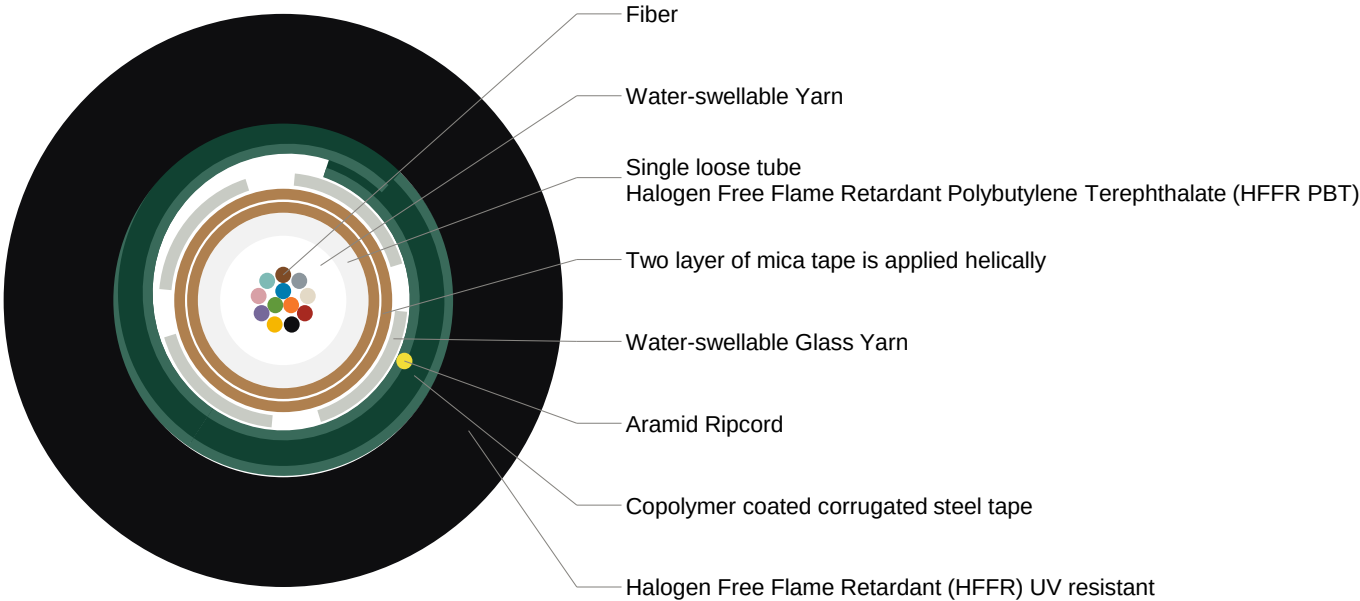


SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Single loose tube, corrugated steel tape armor, halogen-free jacket, fire resistant, fiber optic cable

Fiber Optic Cable Drawing



• Not to scale.

Fiber Optic Cable Tube and Fiber Core Colors

Tube Color Scheme

1
Natural

Fiber Optic Core Color Scheme

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Single loose tube, corrugated steel tape armor, halogen-free jacket, fire resistant, fiber optic cable

Characteristics

Optical Fiber Core and Tube Color Standard	ANSI/TIA 598-D Color Coding							
Reaction to Fire	B2ca -s1a, d1, a1							
Optical Fiber Type	G.652.D / G.655 / G.657.A1 / G.657.A2 / OM1 / OM2 / OM3 / OM4 / OM5							
Optical Fiber Dimensions	9/125/245/260 μm / 50/125/245/260 μm / 62.5/125/245/260 μm							
Optical Fiber Count	2	4	6	8	12	24	36	48
Optical fiber identification method	Colored					Ringed	Bundled	
Number of Bundles	-						1 or 2	
Cable Type	Single Loose Tube							
Tube Material	Halogen Free Flame Retardant Polybutylene Terephthalate (HFFR PBT)							
Tube Diameter (mm)	2,5						4,2	
Tube Filling Compound Material	Water-swellable Yarn							
Active Tube Count	1							
Single Loose Tube Tube Color	Natural							
Tensile Strength	1200 N							
Dielectric Tensile Strength Member	Water-swellable Glass Yarn							
Fire Barrier Material	Two layer of mica tape is applied helically							
Armor Material	Copolymer coated corrugated steel tape							
Armor Thickness	255 μm							
Jacket Strip Method	1 Aramid Ripcord							
Jacket Material	Halogen Free Flame Retardant (HFFR) UV resistant							
Jacket Color	Black							
Jacket Wall Thickness	1,8 mm							
Outer Jacket Marking Method	Inkjet marking							
Outer Jacket Marking Area	One side							
Outer Jacket Marking Application	Applied in one meter intervals							
Nominal Cable Diameter (mm)	8,7						10	
Net Cable Weight (kg/km)	110						140	
Reel Length	2000 meters %±5							

