'TORAY'

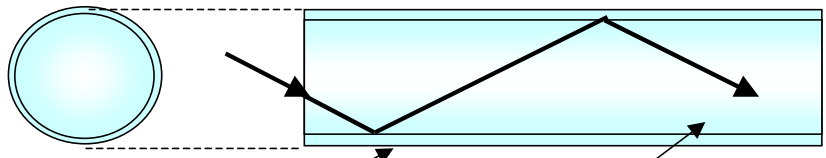
High Purity & High Quality

LASER COMPONENTS

RAYTELA

Polymer Optical Fiber

Toray polymer optical fibers have been developed by Toray Industries, Inc., based on its experience in polymer and fiber manufacturing as a leading producer of synthetic fibers and plastic products in the world.
Our optical fiber is step index type with core of high-purity polymethyl methacrylate and cladding of special fluorinated polymer.
We have six types of optical fiber, of which brief descriptions are given in the following table. Our optical fiber and its fabricated products are divided into three grades according to the attenuation.

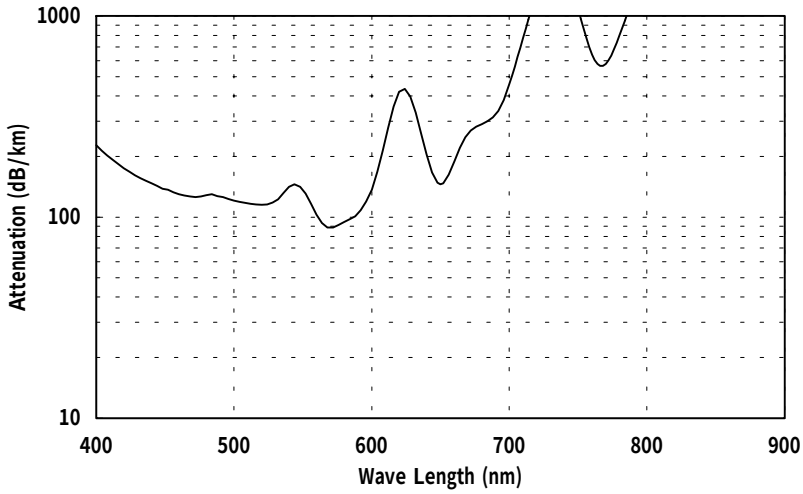


Sructure of Toray Optical Fiber and Diagram of Light Transmission

Fiber Series (※Values in the table are for reference, and can vary based on the conditions and environment of use)

Series		PG	PF	PJ	PM
Parameter		Performance			
Material	Core	Polymethyl Methacrylate (PMMA)			
	Cladding	Fluorinated Polymer			
Refractive index profile		Step Index			
Numerical aperture		0.50	0.46	0.63	0.32
Angle of incidence		60 °	55 °	78 °	37 °
Temperature range of use		-55～70℃	-55～85℃	-55～85℃	-55～85℃
Main Usages		Communication Light Guide Optical Sensor Displays	Communication	Communication Light Guide Optical Sensor	High Speed Data Transmission

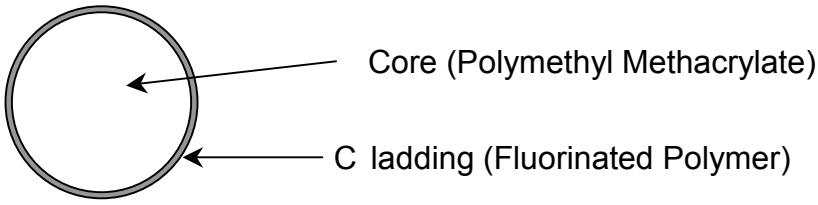
Spectral Attenuation of Optical Fiber (Typical Data)



TORAY RAYTELA®

－ PG series －

1. Structure



2. Specifications

Parameter		Performance
Core	Material	Polymethyl Methacrylate (P MMA)
	Refractive index	1.49
Cladding	Material	Fluorinated Polymer
	Refractive index	1.41
Refractive index profile		Step index
Numerical aperture		0.50
Angle of incidence		60°
Temperature range of use		－55～70℃

