

## Single Mode Optical Fiber

SAMSUNG Single Mode optical fiber is designed and manufactured with a matched cladding, step index profile, using Samsung's advanced MCVD process. This design

provides versatile in applications for long haul, regional and local area network, cable TV, utilities, ISPs and private networks in 1310 nm and 1550 nm wavelength region.



### FEATURES / BENEFITS

- Uniform low attenuation and optimized dispersion
- Coated with high performance dual acrylate coating for long-term reliability
- Excellent compatibility with any commercial fiber in legacy network systems
- Outstanding bending resistance and geometrical properties for use in loose tube, ribbon, tight buffer and other cable structures
- Complies with ITU.T Recommendations G.652, and IEC 793
- Certified to Telcordia GR-20-CORE

### APPLICATIONS

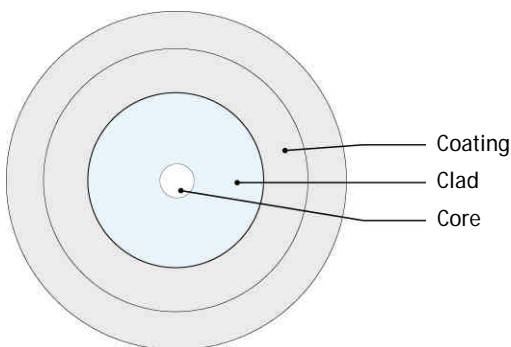
- Long Haul telecommunication cables
- High data-rate voice, video and data communication cables
- CATV cables
- Local Access, Metro Loop transmission cable

### QUALITY TESTING

- Every spool of fiber is tested for quality and performance
- All test procedures comply with ITU recommendations, IEC and EIA Standards

### DESIGN

- **Core** Center of the optical fiber, which carries the light
- **Clad** Confines the light to the core, using total internal reflection principles
- **Coating** A dual layer provides a microbend free environment, which also protects the optical fiber from external influences and absorbs shear forces



## Single Mode Optical Fiber

### OPTICAL SPECIFICATIONS

#### ATTENUATION

Parameters		Premium	Standard
Attenuation (dB/km)	@ 1310 nm	0.34	0.35
	@ 1550 nm	0.21	0.22
Point Discontinuity (@ 1310 nm & 1550 nm)		0.05 dB	

#### ATTENUATION vs. WAVELENGTH

- 1285 nm ~ 1330 nm wavelength range  
The attenuation in the above wavelength range does not exceed the attenuation at 1310 nm by more than 0.03 dB/km
- 1525 nm ~ 1575 nm wavelength range  
The attenuation in the above wavelength range does not exceed the attenuation at 1550 nm by more than 0.03 dB/km

#### MACROBENDING LOSS

Mandrel Diameter (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation (dB)
32	1	1550	0.5
75	100	1550	0.05

#### POLARIZATION MODE DISPERSION

PMD <sub>0</sub>	0.1 ps/ km
Max. Individual Value	0.2 ps/ km

\* PMD<sub>0</sub> : Quadrature Average PMD (also known as PMD link design value)

#### DISPERSION

Dispersion	@ 1285 ~ 1330 nm	3.5 ps/nm·km
	@ 1550 nm	18 ps/nm·km
Zero Dispersion Wavelength	1302 ~ 1322 nm	
Zero Dispersion Slope	0.091 ps/nm <sup>2</sup> ·km	

#### MODE FIELD DIAMETER

- $9.2 \pm 0.4 \mu\text{m}$  at 1310 nm
- $10.5 \pm 0.8 \mu\text{m}$  at 1550 nm

#### CUTOFF WAVELENGTH

- 1150 ~ 1340 nm (uncabled fiber, <sub>c</sub>)
- 1260 nm (cabled fiber, <sub>cc</sub>)

### DIMENSIONAL SPECIFICATIONS

Parameters		Unit	Specification
Glass	Clad Diameter	$\mu\text{m}$	$125 \pm 1.0$
	Clad Non-Circularity	%	1.0
	Core-Clad Concentricity Error	$\mu\text{m}$	0.5
	Fiber Curl	m	4.0
Coating	Coating Diameter	$\mu\text{m}$	$245 \pm 10$
	Coating Outer Non-Circularity	%	5.0
	Coating Concentricity Error	$\mu\text{m}$	10.0