ETK Kablo 2025 SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120) Fiber Optic Cable <Length marking in meters>

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Single loose tube, corrugated steel tape armor, halogen-free jacket, fire resistant, fiber optic cable

Mechanical Characteristics (Cabled)		
Test	Reference Standard	Specified Value
Maximum Tensile Strength	IEC 60794-1-21-E1	≥ 1200 N
Crush Resistance	IEC 60794-1-21-E3	2000 N/100 mm (15 minutes)
Circuit Integrity	IEC 60331-25	FE180
Circuit Integrity with Shock	EN 50200	PH120
Smoke Density	IEC 61034-2	
Corrosive Gas	IEC 60754-2	
Halogen-Free	IEC 60754-1	
Flame Retardancy	IEC 60332-1-2	

Chemical Characteristics	
RoHS	Free of hazardous substances according to RoHS regulation.
REACH	Safe to use according to REACH regulation.

Temperature Range (Cabled)	
Transportation	-40 °C to 70 °C
Storage	-40 °C to 70 °C
Installation	-30 °C to 60 °C
Operation	-40 °C to 70 °C

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification Low Water Peak Single-Mode Optical Fiber Standard, ITU-T G.652.D (Uncolored Fiber)

Low water peak single-mode optical fiber, made by the vapor phase axial deposition (VAD) method, which enables customer to construct high performance wired network for voice, video and/or data transmission. The fiber, made of a germanium doped silica core and a silica cladding, is in compliance with ITU-T G.652 A, B, C and D.

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO ₂) Doped with Germanium Dioxide (GeO ₂)
Cladding Material		Pure silica (SiO ₂)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Mode Field Diameter	at 1310 nm	9.2 ± 0.4 µm
	at 1550 nm	10.3 ± 0.5 µm
Cladding Diameter		125.0 ± 0.5 µm
Coating Diameter (Uncolored)		245 ± 5 µm
Core/Cladding Concentricity Error		≤ 0.4 µm
Cladding Non-circularity		≤ 0.5 %
Coating - Cladding Concentricity Error		≤ 12 µm
Fiber Curl Radius		≥ 4.0 m
Optical Characteristics		
Attenuation Coefficient	at 1310 nm	≤ 0.334 dB/km
	at 1383 nm	≤ 0.314 dB/km ¹
	at 1550 nm	≤ 0.194 dB/km
	at 1625 nm	≤ 0.224 dB/km
Point Discontinuity	at 1310 nm / 1550 nm	≤ 0.05 dB
Cable Cut-off Wavelength (λ _{cc})		< 1260 nm
Zero-dispersion Wavelength (λ ₀)		1300nm ≤ λ ₀ ≤ 1324 nm
Zero-dispersion Slope (S ₀)		≤ 0.09 ps/nm ² /km
Chromatic Dispersion Coefficient	at 1310 nm	≤ 3.5 ps/nm/km
	at 1550 nm	≤ 17 ps/nm/km
	at 1625 nm	≤ 22 ps/nm/km
Maximum Individual Fiber PMD		≤ 0.2 ps/√km
Fiber PMD Link Design Value		≤ 0.08 ps/√km
Mechanical Characteristics		
Proof Stress Level		0.86 GPa (1.2%, 120 kpsi)
Bending Induced Attenuation	Ø=32 mm, 1 turn at 1550 nm	≤ 0.05 dB
	Ø=50 mm, 100 turns at 1310 nm	≤ 0.05 dB
	Ø=50 mm, 100 turns at 1550 nm	≤ 0.05 dB
	Ø=60 mm, 100 turns at 1625 nm	≤ 0.05 dB
Coating Strip Force (F)	peak	1.3 N ≤ F ≤ 8.9 N
	average	1.0 N ≤ F ≤ 5.0 N
Dynamic Tensile Strength	median; 0.5 m, unaged	≥ 3.8 Gpa (550 kpsi)
	median; 0.5 m, aged	≥ 3.0 Gpa (440 kpsi)
Fatigue	nominal value	20
Environmental Characteristics ²		
Temperature Cycling	-60 °C to 85 °C	≤ 0.05 dB/km
Temperature Humidity Cycling	-10 °C to 85 °C at 85% R. H.	≤ 0.05 dB/km
Water Immersion	at 23 °C ± 2 °C	≤ 0.05 dB/km
Heat Aging	at 85 °C ± 2 °C	≤ 0.05 dB/km
Damp Heat	85 °C at 85% R. H.	≤ 0.05 dB/km
Performance Characteristics		
Effective Group Index of Refraction N _{eff}	at 1310 nm / 1383 nm	1.466
	at 1550 nm	1.467
	at 1625 nm	1.470

