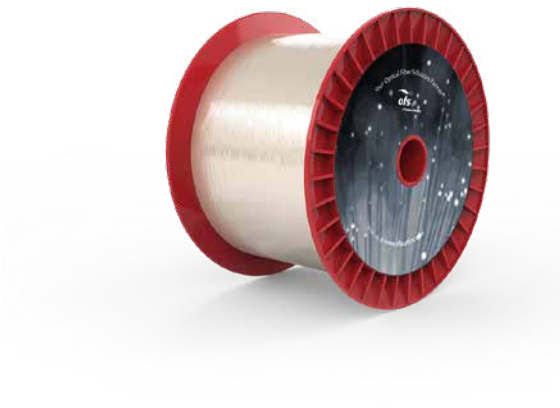
LaserWave® WideBand (OM5) Optical Fiber

OM5 multimode fiber optimized for short wavelength division multiplexing (SWDM) applications



Features

- Meets ANSI/TIA 492AAAF and IEC 60793-2-10 standards for A1-OM5 wideband fiber
- Designed for SWDM and BiDi applications (850 nm to 950 nm)
- Uses SWDM to increase transmission capacity by up to 400%
- Manufactured using the industry's tightest geometric control
- Completely backward compatible with existing OM4 networks and applications

Benefits

- Supports today's applications including 100/200/400 Gb/s Ethernet and 32/64 GFC
- Ready for next-generation wideband networks
- Optimized for 100 Gb/s duplex (two fiber) transmission using BiDi and SWDM4 applications
- Supports 400 Gb/s transmission over 8-fiber links

Applications

LaserWave WideBand Multimode Fiber provides outstanding performance for fiber management systems in:

- Data centers
- High-performance computing centers
- Enterprise local area networks
- Storage area networks
- Central offices

Overview

LaserWave WideBand (OM5) Multimode Fiber is a 50 micron (µm) laser-optimized multimode fiber designed to help meet the demanding requirements of today's 850 nm based networks, as well as next-generation multimode short wavelength division multiplexing (SWDM) applications.

LaserWave WideBand fiber is designed to support light traveling at multiple wavelengths from 850 nm to 953 nm, unlike OM3 and OM4 fibers that are optimized for single wavelength, 850 nm operation. Using two wavelengths in Bi-Directional (BiDi) transmission, information carrying capacity can be doubled. Using four wavelengths in SWDM4 transmission can increase capacity by 4x. OM5 fiber maximizes the reach of multi-wavelength solutions.

Building on the history of LaserWave *FLEX* 550 (OM4) Fiber, LaserWave WideBand Fiber meets and exceeds ANSI/TIA 492AAAF and IEC 60793-2-10 requirements for wideband fiber while maintaining backward compatibility with OM4 specifications. This fiber is designed to support duplex (two-fiber) 100 Gb/s Ethernet applications, and the new 400Gb/s Ethernet standard, 400GBASE-SR4.2.

Using state of the art process control, OFS LaserWave fiber is manufactured to the tightest geometry and optical specifications in the industry. Tighter specifications lead to lower variation when mating fiber optic connectors and lower insertion loss. Today's high speed 100 and 400Gb/s applications have extremely low loss budgets, and low connector loss and fiber attenuation is key to supporting these links. LaserWave WideBand Fiber offers low bending loss throughout the entire operating window, while maintaining excellent long-term fiber strength and reliability.

