AFBR-HUXYYYZ

Plastic Optical Fiber Cable

Data Sheet



Cable description

The AFBR-HUXYYYZ series of plastic fiber optic cables are constructed of a single step-index fiber sheathed in a black polyethylene jacket. The duplex fiber consists of two simplex fibers joined with a zipcord web.

Cables comply with UL VW-1 flame retardant specification (UL file #E116331 / Style #5538).

Cables are available in unconnectorized options. Refer to the Ordering Guide for part number information.

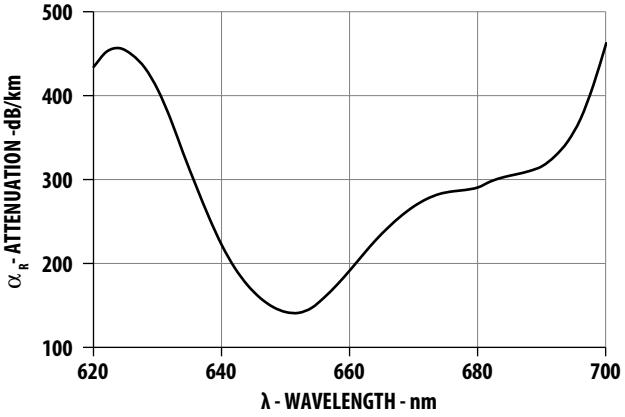


Figure 1. Typical POF attenuation vs. wavelength

Features

- Compatible with Avago Versatile Link Family of connectors and fiber optic components
- 1 mm diameter Plastic Optical Fiber (POF) in 1 grade with 0.19 dB/m typical attenuation (-40°C to +85°C)
- Halogen-free
- High performance extra low loss POF with 0.19dB/m typical attenuation (-40°C to +85°C)

Applications

- Industrial data links for factory automation and plant control
- Intra-system links; board-to-board, rack-to-rack
- Telecommunications switching systems
- Computer-to-peripheral data links, PC bus extension
- Proprietary LANs
- Digitalized video
- Medical instruments
- Reduction of lighting and voltage transient susceptibility
- High voltage isolation

Plastic Optical Fiber Specifications: AFBR-HUXYYYZ

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Recommended Storage Temperature	T_S	-55	+85	°C	
Recommended Operating Temperature	T_O	-40	+85	°C	
Recommended Installation Temperature	T_i	-20	+70	°C	1
Short Term Tensile Force (simplex)	F_T		50	N	2, 3
Short Term Bend Radius	r	20		mm	2, 4, 5
Long Term Bend Radius	r	35		mm	6, 4, 5
Long Term Tensile Load (simplex)	F_T		1	N	6, 3
Flexing (r=20mm)			1000	Cycles	7, 8

UL VW-1 Flame Retardant

Mechanical Characteristics, T_A = -40°C to +85°C unless otherwise specified

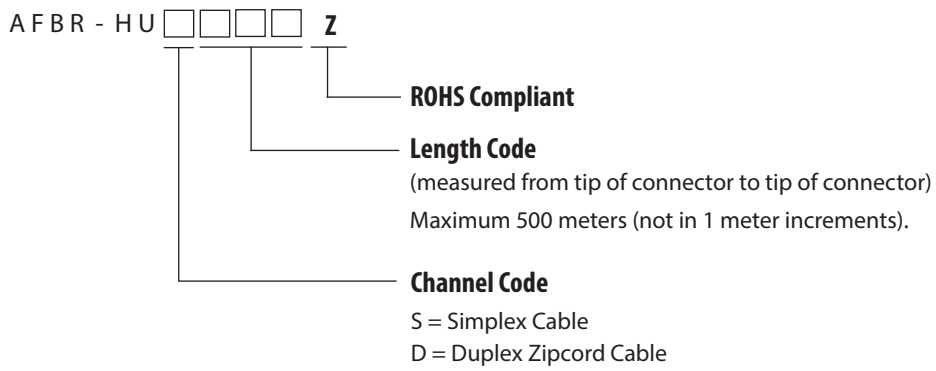
Parameter	Symbol	Min.	Typ. [12]	Max.	Unit	Note
Numerical Aperture	NA		0.48			9
Diameter Core and Cladding	DC	0.94	1.00	1.06	mm	
Diameter Jacket	DJ	2.13	2.20	2.27	mm	Simplex cable
Refractive Index Core Cladding	n		1.492 1.412			
Mass per Unit Length/Channel			5.2		g/m	10
Cable Leakage Current	IL		$<5x10^{-5}$		nA	1KV, l=0.11meters

Optical Characteristics, T_A = -40°C to +85°C unless otherwise specified

Parameter	Symbol	Min.	Typ. [12]	Max.	Unit	Note
Cable Attenuation Source: 660nm LED, 0.5 NA (HFBR-15xxZ)	α_O	0.15	0.19	0.23	dB/m	
Reference attenuation Source: 650nm monochromatic, 0.15NA	α_R		0.15	0.19	dB/m	
Propagation Delay Constant	l/v		5.0		ns/m	11

Notes:
1. Installation temperature is the range over which the cable can be bent and pulled without damage. Below -20°C the cable becomes brittle and should not be subjected to mechanical stress.
2. Short term: 30mins.
3. Fail criteria for tensile force test: elongation higher than 5% of original length.
4. Bend angle is 90°. Bend radius is the radius of the mandrel around which the cable is bent.
5. Fail criteria for bend radius test: increase in attenuation higher than 0.5dB.
6. Long term: 24hours.
7. Bend angle is ±90°. Bend radius is the radius of the mandrel around which the cable is bent.
8. Fail criteria for flexing test: increase in attenuation higher than 0.5dB.
9. Fiber length longer than 2 meters.
10. Without connectors
11. Propagation delay constant is the reciprocal of the group velocity for propagation delay of optical power. Group velocity is v=c/n, where c is the velocity of light in free space ($3x10^8$ m/s) and n is the effective core index of refraction.
12. Typical data measured at 25°C.

Ordering Guide for POF Cable



Note: Not all possible combinations reflect available part numbers.
Please contact your local Avago representative for a list of current available cable part numbers.

For Example:

AFBR-HUS500Z is a Simplex, 500m cable

AFBR-HUD100Z is a Duplex, 100m cable

Cable Length Tolerances:

The plastic cable length tolerances are: +10% / -0%

Ordering Guide for POF Connectors and Accessories

Plastic Optical Fiber Connectors

HFBR-4501Z	Gray Simplex Connector/Crimp Ring
HFBR-4511Z	Blue Simplex Connector/Crimp Ring
HFBR-4503Z	Gray Simplex Latching Connector with Crimp Ring
HFBR-4513Z	Blue Simplex Latching Connector with Crimp Ring
HFBR-4506Z	Parchment Duplex Connector with Crimp Ring
HFBR-4516Z	Gray Duplex Latching Connector with Crimp Ring
HFBR-4505Z	Gray Adapter (Bulkhead/Feedthrough)
HFBR-4515Z	Blue Adapter (Bulkhead/Feedthrough)

Plastic Optical Fiber Accessories

HFBR-4522Z	500 HFBR-0500 Products Port Plugs
HFBR-4525Z	1000 Simplex Crimp Rings
HFBR-4526Z	500 Duplex Crimp Rings
AFBR-4594Z	Polishing Kit (one polishing tool, two pieces 600 grit abrasive paper, and two pieces 3 µm pink lapping film)
HFBR-4597Z	Plastic Fiber Crimping Tool

For product information and a complete list of distributors, please go to our web site: **www.avagotech.com**

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