3. Fiber Product List

Product Code	Core Diameter (μm)	Cladding Diameter (μm)	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PGS－FB 250	240	250	12,000	≦ 0.30
PGR－FB 250				≦ 0.35
PGU－FB 500	486	500	6,000	≦ 0.18
PGR－FB 500				≦ 0.25
PGU－FB 750	735	750	2,700	≦ 0.15
PGR－FB 750			9,000	≦ 0.20
PGU－FB1000	980	1,000	1,500	≦ 0.15
PGR－FB1000			5,250	≦ 0.20
PGU－FB1500	1,480	1,500	700	≦ 0.15
PGR－FB1500				≦ 0.20
PGR－FB2000	1,980	2,000	350	≦ 0.15
PGR－FB3000	2,980	3,000	150	≦ 0.20

Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk

4. Cord Product List

Product Code	Fiber/Jacket Diameter (mm)	Number of Fibers	Jacket	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PGU-CD 501-10-E	0.5/1.0	1	PE	500	≦0.18
PGS-CD 501-10-E					≦0.22
PGU-CD 751-22-E	0.75/2.2	1	PE	500	≦0.15
PGS-CD 751-22-E					≦0.18
PGU-CD1001-22-E	1.0/2.2	1	PE	500 1,000	≦0.15
PGS-CD1001-22-E					≦0.18
PGS-CD1501-22-E	1.5/2.2	1	PE	600	≦0.18
PGU-CD2001-30-E	2.0/3.0	1	PE	300	≦0.15
PGR-CD2001-30-E					≦0.20
PGU-CD 502-10-E	0.5/1.0/2.0	2	PE	500	≦0.18
PGS-CD 502-10-E					≦0.22
PGU-CD1002-22-E	1.0/2.2/4.4	2	PE	500	≦0.15
PGS-CD1002-22-E					≦0.18

5. Cable Product List

Product Code	Fiber/Cord/ Cable Diameter (mm)	Number of Fibers	Cord/Cable Material	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PGS-CL1001-22E50V	1.0/2.2/5.0	1	PE/Soft PVC	250	≦0.25

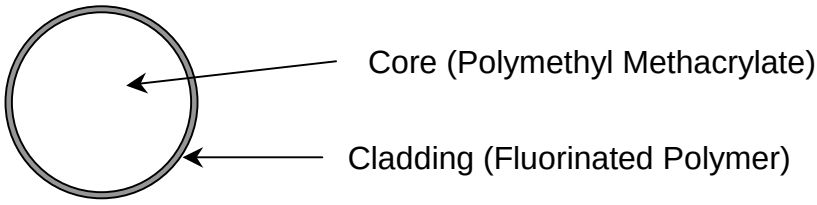
6. Light Guide Product List

Product Code	Fiber/Jacket Diameter (mm)	Number of Fibers	Jacket	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PGS-LG265- 4E10	0.265/1.0	4	PE	500	≦0.30
PGS-LG265- 8E13	0.265/1.3	8	PE	500	≦0.30
PGS-LG265-16E22	0.265/2.2	16	PE	500	≦0.30
PGS-LG265-32E28	0.265/2.8	32	PE	500	≦0.30
PGS-LG265-48E30	0.265/3.0	48	PE	500	≦0.30
PGS-LG265-64E33	0.265/3.3	64	PE	500	≦0.30
PGS-LG500-12E30	0.5/3.0	12	PE	500	≦0.20
PGS-LG500-16E33	0.5/3.3	16	PE	500	≦0.20
PG S-LG500-32E42	0.5/4.2	32	PE	500	≦0.20

TORAY RAYTELA®

－ PF series －

1. Structure



2. Specifications

Parameter		Performance
Core	Material	Polymethyl Methacrylate (PMMA)
	Refractive index	1.49
Cladding	Material	Fluorinated Polymer
	Refractive index	1.42
Refractive index profile		Step index
Numerical aperture		0.46
Angle of incidence		55°
Temperature range of use		－55～85℃

3. Fiber Product List

Product Code	Core Diameter (μm)	Cladding Diameter (μm)	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PFU－FB 500	486	500	6,000	≦ 0.18
PFU－FB 750	735	750	2,700	≦ 0.15
PFU－FB1000	980	1,000	1,500 5,250	≦ 0.15

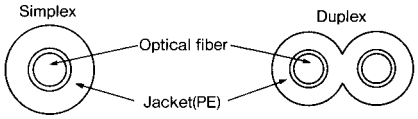
Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk

4. Cord Product List

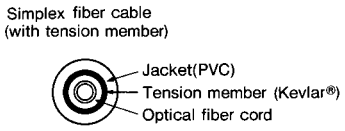
Product Code	Fiber/Jacket Diameter (mm)	Number of Fibers	Jacket	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PFU-CD 501-10-E	0.5/1.0	1	PE	500	≦0.18
PFU-CD 501-15-E	0/5/1.5	1	PE	500	≦0.18
PFU-CD 751-18-E	0.75/1.8	1	PE	500	≦0.15
PFU-CD 751-22-E	0.75/2.2	1	PE	500	≦0.15
PFU-CD1001-22-E	1.0/2.2	1	PE	500 1,000	≦0.15
PFU-UD1001-22-E	1.0/2.2	1	PE UL Grade VW-1	500 1,000	≦0.15
PFU-UD1001-22-V	1.0/2.2	1	PVC UL Grade VW-1	500 1,000	≦0.15
PFU-CD1001-22-AD	1.0/2.2	1	Polyamide12 (D2B)	500	≦0.15
PFU-CD 502-10-E	0.5/1.0/2.0	2	PE	500	≦0.18
PFU-CD 502-15-E	0/5/1.5/3.0	2	PE	500	≦0.18
PFU-CD 752-18-E	0.75/1.8/3.6	2	PE	500	≦0.15
PFU-CD 752-22-E	0.75/2.2/4.4	2	PE	500	≦0.15
PFU-CD1002-22-E	1.0/2.2	2	PE	500	≦0.15
PFU-UD1002-22-E	1.0/2.2	2	PE UL Grade VW-1	500	≦0.15
PFU-UD1002-22-V	1.0/2.2	2	PVC UL Grade VW-1	500	≦0.15

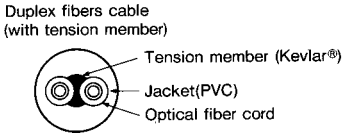
5. Cable Product List

Product Code	Fiber/Cord/ Cable Diameter (mm)	Number of Fibers	Cord/Cable Material	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PFU-CL1001-22E50VT	1.0/2.2/5.0	1	PE/Soft PVC With KEVLAR®	250 500	≦0.18
PFU-CL1002-22E60VT	1.0/2.2/4.4/6.0	2	PE/Soft PVC With KEVLAR®	250 500	≦0.18



Cord



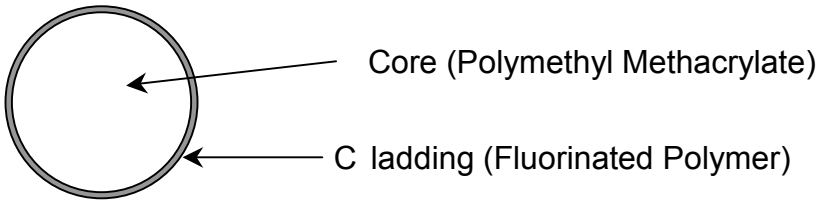


Cable

TORAY RAYTELA®

－ PJ series －

1. Structure

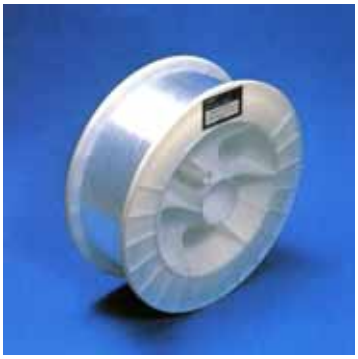


2. Specifications

Parameter		Performance
Core	Material	Polymethyl Methacrylate (P MMA)
	Refractive index	1.49
Cladding	Material	Fluorinated Polymer
	Refractive index	1.35
Refractive index profile		Step index
Numerical aperture		0.63
Angle of incidence		78°
Temperature range of use		－55～85℃

3. Fiber Product List

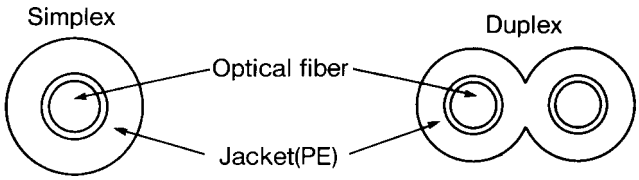
Product Code	Core Diameter (μm)	Cladding Diameter (μm)	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PJS－FB 250	240	250	12,000	≦ 0.30
PJR－FB 250				≦ 0.35
PJU－FB 500	486	500	6,000	≦ 0.18
PJR－FB 500				≦ 0.25
PJU－FB 750	735	750	2,700	≦ 0.15
PJR－FB 750			9,000	≦ 0.20
PJU－FB1000	980	1,000	1,500	≦ 0.15
PJR－FB1000			5,250	≦ 0.20