### STANDARD FIBER LENGTH

- 4.2 ~ 50.4 km per spool

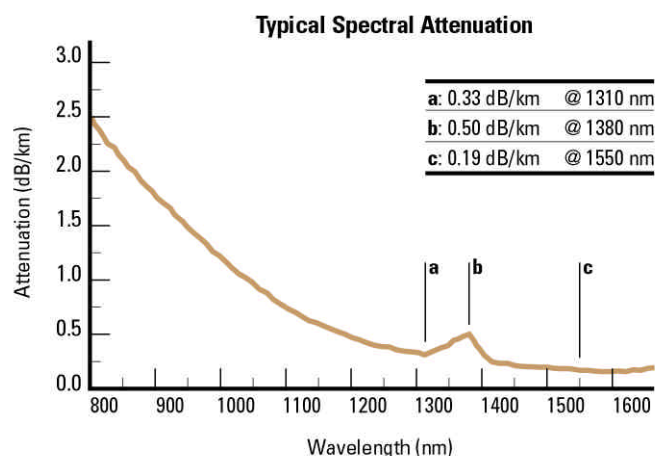
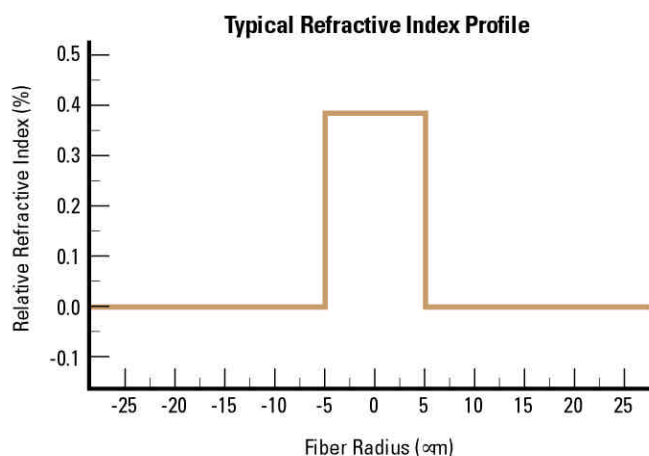
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### MECHANICAL & ENVIRONMENTAL SPECIFICATIONS

Parameters	Specifications
Proof Test Level	100 kpsi (0.7 GN/m <sup>2</sup> )
Temperature Dependence ( -60°C ~ +85°C)	0.05 dB/km @ 1310 nm & 1550 nm
Temp.-Humidity Cycling ( -10°C ~ +85°C, 98% RH)	0.05 dB/km @ 1310 nm & 1550 nm
Dynamic Tensile Strength (Guage Length : 0.5 m)	Mean Value 4.0 GPa
Coating Strip Force	1.3 ~ 5.5 N

### TYPICAL PERFORMANCE CHARACTERISTICS

- Effective Group Index of Refraction 1.4690 at 1310 nm  
1.4695 at 1550 nm
- Refractive Index Difference 0.34%
- Zero Dispersion Wavelength 1312 nm
- Zero Dispersion Slope 0.085 ps/nm<sup>2</sup>·km
- Dispersion at 1550 nm 16.6 ps/nm·km
- Dynamic Fatigue Parameter (n<sub>d</sub>) 22



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### ORDERING INFORMATION

Product Type	Description	Specification (x)
SF-SMF-x	Single Mode Fiber	P : Premium C : Standard

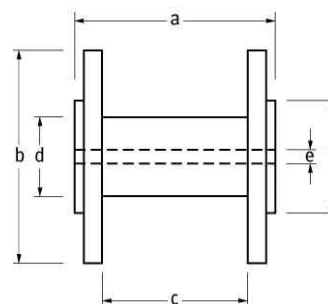
\* Change x in the left column with the code in the right column for your choice

### PACKAGING AND TEST CERTIFICATION

#### PACKAGING

- Optical fiber is wound on a shipping spool for which dimensions are:

Spool size	25.4 km	50.4 km
<b>a</b> = width of outside flanges	120 mm	175 mm
<b>b</b> = flange diameter	248 mm	264.4 mm
<b>c</b> = width of inside flanges	95 mm	150 mm
<b>d</b> = barrel out-diameter	150 mm	170 mm
<b>e</b> = bore diameter	25.4 + 0.5 / -0.1 mm	25.4 + 0.3 / -0.0 mm
<b>f</b> = wing diameter	160 mm	182 mm



#### LABEL

- A label attached to each shipping spool contains at least the following information:

- Fiber I.D.
- Fiber Length
- Attenuation at 1310 nm & 1550 nm
- Chromatic Dispersion at 1310 nm & 1550 nm

#### TEST CERTIFICATION

- One copy of a test certification sheet is enclosed in the shipping carton.
- The sheet contains at least the following information.

- Fiber I.D.
- Fiber Length
- Attenuation at 1310 nm & 1550 nm
- Chromatic Dispersion at 1310 nm & 1550 nm
- Mode Field Diameter at 1310 nm
- Cutoff Wavelength
- Geometries of the fiber and coating
- PMD @ 1550 nm

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