1. Attenuation increase due to hydrogen aging at this wavelength will be 0.01 db/km or less in accordance with IEC IEC60793-2-50 test procedure.
2. Induced attenuation at 1310 nm, 1550 nm and 1625 nm

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification Non-Zero Dispersion Shifted Single-Mode Optical Fiber Standard, ITU-T G.655.D (Uncolored Fiber)

Non-Zero dispersion shifted (NZ-DSF) single-mode optical fiber, made by the vapor phase axial deposition (VAD) method, which enables customer to construct high-capacity, ultra long haul WDM system. This fiber allows for easier deployment of WDM in metropolitan areas, and increases the capacity of fiber in WDM systems throughout the wavelength region between 1530nm and 1625nm (C, L-bands). NZ-DSF has the ability to increase transmission speeds of systems up to 10 Gb/s and 40 Gb/s and also has superior polarization mode dispersion performance.

Structural Specifications		
Fiber Materials		
Core Material		Germanium doped silica.
Cladding Material		Silica, step index and matched clad type.
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Mode Field Diameter	at 1550 nm	$9.2 \pm 0.5 \mu\text{m}$
Cladding Diameter		$125.0 \pm 1.0 \mu\text{m}$
Coating Diameter (Uncolored)		$242 \pm 5 \mu\text{m}$
Core/Cladding Concentricity Error		$\leq 0.5 \mu\text{m}$
Cladding Non-circularity		$\leq 0.7 \%$
Coating - Cladding Concentricity Error		$\leq 12 \mu\text{m}$
Fiber Curl Radius		$\geq 4.0 \text{ m}$
Optical Characteristics		
Attenuation Coefficient	at 1550 nm	$\leq 0.22 \text{ dB/km}$
	at 1625 nm	$\leq 0.25 \text{ dB/km}$
Point Discontinuity	at 1550 nm	$\leq 0.10 \text{ dB}$
Cable Cut-off Wavelength (λ_{c})		$< 1450 \text{ nm}$
Chromatic Dispersion Coefficient	at 1530 ~ 1565 nm	$5.5 \sim 10.0 \text{ ps/nm/km}$
	at 1565 ~ 1625 nm	$7.5 \sim 13.5 \text{ ps/nm/km}$
Fiber PMD Link Design Value		$\leq 0.1 \text{ ps}/\sqrt{\text{km}}$
Mechanical Characteristics		
Proof Stress Level		0.86 GPa (1.2%, 120 kpsi)
	$\varnothing=32 \text{ mm}$, 1 turn at 1550 nm	$\leq 0.5 \text{ dB}$
Bending Induced Attenuation	$\varnothing=32 \text{ mm}$, 1 turn at 1625 nm	$\leq 0.5 \text{ dB}$
	$\varnothing=60 \text{ mm}$, 100 turns at 1550 nm	$\leq 0.05 \text{ dB}$
	$\varnothing=60 \text{ mm}$, 100 turns at 1625 nm	$\leq 0.05 \text{ dB}$
Coating Strip Force (F)	peak	$1.3 \text{ N} \leq F \leq 8.9 \text{ N}$
Dynamic fatigue resistance parameter		20
Environmental Characteristics ¹		
Temperature Cycling	-60 °C to 85 °C	$\leq 0.05 \text{ dB/km}$
Temperature Humidity Cycling	-10 °C to 85 °C at 85% R. H.	$\leq 0.05 \text{ dB/km}$
Water Immersion	at 23 °C $\pm$ 2 °C	$\leq 0.05 \text{ dB/km}$
Heat Aging	at 85 °C $\pm$ 2 °C	$\leq 0.05 \text{ dB/km}$

1. Induced attenuation at 1550 nm

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification Low Macro Bending Sensitive Single-Mode Optical Fiber Standard, ITU-T G.657.A1 (Uncolored Fiber)

