	>30 dB	>88%	Dichroic Glass	25 W/cm^2 CW
980 nm	960 nm to 1030 nm	>30 dB	>90%	Dichroic Glass	25 W/cm^2 CW
532 nm	500 nm to 600 nm	>27 dB	>88%	PBS Cube	1 J/cm^2 at 10 ns
650 nm	600 nm to 680 nm	>27 dB	>88%	PBS Cube	1 J/cm^2 at 10 ns
780 nm	730 nm to 830 nm	>27 dB	>88%	PBS Cube	1 J/cm^2 at 10 ns
850 nm	800 nm to 880 nm	>27 dB	>88%	PBS Cube	1 J/cm^2 at 10 ns
980 nm	950 nm to 1010 nm	>27 dB	>88%	PBS Cube	1 J/cm^2 at 10 ns

Product specifications are subject to change. All products are RoHS compliant.
[a] When placed between crossed polarizers having an extinction ratio of ≥ 1000:1
[b] At center wavelength
[c] When tuned for maximum isolation
[d] Isolators with PBS cube polarizers have CW damage threshold of 2 KW/cm^2.
Note: The addition of a waveplate may restrict wavelength range.