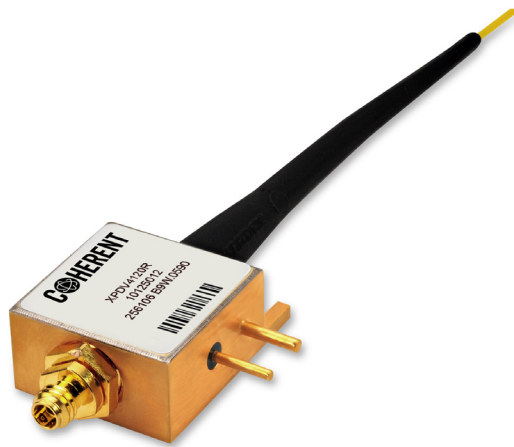


# 100 GHz HIGH SPEED PHOTODETECTOR

## XPDV412xR

The XPDV412xR comprises an optimized 100 GHz waveguide-integrated photodiode, which shows an extremely flat frequency response in both power and phase. The on-chip integrated bias network with an optimized RF design ensures an undisturbed frequency response from DC to the 3 dB cut-off frequency and saves costs for internal bias tees. The non-hermetic module is especially designed for optimal RF performance; therefore, the pulse response reveals virtually no ringing. A further advantage of the waveguide structure is the unbeatable high-power behavior. The photodetector shows a linear response up to an optical input power of 10 dBm. The product is also offered in a cost-efficient 90 GHz version.



Picture shows product example, actual product might differ

## FEATURES

- 100 GHz typical bandwidth
- High linearity
- C- band version
- Unique on-chip integrated bias network

## APPLICATIONS

- High speed Lightwave characterization
- Test & Measurement applications
- Microwave Photonics

*Ordering Information:*



800 Village Walk #316  
Guilford, CT 06437  
Ph: 203-401-8093

Email orders to: [sales@xsoptix.com](mailto:sales@xsoptix.com)  
Fax orders to: 800-878-7282

# COHERENT

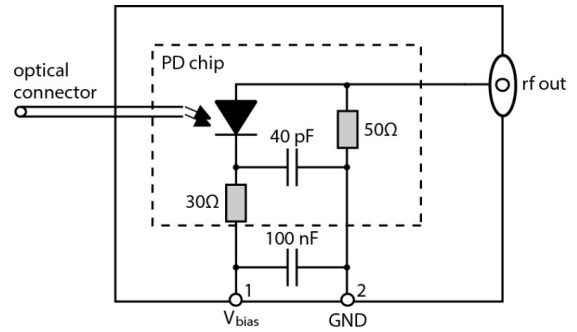
# 100 GHz HIGH SPEED PHOTODETECTOR

## Product Selection

### XPDV412xR -WF-zz

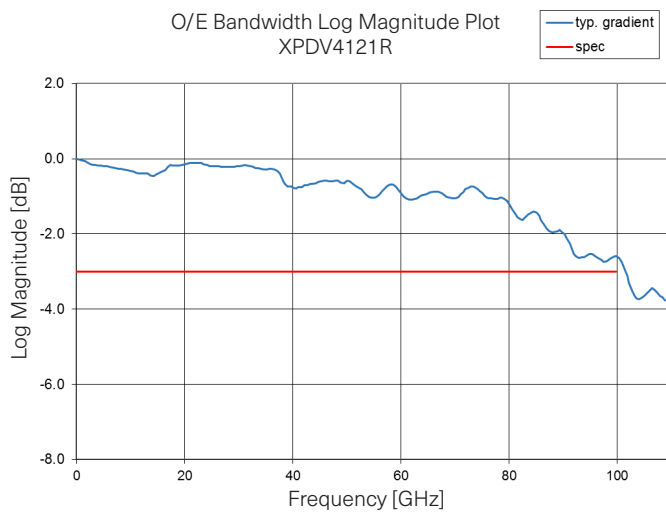
|           |    |                               |
|-----------|----|-------------------------------|
| <b>x</b>  | 0  | = 90 GHz version              |
|           | 1  | = 100 GHz version             |
| <b>zz</b> | FA | = FC/APC connector (standard) |
|           | FP | = FC/PC connector             |

## Block Diagram

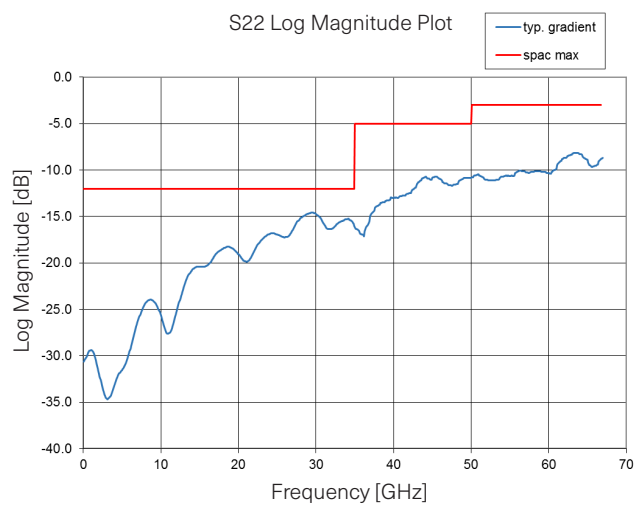


## Key Specifications

| Parameter                     | Symbol         | Condition                 | Min. | Typ.      | Max. | Unit |
|-------------------------------|----------------|---------------------------|------|-----------|------|------|
| Operating Case Temperature    | $T_{CASE}$     |                           | 5    |           | 65   | °C   |
| Storage Temperature           | $T_{STORE}$    |                           | -40  |           | 85   | °C   |
| Wavelength Range              | $\lambda$      |                           |      | 1550      |      | nm   |
| Photodiode Supply Voltage     | $V_{PD}$       |                           |      | 2.0       |      | V    |
| Average Optical Input Power   | $P_{OPT\_avg}$ |                           |      |           | 10   | dBm  |
| Photodiode DC Responsivity    | R              |                           |      | 0.6       |      | A/W  |
| Polarization-Dependent Loss   | PDL            |                           |      | 0.3       |      | dB   |
| Photodiode Dark Current       | $I_{DARK}$     | $T_{CASE} = 25\text{ °C}$ |      | 5         |      | nA   |
| 3 dB Cut-off Frequency        | $f_{3dB}$      | XPDV4121R<br>XPDV4120R    |      | 100<br>93 |      | GHz  |
| Output Reflection Coefficient | $S_{22}$       |                           |      |           | -3   | dB   |



Typical Frequency response s21



Typical backreflection s22