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO ₂) Doped with Germanium Dioxide (GeO ₂)
Cladding Material		Pure silica (SiO ₂)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Mode Field Diameter	at 1310 nm	9.0 ± 0.4 µm
	at 1550 nm	10.1 ± 0.5 µm
Cladding Diameter		125.0 ± 0.7 µm
Coating Diameter (Uncolored)		242 ± 7 µm
Core/Cladding Concentricity Error		≤ 0.5 µm
Cladding Non-circularity		≤ 0.7 %
Coating/Cladding Concentricity Error		≤ 12 µm
Coating Non-circularity		≤ 5 %
Fiber Curl Radius		≥ 4.0 m
Optical Characteristics		
Attenuation Coefficient	at 1310 nm	0.33 – 0.35 dB/km
	at 1383 nm ¹	0.32 – 0.35 dB/km
	at 1550 nm	0.19 – 0.21 dB/km
	at 1625 nm	0.20 – 0.23 dB/km
Point Discontinuity	at 1310 nm / 1550 nm	≤ 0.05 dB
Cable Cut-off Wavelength (λ _{cc})		< 1260 nm
Zero-dispersion Wavelength (λ ₀)		1300nm ≤ λ ₀ ≤ 1322 nm
Zero-dispersion Slope (S ₀)		≤ 0.09 ps/nm ² /km
Chromatic Dispersion Coefficient	at 1310 nm	≤ 3 ps/nm/km
	at 1550 nm	≤ 18 ps/nm/km
	at 1625 nm	≤ 22 ps/nm/km
Maximum Individual Fiber PMD		≤ 0.1 ps/√km
Fiber PMD Link Design Value		≤ 0.06 ps/√km
Mechanical Characteristics		
Proof Stress Level		0.70 GPa (1.0%, 100 kpsi)
Bending Induced Attenuation	Ø=10 mm, 1 turn at 1550 nm	≤ 0.75 dB
	Ø=10 mm, 1 turn at 1625 nm	≤ 1.50 dB
	Ø=15 mm, 10 turns at 1550 nm	≤ 0.25 dB
	Ø=15 mm, 10 turns at 1625 nm	≤ 1.00 dB
Coating Strip Force (F)	peak	1.2 N ≤ F ≤ 8.9 N
	average	1.0 N ≤ F ≤ 3.0 N
Dynamic Tensile Strength	median; 0.5 m, unaged	≥ 3.8 Gpa (550 kpsi)
	median; 0.5 m, aged	≥ 3.8 Gpa (550 kpsi)
Fatigue	nominal value	20
Environmental Characteristics ²		
Temperature Cycling	-60 °C to 85 °C	≤ 0.05 dB/km
Temperature Humidity Cycling	-10 °C to 85 °C at 98% R. H.	≤ 0.05 dB/km
Water Immersion	at 23 °C, 14 days	≤ 0.05 dB/km
Dry Heat	at 85 °C, 30 days	≤ 0.05 dB/km
Damp Heat	85 °C at 85% R. H., 30 days	≤ 0.05 dB/km
Performance Characteristics		
Effective Group Index of Refraction N _{eff}	at 1310 nm	1.467
	at 1550 nm	1.468
	at 1625 nm	1.468

1. Attenuation increase due to hydrogen aging at this wavelength will be 0.01 db/km or less in accordance with IEC IEC60793-2-50 test procedure.

2. Induced attenuation at 1310 nm, 1550 nm and 1625 nm

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification Low Macro Bending Sensitive Single-Mode Optical Fiber Standard, ITU-T G.657.A2 (Uncolored Fiber)

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO ₂) Doped with Germanium Dioxide (GeO ₂)
Cladding Material		Pure silica (SiO ₂)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Mode Field Diameter	at 1310 nm	8.8 ± 0.4 µm
	at 1550 nm	9.8 ± 0.5 µm
Cladding Diameter		125.0 ± 0.7 µm
Coating Diameter (Uncolored)		242 ± 7 µm
Core/Cladding Concentricity Error		≤ 0.5 µm
Cladding Non-circularity		≤ 0.7 %
Coating/Cladding Concentricity Error		≤ 12 µm
Coating Non-circularity		≤ 5 %
Fiber Curl Radius		≥ 4.0 m
Optical Characteristics		
Attenuation Coefficient	at 1310 nm	0.33 – 0.35 dB/km
	at 1383 nm ¹	0.32 – 0.35 dB/km
	at 1550 nm	0.19 – 0.20 dB/km
	at 1625 nm	0.20 – 0.23 dB/km
Point Discontinuity	at 1310 nm / 1550 nm	≤ 0.05 dB
Cable Cut-off Wavelength (λ _{cc})		≤ 1260 nm
Zero-dispersion Wavelength (λ ₀)		1300nm ≤ λ ₀ ≤ 1324 nm
Zero-dispersion Slope (S ₀)		≤ 0.092 ps/nm ² /km
Chromatic Dispersion Coefficient	at 1310 nm	≤ 3 ps/nm/km
	at 1550 nm	≤ 18 ps/nm/km
	at 1625 nm	≤ 22 ps/nm/km
Maximum Individual Fiber PMD		≤ 0.1 ps/√km
Fiber PMD Link Design Value ²		≤ 0.06 ps/√km
Mechanical Characteristics		
Proof Stress Level		0.70 GPa (1.0%, 100 kpsi)
Bending Induced Attenuation	Ø=7.5 mm, 1 turn at 1625 nm	≤ 1.00 dB
	Ø=7.5 mm, 1 turn at 1550 nm	≤ 0.50 dB
	Ø=10 mm, 1 turn at 1625 nm	≤ 0.20 dB
	Ø=10 mm, 1 turn at 1550 nm	≤ 0.10 dB
	Ø=15 mm, 10 turns at 1625 nm	≤ 0.10 dB
	Ø=15 mm, 10 turns at 1550 nm	≤ 0.03 dB
Coating Strip Force (F)	peak	1.2 N ≤ F ≤ 8.9 N
	average	1.0 N ≤ F ≤ 3.0 N
Dynamic Tensile Strength	median; 0.5 m, unaged	≥ 3.8 Gpa (550 kpsi)
	median; 0.5 m, aged***	≥ 3.8 Gpa (550 kpsi)
Fatigue	Dynamic, aged*** - unaged	20
	Static, aged ³	23
Environmental Characteristics ³		
Temperature Cycling	-60 °C to 85 °C	≤ 0.05 dB/km
Temperature Humidity Cycling	-10 °C to 85 °C at 98% R. H.	≤ 0.05 dB/km
Water Immersion	at 23 °C, 14 days	≤ 0.05 dB/km
Dry Heat	at 85 °C, 30 days	≤ 0.05 dB/km
Damp Heat	85 °C at 85% R. H., 30 days	≤ 0.05 dB/km
Performance Characteristics		
Effective Group Index of Refraction Neff	at 1310 nm	1.467
	at 1550 nm	1.467
	at 1625 nm	1.468

