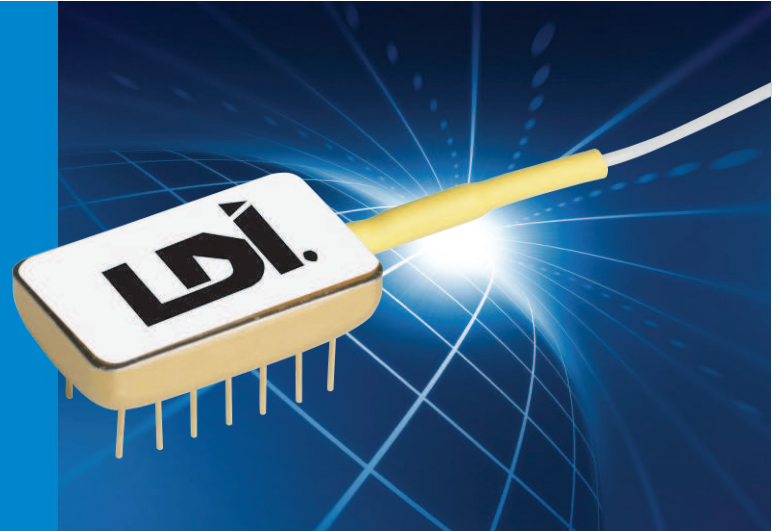


- GR-468-CORE Telcordia Qualified
- High Sensitivity
- High Overload Power
- Wide Dynamic Range
- 850, 1310, 1550nm Operation
- Hermetic Package - Industry Standard 14 Pin DIP Package
- Custom MIL or IEC Screening

Single Supply Option available with LDFR Series



The OSI Laser Diode Inc. PINFET provides an excellent solution for optical receiver systems that require both high sensitivity and wide dynamic range. Applications include telecommunications line-terminating equipment or repeaters and optical sensor systems. The receiver package offers high reliability satisfying Telcordia specifications.

## Specifications and Limits

### Performance @25°C (+/-5.0 VDC)

|                          |           | Minimum <sup>1</sup><br>Bandwidth<br>(MHz) | Suggested <sup>2</sup><br>Data Rate<br>(Mb/s) | Sensitivity <sup>3</sup><br>(dBm) |     | Dynamic<br>Range (dB)<br>typ | Trans-<br>impedance<br>(Kohms) |
|--------------------------|-----------|--|---|-----------------------------------|-----|------------------------------|--------------------------------|
|                          |           |  |   | max                               | typ |                              |                                |
| LDPF Series<br>(non-AGC) | LDPF 0004 | 4  | 6   | -54                               | -56 | 25                           | 1100                           |
|                          | LDPF 0012 | 12   | 17  | -51                               | -53 | 25                           | 740                            |
|                          | LDPF 0024 | 24   | 34  | -48                               | -50 | 25                           | 340                            |
|                          | LDPF 0032 | 32   | 45  | -47                               | -49 | 25                           | 210                            |
|                          | LDPF 0065 | 65   | 90  | -43                               | -45 | 25                           | 80                             |
|                          | LDPF 0120 | 120  | 168   | -40                               | -42 | 25                           | 40                             |
|                          | LDPF 0250 | 250  | 350   | -35                               | -37 | 25                           | 10                             |
| LDPW Series<br>(AGC)     | LDPW 0003 | 3  | 4   | -54                               | -56 | 53                           | 1100                           |
|                          | LDPW 0012 | 12   | 17  | -50                               | -52 | 49                           | 350                            |
|                          | LDPW 0024 | 24   | 34  | -48                               | -50 | 47                           | 340                            |
|                          | LDPW 0036 | 36   | 52  | -46                               | -48 | 45                           | 210                            |
|                          | LDPW 0065 | 65   | 90  | -41                               | -43 | 40                           | 60                             |
|                          | LDPW 0110 | 110  | 155   | -38                               | -40 | 37                           | 30                             |
| LDSF Series<br>(non-AGC) | LDSF 0004 | 4  | 6   | -51                               | -53 | 25                           | 1100                           |
|                          | LDSF 0012 | 12   | 17  | -48                               | -50 | 25                           | 740                            |
|                          | LDSF 0024 | 24   | 34  | -45                               | -47 | 25                           | 340                            |
|                          | LDSF 0032 | 32   | 45  | -44                               | -46 | 25                           | 210                            |
|                          | LDSF 0065 | 65   | 90  | -40                               | -42 | 25                           | 80                             |
|                          | LDSF 0120 | 120  | 168   | -37                               | -39 | 25                           | 40                             |
|                          | LDSF 0250 | 250  | 350   | -32                               | -34 | 25                           | 10                             |