Product Specifications		
Physical Characteristics		
Core Diameter	50 ± 2.5 µm	
Core Non-Circularity	≤ 2.5 %	
Clad Diameter	125 ± 0.7 µm	
Clad Non-Circularity	≤ 0.7 %	
Core/Clad Concentricity Error (Offset)	≤ 0.7 µm	
Coating Diameter	242 ± 5 µm	
Coating Non-Circularity	≤ 5 %	
Coating-Clad Concentricity Error (Offset)	≤ 10 µm	
Tensile Proof Test	100 kpsi (0.69 GPa)	
Coating Strip Force	Range: 0.22 - 2.0 lbf (1.0 - 8.9 N) Typical: 0.6 lbf (2.7 N)	
Standard Reel Lengths	2.2 – 8.8 km	
Optical Characteristics		
Attenuation		
at 850 nm	≤ 2.2 dB/km	
at 953 nm	≤ 1.7 dB/km	
at 1300 nm	≤ 0.6 dB/km	
Laser Bandwidth/EMB	See Transmission Characteristics Table	
Transmission Distance (Link Length) Support	See Applications Support Table	
Attenuation at 1380 nm minus attenuation at 1300 nm	≤ 1.0 dB/km	
Attenuation Uniformity / Point Discontinuities at 850 nm and 1300 nm	≤ 0.08 dB	
Numerical Aperture	0.200 ± 0.010	
Chromatic Dispersion		
Zero Dispersion Wavelength (λ_0)	$1297 \le \lambda_0 \le 1328$ nm	
Zero Dispersion Slope (S_0)	$S_0 \le 4(-103)/(840(1-(\lambda_0/840)^4))$ ps/nm^{2}km	
Group Refractive Index		
at 850 nm	1.483	
at 1300 nm	1.479	
Backscatter Coefficient		
at 850 nm	-68.4 dB	
at 1300 nm	-75.8 dB	
Macrobend Attenuation	850 nm	1300 nm
100 turns @ 37.5 mm radius	≤ 0.5 dB	≤ 0.5 dB
2 turns @ 15 mm radius	≤ 0.1 dB	≤ 0.3 dB
2 turns @ 7.5 mm radius	≤ 0.2 dB	≤ 0.5 dB
Environmental Characteristics		
Operating Temperature Range	-60 °C to +85 °C	
Temperature Induced Attenuation at 850 nm and 1300 nm from -60° C to +85° C (5 24-hour cycles)	≤ 0.1 dB/km	
Temperature and Humidity Induced Attenuation at 850 nm and 1300 nm from -10° C to +85° C, 94% RH (30 24-hour cycles)	≤ 0.1 dB/km	
Accelerated Aging (Temperature) Induced Attenuation at 85° C for 30 days	≤ 0.1 dB/km	
Water Immersion Induced Attenuation, 23° C for 30 days	≤ 0.1 dB/km	
Damp Heat, 85° C, 85% Relative Humidity for 30 days	≤ 0.1 dB/km	
Dynamic Fatigue Stress Corrosion Parameter typical (n_d)	≥ 20	

LaserWave® WideBand (OM5) Optical Fiber

Transmission Characteristics	
Minimum Bandwidth Specifications (MHz-km)	
EMB @ 850 nm	4700
EMB @ 953 nm	2470
EMB @ 1300 nm	500
Overfilled @ 850 nm	3500
Overfilled @ 953 nm	1850
Overfilled @ 1300 nm	500
Application Support	
Application Support Examples Distance (Meters)[1]	
400 Gigabit Ethernet	
850-950 nm (400GBASE-SR4.2)	150
850 nm (400GBASE-SR8)	100
100 Gigabit Ethernet	
850 nm (100GBASE-SR10)	190[2]
850 nm (100GBASE-SR4)	100
850/910 nm (100 Gb/s BiDi)	150
850-950 nm (100 Gb/s SWDM4)	150
40 Gigabit Ethernet	
850 nm (40GBASE-SR4)	190[2]
850/910 nm (40Gb/s BiDi)	150
850-950 nm (40Gb/s SWDM4)	440
10 Gigabit Ethernet	
850 nm (10GBASE-S)	550[3]
1310 nm CWDM lasers (10GBASE-LX4)	300
1310 serial w/ EDC (10GBASE-LRM)	220
1 Gigabit Ethernet	
850 nm (1000BASE-SX)	1040
1310 nm (1000BASE-LX)	600

[1] Unless otherwise indicated, application support distances are based on standards based link loss. Lower-loss connectors and lower cable attenuations can lead to longer supportable distances. Contact OFS for specific cable attenuation and connection plus splice loss necessary to support a target distance.

[2] Distances assume maximum 1.0 dB total splice/connector loss, maximum 3.0 dB/km cable attenuation at 850 nm, and VCSEL spectral width of ≤ 0.45 nm. 150 meter reach over OM4 as defined by IEEE 802.3ba.

[3] 550 meter reach assuming 3.5 dB/KM maximum cabled attenuation at 850 nm plus 1.0 dB of total connection and splice loss, or 3.0 dB maximum cabled attenuation at 850 nm and 1.3 dB total connection and splice loss. 400 meter reach as defined by IEEE 802.3ae.

LaserWave® WideBand (OM5) Optical Fiber

OM5 multimode fiber optimized for short wavelength division multiplexing (SWDM) applications

GUIDING LIGHT FOR A BETTER LIFE.™

For additional information please contact your sales representative.

You can also visit our website at www.ofsoptics.com
or call 1-888-fiberhelp (1-888-342-3743) USA or 1-770-798-5555 outside the USA.

FURUKAWA SOLUTIONS

For a full list of our certifications, visit our website.

RoHS Compliant

OFS Marketing Communications
DOC ID: fiber-163 Date: 01/24