1. Including hydrogen aging according to IEC 60793-2-50, type B.1.3

2. According to IEC 60794 –3, Ed 3 (Q=0.01%)

3. Aging at 85°C, 85% RH, 30 days

4. Induced attenuation at 1310 nm, 1550 nm and 1625 nm

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification
62.5/125/242 μm Multi-Mode Optical Fiber
OM1 (Uncolored Fiber)

1300 nm bandwidth optimized multi-mode optical fiber.

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO ₂) Doped with Germanium Dioxide (GeO ₂)
Cladding Material		Pure silica (SiO ₂)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Core Diameter		62.5 ± 2.5 μm
Core Non-circularity		≤ 5 %
Core/Cladding Concentricity Error		≤ 1.0 μm
Cladding Diameter		125.0 ± 1.0 μm
Cladding Non-circularity		≤ 0.7 %
Coating Diameter (Uncolored)		242 ± 5 μm
Coating Non-circularity		≤ 5 %
Coating/Cladding Concentricity Error		≤ 10 μm
Optical Characteristics		
Attenuation Coefficient	at 850 nm	≤ 2.6 ~ 2.7 dB/km
	at 1300 nm	≤ 0.5 ~ 0.6 dB/km
Numerical Aperture		0.275 ± 0.015
Zero-dispersion Wavelength (λ ₀)		1300 nm ≤ λ ₀ ≤ 1365 nm
Zero-dispersion Slope (S ₀)	1320 nm ≤ λ ₀ ≤ 1348 nm	≤ 0.11 ps/nm ² ·km
	1348 nm ≤ λ ₀ ≤ 1365 nm	≤ 0.001 (1458 - λ ₀) ps/nm ² ·km
Overfilled Modal Bandwidth ¹	at 850 nm	≥ 160 MHz·km
	at 1300 nm	≥ 500 MHz·km
Bending Induced Attenuation	Ø=75 mm, 100 turn at 850 nm	≤ 0.5 dB
	Ø=75 mm, 100 turn at 1300 nm	≤ 0.5 dB
Performance Characteristics ²		
Point Discontinuity ³	at 850 nm / 1300 nm	≤ 0.1 dB
Irregularities Over Fiber Length	at 850 nm / 1300 nm	≤ 0.1 dB
Reflections		Not allowed.
Effective Group Index of Refraction N _{eff}	at 850 nm	1.496
	at 1300 nm	1.491
Mechanical Characteristics		
Proof Level	off line	0.7 GPa (100 kpsi)
Dynamic Tensile Strength	median; 0.5 m, unaged and aged ⁴	≥3.8 Gpa (550 kpsi)
Dynamic Fatigue Parameter	nominal value, unaged and aged ⁴	25
Coating Strip Force (F)	peak, unaged and aged ⁵	1.3 N ≤ F ≤ 8.9 N
	average, unaged and aged ⁵	1.0 N ≤ F ≤ 3.0 N
Environmental Characteristics ⁶		
Temperature Cycling	-60 °C to 85 °C	≤ 0.1 dB/km
Temperature Humidity Cycling	-10 °C to 85 °C at 4-98% R. H.	≤ 0.1 dB/km
Water Immersion	at 23 °C ± 2 °C, 30 days	≤ 0.1 dB/km
Heat Aging	at 85 °C ± 2 °C, 30 days	≤ 0.1 dB/km
Damp Heat	85 °C at 85% R. H., 30 days	≤ 0.1 dB/km

1. The modal bandwidth is linearly normalized to 1 km, according to IEC 60793-2-10.
2. OTDR measurement with 0.5 μs pulse width.
3. Mean of bi-directional measurement.
4. Aging at 85 °C, 85% R. H., 30 days.
5. Aging at 23 °C, 0 °C and 45 °C; 30 days at 85 °C and 85% R.H.; 14 days water immersion at 23 °C.
6. Induced attenuation at 850 nm and 1300 nm.

