

ND12-T1xx0-R20-BiDi (/E)

Optical Transceiver with WDM BiDi and AutoSFP™ functionality for Gigabit Ethernet (1.25Gbps)

Data Sheet



Description

The ND12-T1xx0-R20-BiDi is a Small Form Factor Pluggable (SFP) LC optical transceiver. The unit is specially designed to work in a pair with the ND12-GBE1000 to function as a 1000BASE-T/LX Gigabit Ethernet optical media converter. It is designed with a built-in WDM filter (BiDi) and is available with 1310nm and 1550nm laser. The ND12-T1310-R20-BiDi and ND12-T1550-R20-BiDi must be used in pairs with TX=1310nm / RX=1550nm and TX=1550nm / RX=1310nm.

The ND12-T1xx0-R20-BiDi is made with AutoSFP™ enabled functionality to fit the miniHUB product range. It is also available with two temperature ranges, standard and extended.

Part Number Options

Part Number	Temperature *)
ND12-T1310-R20-BiDi	-5°C to +55°C
ND12-T1550-R20-BiDi	-5°C to +55°C
ND12-T1310-R20-BiDi/E	-40°C to +65°C
ND12-T1550-R20-BiDi/E	-40°C to +65°C

*) Rated temperature for the complete miniHUB unit.

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)	-0.5	3.6	V

Features

- AutoSFP™ enabled functionality
- Built-in WDM filter (BiDi)
- Compliant to IEEE 802.3Z Gigabit Ethernet (1,25Gbps) 1000BASE-LX
- Laser types:
 - 1310nm: Fabry-Perot laser
 - 1550nm: DFB laser
- Typical Link lengths at 1.25Gbps:
 - 0.5 to 20km @ 9µm SMF
- Compliant to MSA-SFP specification
- SFF-8472 diagnostic features
- Hot-pluggable
- Class 1 21CFR and IEC60825-1 laser safety compliant
- Pb-free and RoHS compliant
- Available with extended temperature

Recommended Operating Conditions

Parameter	Minimum	Typical	Maximum	Unit
Case operating temperature:				
• ND12-T1xx0-R20-BiDi	-5		+70	°C
• ND12-T1xx0-R20-BiDi /E	-40		+85	°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			300	mA
Power dissipation			1035	mW
Data rate			1250	Mbps

Transmitter Optical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Transmitting circuit fiber	Single Mode (9/125µm)			
Light source	1) = 1310nm Fabry-Perot laser, 2) = 1550nm DFB laser			
Optical output power *1), 2)	-8		-3	dBm
Optical extinction ratio *1), 2)	8			dB
Optical center wavelength *1)	1260	1310	1360	nm
Spectral line width (RMS) *1)			4	nm
Optical center wavelength *2)	1480	1550	1580	nm
Spectral width (-20dB) *2)			1	nm
Optical rise/fall time (20-80%)			260	ps
TX optical eye mask (filered, measured with PRBS 2 ⁻⁷ -1)	Compliant with IEEE 802.3z *1) Compliant with IEEE 802.3ah-2004 *2)			

Receiver Optical Characteristics

Parameter	Minimum	Typical	Maximum	Unit
Transmitting circuit fiber	Single Mode (9/125µm)			
Receiver technology	PIN			
Receiver center wavelengths	1) = 1310nm, 2) = 1550nm			
Optical input overload power *1), 2)	-3			dBm
Optical receiver sensitivity (BER=10 ⁻¹² , TX _{EXT} ≥ 9dB) *1), 2)		-22	-20	dBm
Optical receiving window *1)	1260	1310	1360	nm
Optical receiving window *2)	1500	1550	1580	nm

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