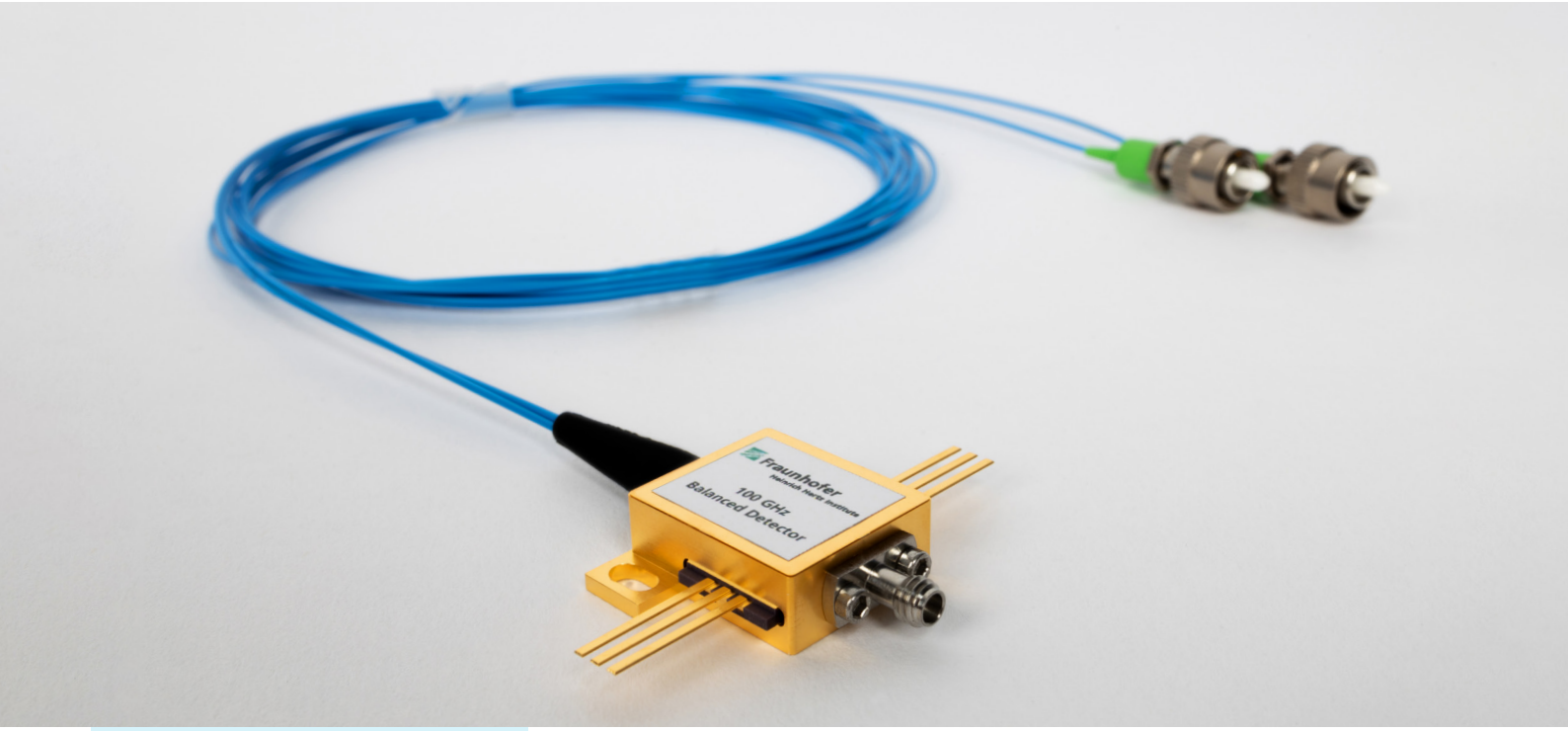
100 GHz BALANCED PHOTODETECTOR MODULE

Fraunhofer HHI



AT A GLANCE

high-speed balanced photodetector module for > 1 T/bs coherent telecom applications

Features

- up to 100 GHz 3 dB-bandwidth
- detection of 128 GBaud x-QAM signals with optical 90° hybrid
- integrated bias network
- low bias operation
- 1 mm RF connector

Applications

- telecommunication
- coherent test- & measurement systems
- microwave photonics

Technical Background

High-speed balanced photodetector modules are of interest for the development of next-generation telecom coherent optical communication links. Since these R&D links are always a step ahead in terms of symbol rates, photodetector modules with a RF bandwidth beyond state-of-the-art are needed at the receiver side. In combination with a 90° optical hybrid, the balanced photodetectors provide the functionality of a coherent receiver for detecting dual-polarization higher order QAM signals.

The photodetector chips inside the modules are based on mature InP technology and are fabricated at the wafer process line of Fraunhofer HHI, offering Telcordia and space-qualified processes. The chips are packaged at Fraunhofer HHI facilities.

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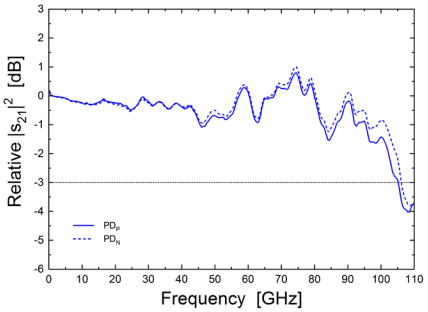

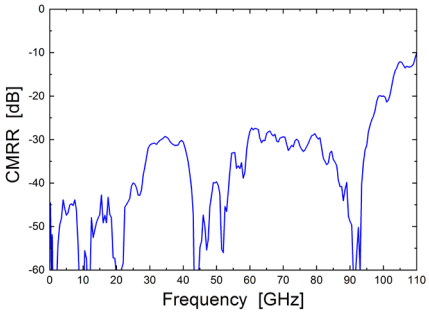

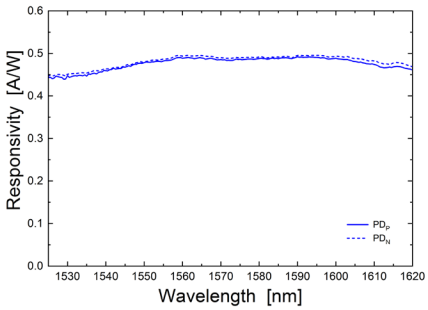

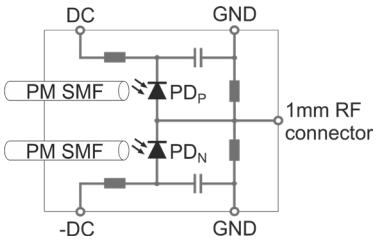

Technical Specifications

- 3 dB-bandwidth: up to 100 GHz
- wavelength: 1480 nm - 1620 nm
- low dark current: < 100 nA @ 3 V
- bias voltage: +2 V and -2 V
- 1 mm female RF connector
- RF output matched to 50 Ω
- optical input: SC/APC PM SMF fibre

Germany

www.hhi.fraunhofer.de/pc