• The images are for illustrative purposes only.

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification
50/125/242 μm Multi-Mode Optical Fiber
Standard, ITU-T G.651.1 (OM2) (Uncolored Fiber)

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO_2) Doped with Germanium Dioxide (GeO_2)
Cladding Material		Pure silica (SiO_2)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Core Diameter		$50 \pm 2.5 \mu\text{m}$
Core Non-circularity		$\leq 5 \%$
Core/Cladding Concentricity Error		$\leq 1.0 \mu\text{m}$
Cladding Diameter		$125.0 \pm 1.0 \mu\text{m}$
Cladding Non-circularity		$\leq 0.7 \%$
Coating Diameter (Uncolored)		$242 \pm 5 \mu\text{m}$
Coating Non-circularity		$\leq 5 \%$
Coating/Cladding Concentricity Error		$\leq 10 \mu\text{m}$
Optical Characteristics		
Attenuation Coefficient	at 850 nm	$\leq 2.3 \sim 2.4 \text{ dB/km}$
	at 1300 nm	$\leq 0.5 \sim 0.6 \text{ dB/km}$
Numerical Aperture		0.200 ± 0.015
Zero-dispersion Wavelength (λ_0)		$1320 \text{ nm} \leq \lambda_0 \leq 1365 \text{ nm}$
Zero-dispersion Slope (S_0)	$1295 \text{ nm} \leq \lambda_0 \leq 1310 \text{ nm}$	$\leq 0.105 \text{ ps/nm}^2\cdot\text{km}$
	$1310 \text{ nm} \leq \lambda_0 \leq 1340 \text{ nm}$	$\leq 0.000375 (1590 - \lambda_0) \text{ ps/nm}^2\cdot\text{km}$
Differential Mode Delay (DMD)		See Note. ¹
Fiber Capacity	10GBASE-SR	83 m
	1GBASE-SR	600 m
Overfilled Modal Bandwidth	at 850 nm	$\geq 500 \text{ MHz}\cdot\text{km}$
	at 1300 nm	$\geq 500 \text{ MHz}\cdot\text{km}$
Bending Loss	$\varnothing=15 \text{ mm}$, 2 turn at 850 nm	$\leq 0.2 \text{ dB}$
	$\varnothing=15 \text{ mm}$, 2 turn at 1300 nm	$\leq 0.5 \text{ dB}$
	$\varnothing=30 \text{ mm}$, 2 turn at 850 nm	$\leq 0.1 \text{ dB}$
	$\varnothing=30 \text{ mm}$, 2 turn at 1300 nm	$\leq 0.3 \text{ dB}$
Performance Characteristics ²		
Point Discontinuity ³	at 850 nm / 1300 nm	$\leq 0.1 \text{ dB}$
Irregularities Over Fiber Length	at 850 nm / 1300 nm	$\leq 0.1 \text{ dB}$
Reflections		Not allowed.
Effective Group Index of Refraction N_{eff}	at 850 nm	1.482
	at 1300 nm	1.477
Mechanical Characteristics		
Proof Level	Off line	0.7 GPa (100 kpsi)
Dynamic Tensile Strength	median; 0.5 m, unaged and aged ⁴	$\geq 3.8 \text{ Gpa}$ (550 kpsi)
Dynamic Fatigue Parameter	nominal value, unaged and aged ⁴	25
Coating Strip Force (F)	peak, unaged and aged ⁵	$1.3 \text{ N} \leq F \leq 8.9 \text{ N}$
	average, unaged and aged ⁵	$1.0 \text{ N} \leq F \leq 3.0 \text{ N}$
Environmental Characteristics ⁶		
Temperature Cycling	-60 °C to 85 °C	$\leq 0.1 \text{ dB/km}$
Temperature Humidity Cycling	-10 °C to 85 °C at 4-98% R. H.	$\leq 0.1 \text{ dB/km}$
Water Immersion	at 23 °C $\pm$ 2 °C, 30 days	$\leq 0.1 \text{ dB/km}$
Heat Aging	at 85 °C $\pm$ 2 °C, 30 days	$\leq 0.1 \text{ dB/km}$
Damp Heat	85 °C at 85% R. H., 30 days	$\leq 0.1 \text{ dB/km}$

1. Differential Mode Delay (DMD) specifications are compliant with IEC 60793-2-10 (Type A1a.2 for OM3 and Type A1a.3 for OM4.), TIA-492AAAC (OM3) and 492AAAD (OM4).
2. OTDR measurement with 0.5 μs pulse width.
3. Mean of bi-directional measurement.
4. Aging at 85 °C, 85% R. H., 30 days.
5. Aging at 23 °C, 0 °C and 45 °C; 30 days at 85 °C and 85% R.H.; 14 days water immersion at 23 °C.
6. Induced attenuation at 850 nm and 1300 nm.

