

# 100G QSFP28 BiDi 20km

100G Eth, QSFP28, BiDi, 20km, LC, 1291nm/1311nm, SM

## CB-CE-20-CDxx02

### OVERVIEW

The CB-CE-20-CDxx02 is a bi-directional (BiDi) transceiver designed to operate over a single fiber. It uses two different wavelengths to transmit and receive simultaneously over the same fiber.

The solution comprises two units:

- CB-CE-20-CD2302, (Tx1291nm / Rx1311nm)
- CB-CE-20-CD3202, (Tx1311nm / Rx1291nm)

The transceiver supports 100G Ethernet applications with a reach of up to 20km. It uses high speed DSP technology to transmit and receive at single wavelength at 100Gb/s PAM4. It does not need host FEC since FEC is built in the DSP in the module.

The module is available in a commercial temperature range from 0°C to +70°C and includes digital diagnostics monitoring accessible through a standard two wire interface.

### KEY SPECIFICATIONS

- BiDi QSFP28 transceiver with a LC connector
- Two wavelength solutions with in-build optical filters:
  - Tx: 1291nm / Rx: 1311nm
  - Tx: 1311nm / Rx: 1291nm
- Up to 20km distance, 106.25Gbps optical line rate
- Support KP4 FEC inside the module
- Support for 100G Ethernet LR1 applications
- Less than 4.0 W power consumption
- C-temp operating conditions (0°C to +70°C)

## TECHNICAL DATA

| Parameter                                             | Value                                                                      | Parameter                | Value                                                          |
|-------------------------------------------------------|----------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------|
| Form Factor                                           | BiDi QSFP28                                                                | <b>Transmitter Data:</b> |                                                                |
| Transmission Media                                    | SM (LC)                                                                    | Tx Power                 | -0.2 to +6.6dBm <sup>5)</sup>                                  |
| Typical Reach                                         | 20km                                                                       | Tx Power, OMA            | +2.8 to +5dBm                                                  |
| Nominal Wavelengths                                   | Tx: 1291nm Rx: 1311nm <sup>1)</sup><br>Tx: 1311nm Rx: 1291nm <sup>2)</sup> | Tx Wavelength            | 1284.5-1297.5nm <sup>1)</sup><br>1304.5-1317.5nm <sup>2)</sup> |
| Data Rate Support                                     | 106.25Gbps <sup>3)</sup><br>52.125Gbd <sup>4)</sup>                        | Extinction Ratio         | ≥3.5dB                                                         |
| Protocol Support                                      | 100GbE                                                                     | <b>Receiver Data:</b>    |                                                                |
| Power Consumption                                     | <4.0W                                                                      | Rx Power, min            | -10dBm <sup>5)</sup>                                           |
| Operating Temperature                                 | 0°C to 70°C                                                                | Rx Sensitivity, OMA      | -7.6 dBm <sup>6)</sup>                                         |
| Storage Temperature                                   | -40°C to 85°C                                                              | Rx Overload, max         | +6.6dBm <sup>5) 6)</sup>                                       |
| DDM                                                   | Yes                                                                        | Rx Wavelength            | 1304.5-1317.5nm <sup>1)</sup><br>1284.5-1297.5nm <sup>2)</sup> |
| <sup>1)</sup> CB-CE-20-CD2302 - Purple-coloured latch |                                                                            | LOS Assert               | -26dBm                                                         |
| <sup>2)</sup> CB-CE-20-CD3202 - Red-coloured latch    |                                                                            | LOS De-assert            | -10dBm                                                         |
| <sup>3)</sup> Aggregated line rate 100GbE with FEC    |                                                                            | LOS Hysteresis           | 0.5dB                                                          |
| <sup>4)</sup> Line baud rate                          |                                                                            |                          |                                                                |
| <sup>5)</sup> Average Power, per lane                 |                                                                            |                          |                                                                |
| <sup>6)</sup> Specified at BER 2.4x10 <sup>-4</sup>   |                                                                            |                          |                                                                |

### Safety/Regulatory Compliance

- Class 1 Laser safe
- RoHS compliance

## ABSOLUTE MAX RATING

Exceeding these limits can cause permanent damage to the transceiver

| Parameter      | Value         | Parameter            | Value   |
|----------------|---------------|----------------------|---------|
| Supply Voltage | -0.5V to 4.0V | Relative Humidity    | 85%     |
| Storage Temp   | -40°C to 85°C | Max Rx Optical Power | +7.6dBm |

## ORDERING INFORMATION

| Ordering Code   | Description                                               |
|-----------------|-----------------------------------------------------------|
| CB-CE-20-CD2302 | 100G QSFP28, BiDi, 20km, LC, 1291nm/1311nm, SM, 0C to 70C |
| CB-CE-20-CD3202 | 100G QSFP28, BiDi, 20km, LC, 1311nm/1291nm, SM, 0C to 70C |

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## CONTACT INFORMATION

Email: [sales@cloudphotonix.com](mailto:sales@cloudphotonix.com)

Phone: +91-1203116709, +91-1203116718

CloudPhotonix India Pvt. Ltd.

Block A-51, Sector 67

Noida – 201301, Uttar Pradesh, India