|                          |            | Minimum <sup>1</sup><br>Bandwidth<br>(MHz) | NEIP<br>pW/SqRt Hz<br>(typ) | Sensitivity <sup>3</sup><br>(dBm) |     | Dynamic<br>Range (dB)<br>typ | Trans-<br>impedance<br>(Kohms) |
|--------------------------|------------|--|-----------------------------|-----------------------------------|-----|------------------------------|--------------------------------|
|                          |            |  |                             | max                               | typ |                              |                                |
| LDFR Series<br>(non-AGC) | LDFR 0850R | 5  | 0.30                        | -52                               | -54 | 25                           | 940                            |
|                          | LDFR 1550R | 5  | 0.25                        | -54                               | -56 | 25                           | 940                            |

## Common Characteristics @ 25°C

|                                       |      | LDSF Series |                               |     | LDPF Series |      |                               | LDPW Series |      |     | LDFR Series                   |      |      |
|---------------------------------------|------|-------------|-------------------------------|-----|-------------|------|-------------------------------|-------------|------|-----|-------------------------------|------|------|
|                                       |      | min         | typ                           | max | min         | typ  | max                           | min         | typ  | max | min                           | typ  | max  |
| Dark Current @ -5V                    | nA   |             | 0.5                           | 1   |             | 0.5  | 1                             |             | 0.5  | 1   |                               | 0.5  | 1    |
| Maximum Optical Input @ -5V           | dBm  |             | Sensitivity Level (dBm) +25dB |     |             |      | Sensitivity Level (dBm) +25dB |             |      |     | Sensitivity Level (dBm) +25dB |      |      |
| Sensitivity Derating Over Temperature | dB   |             | <1                            |     |             |      | <1                            |             |      |     | <1                            |      |      |
| Detector Responsivity                 | A/W  |             | 0.65                          |     |             |      |                               |             |      |     |                               | 0.60 |      |
| 850nm                                 |      |             | 0.5                           |     |             |      |                               |             |      |     |                               | 0.60 |      |
| 1300nm                                |      |             |                               |     |             | 0.90 |                               |             | 0.90 |     |                               | 0.85 | 0.90 |
| 1550nm                                |      |             |                               |     |             | 0.95 |                               |             | 0.95 |     |                               | 0.90 | 0.95 |
| Maximum Output Signal Level           | Vpp  |             | 2.5                           |     |             |      | 2.5                           |             |      |     | 3.0                           |      |      |
| Output Impedance                      | Ohms |             | 10                            |     |             |      | 10                            |             |      |     | 10                            |      |      |
| Load Impedance                        | Ohms |             | 1000                          |     |             |      | 1000                          |             |      |     | 1000                          |      |      |
| Supply Voltage                        | V    | 4.5         |                               | 5.5 | 4.5         |      | 5.5                           | 4.5         |      | 5.5 | 4.75                          |      | 5.25 |
| Power Supply Current +5V              | mA   |             | 25                            |     |             |      | 25                            |             |      |     | 20                            |      |      |
| Power Supply Current -5V              | mA   |             | 10                            |     |             |      | 10                            |             |      |     | 15                            |      |      |
| Fiber - MM Tight Buffer               | um   |             | 50/125/245/900                |     |             |      | 50/125/245/900                |             |      |     | 50/125/245/900                |      |      |

