

OTHER DOPED FIBERS Specification Sheet

Erbium Doped Fibers for Fiber Lasers

EDF-80, EDF-150, EDF50-PM, EDF25-PM, and EDF08-PM



A Furukawa Company

Other Doped

Product Description

OFS has developed several rare earth doped fibers, each designed for a different type of fiber laser:

- Fibers with high erbium concentration makes it possible to use very short fiber in a laser cavity
- Erbium-Doped polarization maintaining fibers combine the features of an erbium-doped fiber with those of a polarization-maintaining fiber for use in fiber lasers and polarization-maintaining amplifiers. Birefringence is induced by geometrical birefringence from an elliptical core.

Features and Benefits

- Optimized for laser applications
- High strength
- Dual-layer acrylate coating for excellent micro-bending, abrasion resistance, and mechanical strength
- Available colored or natural
- ISO 9001-certified processes

Related Products & Capabilities

- Custom PM EDFs with Stress Applying Parts available
- R37003, R37003-80 for C-Band amplifiers
- R37004X, for high-power C-Band amplifiers
- R37103, R37102-80 for L-Band amplifiers
- R37005, for ASE source applications
- See our full line of erbium-doped fibers for high-power C-Band, including HP980X and MP980
- Yb and Tm doped fibers for Fiber Laser applications:
YbDF320-PM, YbDF350, and TmDF200

Ask us about other options available:

- Colored or Natural Buffers
- Coils
- Custom Designs

To order items on this spec sheet, please contact our facility in:

- Broendby, Denmark
+45 4345 8888
- or by email inquiry to:
Info@SpecialtyPhotonics.com



OFS Specialty Photonics Division

55 Darling Drive, Avon, CT 06001
25 Schoolhouse Road, Somerset, NJ 08873
Priorparken 680 DK-2605 Broendby, Denmark

www.SpecialtyPhotonics.com

High Erbium Concentration Typical Parameters

| Optical Properties | EDF-80 | EDF-150 |
|-------------------------------|-------------------|-------------------|
| Peak absorption near 1530 nm | 80 dB/m | 150 dB/m |
| Cutoff wavelength | 950 nm | 925 nm |
| Numerical aperture | 0.29 | 0.29 |
| Mode field diameter @ 1550 nm | 4.3 μm | 4.3 μm |
| Cladding diameter | 125 μm | 125 μm |
| Coating diameter | 245 μm | 245 μm |
| Order by Part Number | EDF-80 | EDF-150 |

Polarization-Maintaining Typical Parameters

| Optical Properties | EDF50-PM | EDF25-PM | EDF08-PM |
|---|---------------------------------|---------------------------------|---------------------------------|
| Peak absorption @ 1530 nm | 50 dB/m | 25 dB/m | 8 dB/m |
| Cut-off wavelength | 1250 nm | 1000 nm | 980 nm |
| Numerical aperture | 0.29 | 0.26 | 0.25 - 0.30 |
| Mode field diameter @ 1550 nm | 4.3 μm | 5.0 μm | 4.5 - 7.0 μm |
| Birefringence @ 1550 nm | $1 \cdot 10^{-4}$ | $1 \cdot 10^{-4}$ | $1.5 \cdot 10^{-4}$ |
| h-parameter ¹ of m^{-1} | $1 \cdot 10^{-4} \text{m}^{-1}$ | $3 \cdot 10^{-4} \text{m}^{-1}$ | $3 \cdot 10^{-4} \text{m}^{-1}$ |
| Cladding diameter | 125 μm | 125 μm | 125 μm |
| Coating diameter | 245 μm | 245 μm | 245 μm |
| Proof test | 2% (200 kpsi) | 2% (200 kpsi) | 2% (200 kpsi) |
| Order by Part Number | EDF50-PM | EDF25-PM | EDF08-PM |

¹The h-parameter expresses the rate at which power is coupled between two polarization axes of the fiber.

The polarization crosstalk after a length, l, is found from $P_y/P_x = 10 \times \log(h \times l)$.

An h-parameter of $3 \times 10^{-4} \text{m}^{-1}$ corresponds to a crosstalk of <-28 dB for a 5 m length.

This document is for informational purposes only and is not intended to modify or supplement any OFS warranties or specifications relating to any of its products and services.

Copyright © 2007 Furukawa Electric North America, Inc.

All Rights Reserved.

1107