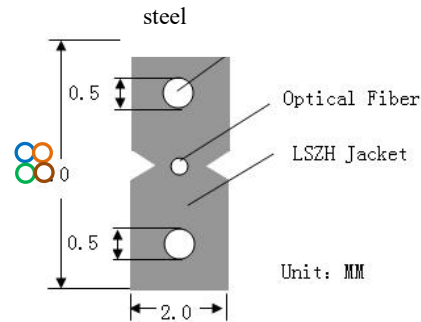




## FTTH Indoor Fiber Optical Drop Cable GJXH SM 2x3mm

### G652 G657 2 4 6 Core LSZH Black Jacket

#### Cable Design



#### Technical data

No. of cable		<b>1-4</b>	
Fiber Model		G.657A1/G.657A1/G.652D	
STEEL	Diameter ( $\pm 0.03$ ) mm	0.5	
	NO.	2	
Outer Sheath	Material	LSZH	
	Colour	Black	
Cable Diameter ( $\pm 0.2$ ) mm		2.0 $\times$ 3.0	
Cable Weight ( $\pm 2$ ) kg/km		9	
Attenuation	1310nm	dB/km	0.50
	1550nm		0.40
Allowable Tensile Strength	Short Term	N	80
	Long Term		40
Allowable Crush Resistance	Short Term	N/100mm	2200
	Long Term		1000
Min. bending radius	Without Tension		15.0 $\times$ Cable- $\phi$
	Under Maximum Tension		30.0 $\times$ Cable- $\phi$
Temperature range (°C)	Installation		-20~+60
	Transport&Storage		-40~+70
	Operation		-40~+70

#### Fiber Colours

NO.	1	2	3	4
Colour	Blue	orange	green	brown

#### The properties of single mode optical fiber (ITU-T Rec. G.652.D)

Item	Specification
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Fiber type	Single mode
Fiber material	Doped silica
Attenuation coefficient @ 1310 nm @ 1383 nm @ 1550 nm @ 1625 nm	≤ 0.36 dB/km ≤ 0.32 dB/km ≤ 0.22 dB/km ≤ 0.30 dB/km
Point discontinuity	≤ 0.05 dB
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm <sup>2</sup> .km)
Chromatic dispersion @ 1288 ~ 1339 nm @ 1271 ~ 1360 nm @ 1550 nm @ 1625 nm	≤3.5 ps/(nm. km) ≤5.3 ps/(nm. km) ≤18 ps/(nm. km) ≤22 ps/(nm. km)
PMD <sub>Q</sub> (Quadrature average*)	≤0.2 ps/km <sup>1/2</sup>
Mode field diameter @ 1310 nm	9.2±0.4 μm
Core / Clad concentricity error	≤ 0.5 μm
Cladding diameter	125.0 ± 0.7 μm
Cladding non-circularity	≤1.0%
Primary coating diameter	245 ± 10 μm
Proof test level	100 kpsi (=0.69 Gpa), 1%
Temperature dependence 0°C~+70°C @ 1310 & 1550nm	≤ 0.1 dB/km

**The properties of single mode optical fiber (ITU-T Rec. G.657A1)**

Characteristic	condition	data	unit
<b>Optical properties</b>			
Attenuation	1310nm	≤0.35	dB/km
	1383nm(氢老化后)	≤0.35	dB/km
	1490nm	≤0.23	dB/km
	1550nm	≤0.22	dB/km
	1625nm	≤0.23	dB/km
Relative wavelength attenuation @1310nm @1550nm	1285~1330nm	≤0.05	dB/km
	1525~1575nm	≤0.05	dB/km
Dispersion in the wavelength range of	1285~1340nm	≤3.5	ps/(nm.km)
	1550nm	≤18	ps/(nm.km)
Zero dispersion wavelength		1300~1324	nm
A zero-dispersion slope		≤0.092	ps/(nm <sup>2</sup> .km)



Polarization Mode Dispersion Coefficient PMD		≤0.2	ps/
Single fiber maximum		≤0.1	ps/
Fiber link value (M=20, Q=0.01%)		0.04	
Typical value			ps/
Cable cut-off wavelength ( $\lambda_{cc}$ )		≤1260	nm
Mode field diameter (MFD)	1310nm	8.8±0.4	μm
	1550nm	9.8±0.5	μm
Attenuation discontinuities	1310nm	≤0.05	dB
	1550nm	≤0.05	dB
<b>Geometric characteristics</b>			
Core diameter		125±0.7	μm
Cladding roundness		≤0.7	%
Coating diameter		245±5	μm
Coating / package concentricity error		≤12.0	μm
Core / package concentricity error		≤0.5	μm
The warpage (radius)		≥4	m
<b>Environmental characteristics (1310nm、1550nm、1625nm)</b>			
Temperature additional attenuation	-60℃ ~+85℃	≤0.05	dB/km
Temperature-humidity cycle additional attenuation	-10℃ ~+85℃ ,98% Relative humidity	≤0.05	dB/km
Flooding additional attenuation	23℃ , 30 days	≤0.05	dB/km
Hot and humid additional attenuation	85℃ 和 85% Relative humidity, 30 days	≤0.05	dB/km
Dry heat aging	85℃	≤0.05	dB/km
<b>Mechanical properties</b>			
Screening tension		≥9.0	N
The macro bend Additional attenuation	10 CircleΦ30mm	1550nm	≤0.025
	10 CircleΦ30mm	1625nm	≤1.0
	1 CircleΦ20mm	1550nm	≤0.75
	1 CircleΦ20mm	1625nm	≤1.5
Coating peeling force	Typical average	1.5	N
Dynamic fatigue parameters		≥20	