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification
50/125/242 μm Multi-Mode Optical Fiber
Standard, ITU-T G.651.1 (OM3) (Uncolored Fiber)

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO ₂) Doped with Germanium Dioxide (GeO ₂)
Cladding Material		Pure silica (SiO ₂)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Core Diameter		50 ± 2.5 μm
Core Non-circularity		≤ 5 %
Core/Cladding Concentricity Error		≤ 1.0 μm
Cladding Diameter		125.0 ± 1.0 μm
Cladding Non-circularity		≤ 0.7 %
Coating Diameter (Uncolored)		242 ± 5 μm
Coating Non-circularity		≤ 5 %
Coating/Cladding Concentricity Error		≤ 10 μm
Optical Characteristics		
Attenuation Coefficient	at 850 nm	≤ 2.3 ~ 2.4 dB/km
	at 1300 nm	≤ 0.5 ~ 0.6 dB/km
Numerical Aperture		0.200 ± 0.015
Zero-dispersion Wavelength (λ ₀)		1320 nm ≤ λ ₀ ≤ 1365 nm
Zero-dispersion Slope (S ₀)	1295 nm ≤ λ ₀ ≤ 1310 nm	≤ 0.105 ps/nm ² ·km
	1310 nm ≤ λ ₀ ≤ 1340 nm	≤ 0.000375 (1590 - λ ₀) ps/nm ² ·km
Differential Mode Delay (DMD)		See Note. ¹
Fiber Capacity	40GBASE-SR4 / 100GBASE-SR10	140 m ²
	10GBASE-SR	300 m
	1GBASE-SR	1000 m
Overfilled Modal Bandwidth	at 850 nm	≥ 1500 MHz·km
	at 1300 nm	≥ 500 MHz·km
Effective Modal Bandwidth (EMB)	at 850 nm	≥ 2000 MHz·km
Bending Loss	Ø=15 mm, 2 turn at 850 nm	≤ 0.2 dB
	Ø=15 mm, 2 turn at 1300 nm	≤ 0.5 dB
	Ø=30 mm, 2 turn at 850 nm	≤ 0.1 dB
	Ø=30 mm, 2 turn at 1300 nm	≤ 0.3 dB
Performance Characteristics ³		
Point Discontinuity ⁴	at 850 nm / 1300 nm	≤ 0.1 dB
Irregularities Over Fiber Length	at 850 nm / 1300 nm	≤ 0.1 dB
Reflections		Not allowed.
Effective Group Index of Refraction N _{eff}	at 850 nm	1.482
	at 1300 nm	1.477
Mechanical Characteristics		
Proof Level	Off line	0.7 GPa (100 kpsi)
Dynamic Tensile Strength	median; 0.5 m, unaged and aged ⁵	≥3.8 Gpa (550 kpsi)
Dynamic Fatigue Parameter	nominal value, unaged and aged ⁵	25
Coating Strip Force (F)	peak, unaged and aged ⁶	1.3 N ≤ F ≤ 8.9 N
	average, unaged and aged ⁶	1.0 N ≤ F ≤ 3.0 N
Environmental Characteristics ⁷		
Temperature Cycling	-60 °C to 85 °C	≤ 0.1 dB/km
Temperature Humidity Cycling	-10 °C to 85 °C at 4-98% R. H.	≤ 0.1 dB/km
Water Immersion	at 23 °C ± 2 °C, 30 days	≤ 0.1 dB/km
Heat Aging	at 85 °C ± 2 °C, 30 days	≤ 0.1 dB/km
Damp Heat	85 °C at 85% R. H., 30 days	≤ 0.1 dB/km

1. Differential Mode Delay (DMD) specifications are compliant with IEC 60793-2-10 (Type A1a.2 for OM3 and Type A1a.3 for OM4.), TIA-492AAAC (OM3) and 492AAAD (OM4).
2. Maximum cabled fiber attenuation 3.0 dB/km at 850 nm, maximum total connector loss of 1.0 dB and VCSELs maximum RMS spectral width of 0.29 nm.
3. OTDR measurement with 0.5 μs pulse width.
4. Mean of bi-directional measurement.
5. Aging at 85 °C, 85% R. H., 30 days.
6. Aging at 23 °C, 0 °C and 45 °C; 30 days at 85 °C and 85% R.H.; 14 days water immersion at 23 °C.
7. Induced attenuation at 850 nm and 1300 nm.

