

## ND99-C1xx0-R23-50, 1270 to 1450nm

Optical CWDM Transceiver with AutoSFP® functionality for 10 Gigabit Ethernet (10Gbps)

### Data Sheet



#### Description

The ND99-C1xxx-R23-50 is a Small Form Factor Pluggable (SFP+) LC optical transceiver. The unit is specially designed to meet the 10GBASE-ZR 10Gbps Ethernet specification. It contains one APD optical receiver and one DFB CWDM laser providing error-free transmissions with up to 50km of fiber or more.

The ND99-C1xxx-R23-50 is made with AutoSFP® enabled functionality to fit the miniHUB product range.

#### Part Number Options

Part Number	Laser wavelength	Temperature *)
ND99-C1270-R23-50	1270nm	0°C to +40°C
ND99-C1290-R23-50	1290nm	0°C to +40°C
ND99-C1310-R23-50	1310nm	0°C to +40°C
ND99-C1330-R23-50	1330nm	0°C to +40°C
ND99-C1350-R23-50	1350nm	0°C to +40°C
ND99-C1370-R23-50	1370nm	0°C to +40°C
ND99-C1390-R23-50	1390nm	0°C to +40°C
ND99-C1410-R23-50	1410nm	0°C to +40°C
ND99-C1430-R23-50	1430nm	0°C to +40°C
ND99-C1450-R23-50	1450nm	0°C to +40°C

\*) Rated temperature for the complete miniHUB.

#### Features

- AutoSFP® enabled functionality
- Compliant to SFF-8431, SFF-8432 and IEEE 802.3ae 10Gigabit Ethernet, 10GBASE-ZR/-ER
- Compliant to 2G/4G/8G/10G Fiber Channel
- Available wavelengths: 1270nm to 1450nm, with 20nm channel spacing
- High sensitivity APD receiver technology
- DFB laser
- 23dB transmission budget
- Typical Link lengths at 10Gbps:
  - Up to 50km @ 9µm SMF, limited by wavelength attenuation and fiber dispersion
- Hot-pluggable and SFP+ compliant
- Compliant with SFF-8431 and SFF-8472
- Class 1 21CFR and IEC60825-1 laser safety compliant
- Pb-free and RoHS compliant

## Absolute Maximum Ratings

Absolute maximum ratings are those values beyond which functional performance is not intended, device reliability is not implied, and damage to the device may occur.

Parameter	Minimum	Maximum	Unit
Storage temperature (non-operating)	-40	+85	°C
Relative Humidity (non-condensing)	5	95	%
Supply voltage (Vcc)	0	3.6	V

## Recommended Operating Conditions

Parameter	Minimum	Typical	Maximum	Unit
Case operating temperature:	-5		+70	°C
Relative Humidity (non-condensing)	5		90	%
Supply voltage (Vcc)	3.15	3.3	3.45	V

## Electrical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Supply current		420	610	mA
Power dissipation		1.4	2	W
Data rate	-	10.3125	11.1	Gbps

## Transmitter Optical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Transmitting circuit fiber	Single Mode (9/125μm)			
Light source	DFB laser			
Optical output power	2		+5	dBm
Optical extinction ratio (filtered)	3.5			dB
Optical center wavelength ( $\lambda = 1270\text{nm to }1610\text{nm}$ )	$\lambda - 5.5\text{nm}$	$\lambda$	$\lambda + 7.5\text{nm}$	nm
Spectral width (-20dB)			1	nm
Side Mode Suppression Ratio	30			dB
Relative Intensity Noise			-128	dB/Hz
TX optical eye mask (filtered)	Compliant with IEEE 802.3ae			

## Receiver Optical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Transmitting circuit fiber	Single Mode (9/125μm)			
Receiver technology	APD			
Optical receiving window	1260		1460	nm
Optical input overload power	-6			dBm
Optical receiver sensitivity (BER=10 <sup>-12</sup> , 10.3125Gbps)			-21	dBm

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