**The properties of single mode optical fiber (ITU-T Rec. G.657A2)**

Characteristic	condition	data	unit
<b>Optical properties</b>			
Attenuation	1310nm	≤0.35	dB/km
	1383nm(氢老化后)	≤0.35	dB/km
	1490nm	≤0.23	dB/km
	1550nm	≤0.22	dB/km
	1625nm	≤0.23	dB/km



Relative wavelength attenuation @1310nm @1550nm	1285~1330nm 1525~1575nm	$\leq 0.05$ $\leq 0.05$	dB/km dB/km
Dispersion in the wavelength range of	1285~1340nm 1550nm	$\leq 3.5$ $\leq 18$	ps/(nm.km) ps/(nm.km)
Zero dispersion wavelength		1300~1324	nm
A zero-dispersion slope		$\leq 0.092$	ps/(nm <sup>2</sup> .km)
Polarization Mode Dispersion Coefficient PMD Single fiber maximum Fiber link value (M=20, Q=0.01%) Typical value		$\leq 0.2$ $\leq 0.1$ 0.04	ps/ ps/ ps/
Cable cut-off wavelength ( $\lambda_{cc}$ )		$\leq 1260$	nm
Mode field diameter (MFD)	1310nm 1550nm	8.8±0.4 9.8±0.5	$\mu$ m $\mu$ m
Attenuation discontinuities	1310nm 1550nm	$\leq 0.05$ $\leq 0.05$	dB dB
<b>Geometric characteristics</b>			
Core diameter		125±0.7	$\mu$ m
Cladding roundness		$\leq 0.7$	%
Coating diameter		245±5	$\mu$ m
Coating / package concentricity error		$\leq 12.0$	$\mu$ m
Core / package concentricity error		$\leq 0.5$	$\mu$ m
The warpage (radius)		$\geq 4$	m
<b>Environmental characteristics (1310nm、1550nm、1625nm)</b>			
Temperature additional attenuation	-60℃ ~+85℃	$\leq 0.05$	dB/km
Temperature-humidity cycle additional attenuation	-10℃ ~+85℃, 98% Relative humidity	$\leq 0.05$	dB/km
Flooding additional attenuation	23℃, 30 days	$\leq 0.05$	dB/km
Hot and humid additional attenuation	85℃ 和 85% Relative humidity, 30 days	$\leq 0.05$	dB/km
Dry heat aging	85℃	$\leq 0.05$	dB/km
<b>Mechanical properties</b>			
Screening tension		$\geq 9.0$	N
The macro bend Additional attenuation			
10 CircleΦ30mm	1550nm	$\leq 0.025$	dB
10 CircleΦ30mm	1625nm	$\leq 1.0$	dB
1 CircleΦ20mm	1550nm	$\leq 0.75$	dB
1 CircleΦ20mm	1625nm	$\leq 1.5$	dB
Coating peeling force	Typical average	1.5	N
Dynamic fatigue parameters		$\geq 20$	

**Main mechanical & environmental performance test**

Item	Test Method	Acceptance Condition
Tensile Strength IEC 794-1-2-E1	- Load: Short term tension - Length of cable: about 50m	- Fiber strain $\leq 0.36\%$ - Loss change $\leq 0.1 \text{ dB @}1550 \text{ nm}$ - No fiber break and no sheath damage.
Crush Test IEC 60794-1-2-E3	- Load: Short term crush - Load time: 1min	- Loss change $\leq 0.05\text{dB@}1550\text{nm}$ - No fiber break and no sheath damage.
Impact Test IEC 60794-1-2-E4	- Points of impact: 3 - Times of per point: 1 - Impact energy: 5J	- Loss change $\leq 0.1\text{dB@}1550\text{nm}$ - No fiber break and no sheath damage.
Temperature Cycling Test YD/T901-2001-4.4.4.1	- Temperature step: +20°C→-40°C→+70°C →+20°C - Time per each step: 12 hrs - Number of cycle: 2	- Loss change $\leq 0.05 \text{ dB/km@}1550 \text{ nm}$ - No fiber break and no sheath damage.

**Sheath marking**

The color of marking is white, but if the remarking is necessary, the **white color** marking shall be printed newly on a different position.

An occasional unclear of length marking is permitted if both of the neighboring markings are clear.

The both cable ends are sealed with heat shrinkable end caps to prevent water ingress.