SLT(FR)-SA-SHFJ-(GY12)-(FE180.PH120)

Optical Fiber Core Specification
50/125/242 μm Multi-Mode Optical Fiber
Standard, ITU-T G.651.1 (OM4) (Uncolored Fiber)

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO_2) Doped with Germanium Dioxide (GeO_2)
Cladding Material		Pure silica (SiO_2)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Core Diameter		$50 \pm 2.5 \mu\text{m}$
Core Non-circularity		$\leq 5 \%$
Core/Cladding Concentricity Error		$\leq 1.0 \mu\text{m}$
Cladding Diameter		$125.0 \pm 1.0 \mu\text{m}$
Cladding Non-circularity		$\leq 0.7 \%$
Coating Diameter (Uncolored)		$242 \pm 5 \mu\text{m}$
Coating Non-circularity		$\leq 5 \%$
Coating/Cladding Concentricity Error		$\leq 10 \mu\text{m}$
Optical Characteristics		
Attenuation Coefficient	at 850 nm	$\leq 2.2 \sim 2.3 \text{ dB/km}$
	at 1300 nm	$\leq 0.5 \sim 0.6 \text{ dB/km}$
Numerical Aperture		0.200 ± 0.015
Zero-dispersion Wavelength (λ_0)		$1295 \text{ nm} \leq \lambda_0 \leq 1340 \text{ nm}$
Zero-dispersion Slope (S_0)	$1295 \text{ nm} \leq \lambda_0 \leq 1310 \text{ nm}$	$\leq 0.105 \text{ ps/nm}^2\cdot\text{km}$
	$1310 \text{ nm} \leq \lambda_0 \leq 1340 \text{ nm}$	$\leq 0.000375 (1590 - \lambda_0) \text{ ps/nm}^2\cdot\text{km}$
Differential Mode Delay (DMD)		See Note. ¹
Fiber Capacity	40GBASE-SR4 / 100GBASE-SR10	170 m^2
	10GBASE-SR	550 m^2
	1GBASE-SR	1100 m^2
Overfilled Modal Bandwidth	at 850 nm	$\geq 3500 \text{ MHz}\cdot\text{km}$
	at 1300 nm	$\geq 500 \text{ MHz}\cdot\text{km}$
Effective Modal Bandwidth (EMB)	at 850 nm	$\geq 4700 \text{ MHz}\cdot\text{km}$
Bending Loss	$\varnothing=75 \text{ mm}$, 100 turn at 850 nm	$\leq 0.5 \text{ dB}$
	$\varnothing=75 \text{ mm}$, 100 turn at 1300 nm	$\leq 0.5 \text{ dB}$
Performance Characteristics ³		
Point Discontinuity ⁴	at 850 nm / 1300 nm	$\leq 0.1 \text{ dB}$
Irregularities Over Fiber Length	at 850 nm / 1300 nm	$\leq 0.1 \text{ dB}$
Reflections		Not allowed.
Effective Group Index of Refraction N_{eff}	at 850 nm	1.482
	at 1300 nm	1.477
Mechanical Characteristics		
Proof Level	Off line	0.7 GPa (100 kpsi)
Dynamic Tensile Strength	median; 0.5 m, unaged and aged ⁵	$\geq 3.8 \text{ Gpa}$ (550 kpsi)
Dynamic Fatigue Parameter	nominal value, unaged and aged ⁵	25
Coating Strip Force (F)	peak, unaged and aged ⁶	$1.3 \text{ N} \leq F \leq 8.9 \text{ N}$
	average, unaged and aged ⁶	$1.0 \text{ N} \leq F \leq 3.0 \text{ N}$
Environmental Characteristics ⁷		
Temperature Cycling	-60 °C to 85 °C	$\leq 0.1 \text{ dB/km}$
Temperature Humidity Cycling	-10 °C to 85 °C at 4-98% R. H.	$\leq 0.1 \text{ dB/km}$
Water Immersion	at 23 °C $\pm$ 2 °C, 30 days	$\leq 0.1 \text{ dB/km}$
Heat Aging	at 85 °C $\pm$ 2 °C, 30 days	$\leq 0.1 \text{ dB/km}$
Damp Heat	85 °C at 85% R. H., 30 days	$\leq 0.1 \text{ dB/km}$

1. Differential Mode Delay (DMD) specifications are compliant with IEC 60793-2-10 (Type A1a.2 for OM3 and Type A1a.3 for OM4.), TIA-492AAAC (OM3) and 492AAAD (OM4).
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