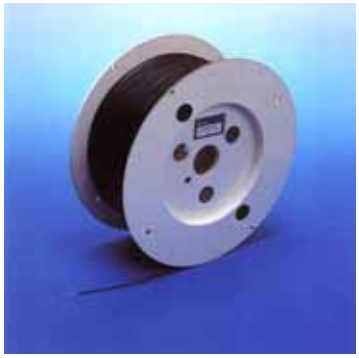


Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk

4. Cord Product List

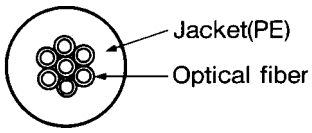
Product Code	Fiber/Jacket Diameter (mm)	Number of Fibers	Jacket	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PJS-CD 501-10-E	0.5/1.0	1	PE	500	≦0.22
PJS-CD1001-22-E	1.0/2.2	1	PE	500	≦0.18
PJS-CD1001-22-A	1.0/2.2	1	Polyamide12	1,000	≦0.18





5. Light Guide Product List

Product Code	Fiber/Jacket Diameter (mm)	Number of Fibers	Jacket	Length on Spool (m／spool)	Attenuation at 650nm (dB/m)
PJS-LG250- 7E13	0.25/1.3	7	PE	500	≦0.30
PJS-LG250- 9E13	0.25/1.3	9	PE	500	≦0.30



'TORAY'

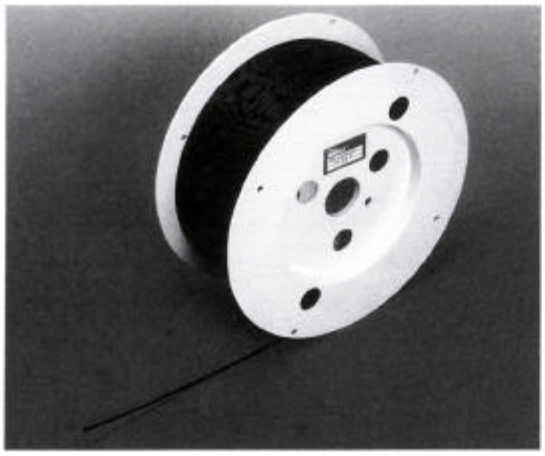
Product News

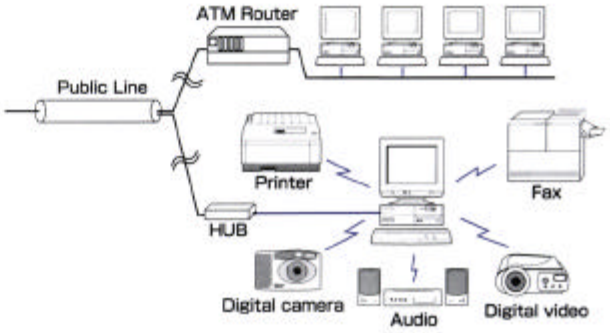
PMU-CD1002-22-E

TORAY RAYTELA

for the Digital High Broadband Communication Use

- Provides point-to-point communication between ATM user devices and ATM network equipment, up to 156Mbps at 50m.
- Applies to 100Mbps Fast Ethernet (100 Base)
- A viable solution to IEEE1394 applications.





Application Example

Parameter	ATM Spec.	Product Performance	Test Standard
Fiber Dia. (μ m)	1000 ± 60	1000 ± 45	IEC793-1-A4
N.A.	0.33 ± 0.03	0.32	JIS C6862-8
Attenuation* (dB/50m)	≦ 9.1	Ave. 8.5	IEC793-1-C1A
Bandwidth (MHz-km)	≧ 10	≧ 10	IEC793-1-C2A

*Under conditions of : −20 to 70℃ and 95% RH at 650nm
Flame retardant type (UL cord) is available.

Germany and other countries: LASER COMPONENTS GmbH, Phone: +49 8142 2864 0, Fax: +49 8142 2864 11, info@lasercomponents.com
Great Britain: LASER COMPONENTS (UK) Ltd., Phone: +44 1245 491 499, Fax: +44 1245 491 801, info@lasercomponents.co.uk