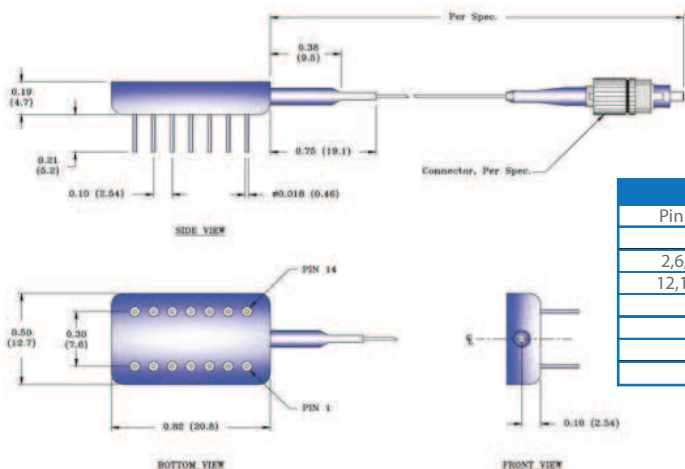
## Absolute Maximum Ratings

|                         | Units | LDPF, LDPW & LDSF Series | LDFR Series |
|-------------------------|-------|--------------------------|-------------|
| Operating Temperature   | °C    | -40 to +70               | -55 to +85  |
| Storage Temperature     | °C    | -40 to +85               | -55 to +85  |
| Positive Supply Voltage | V     | +7                       | +7          |
| Negative Supply Voltage | V     | -7                       | -           |
| Detector Bias           | V     | -10                      | -10         |
| Soldering time at 260°C | secs  | 10                       | 10          |

## Notes:

- Bandwidth is measured at the -3dB point.
- A given bandwidth will typically support an NRZ data rate of 1.4 times the 3dB bandwidth.
- Sensitivity is calculated using the noise voltage measured at 25°C at the output of a 3-pole Butterworth filter whose bandwidth equals that of the PINFET's minimum specified bandwidth. Sensitivity is specified as the average optical power in dBm measured at 1300nm and  $T_a=25^\circ\text{C}$  for a BER of  $10^{-9}$ .

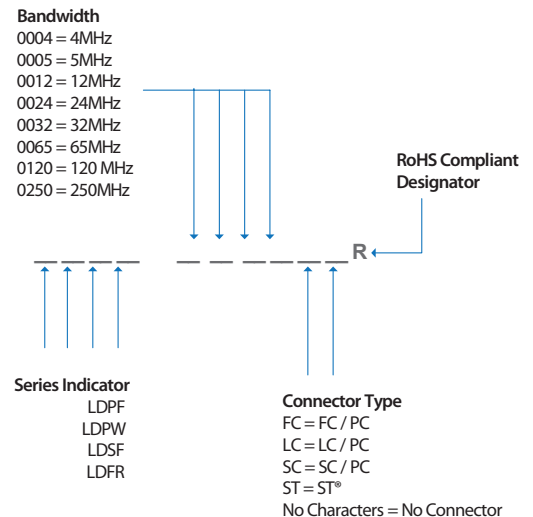
## Outline Drawing



| Pin      | Function             |
|----------|----------------------|
| 1        | -5 V detector bias   |
| 2,6,9,11 | no connection        |
| 12,13,14 | no connection        |
| 3,5,8    | ground               |
| 4        | -5 volts (LDFR = NC) |
| 7        | output               |
| 10       | +5 volts             |

Dimensions: Inches [mm]  
Detailed package drawings are available upon request.  
Standard fiber lengths: 1m min. unconnectorized; 1m +/- 0.1m connectorized

## Part Numbering Diagram



Products can be ordered directly from OSI Laser Diode, Inc. or its representatives.

For a complete listing of representatives, visit our website at

[www.laserdiode.com](http://www.laserdiode.com)

## Personal Hazard and Handling Precautions:

Handle optical fiber with normal care, avoiding stretch, tension, twist, kink or bend abuse. ESD precautions apply.

## Warranty:

Please refer to your product purchase agreement for complete details or check with your OSI Laser Diode sales representative.

## Notice:

OSI Laser Diode, Inc. reserves the right to make changes to the products or information contained herein without notice.  
No liability is assumed as a result of their use or application.