Introduction to Optical Modules

400G Optical Module

NT-QSFPDD-400G-100m

NT-QSFPDD-400G-100m is a hot-pluggable QSFP-DD transceiver for 400G links over multimode fiber. It is high performance module for short-range data communication and interconnect application which operate at 400Gbps up to 70m using OM3 multimode fiber or 100m using OM4 multimode fiber. This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 76 pins connector. The optical interface uses MPO connector.

Product Features

- ✓ Hot-pluggable QSFP28 form factor
- ✓ Supports 25.78125Gb/s bit rate per channel
- ✓ Maximum link length of 70m over OM3 Multimode Fiber (MMF)and 100m over OM4 (MMF)
- ✓ 4 channels 850nm VCSEL laser and 4 channels PIN photo detector array
- ✓ Single MPO connector receptacle
- ✓ Internal CDR circuits on both receiver and transmitter channels
- ✓ Case operating temperature range:0 ~ +70℃
- ✓ Single 3.3V power supply
- ✓ Power dissipation: <2.5 W
- ✓ QSFP28 housing with enhanced EMI shielding

Application

- ✓ Data center
- ✓ 400GBASE-SR8 400G Ethernet

Standard

- ✓ Compliant to QSFP-DD MSA
- ✓ Compliant with IEEE 802.3cd
- ✓ RoHS complaint

100G Optical Module

NT-QSFP28-100G-100m

NT-QSFP28-100G-100m is a Four-Channel, Pluggable, Fiber-Optic QSFP28 SR4 for 100Gigabit Ethernet and Infiniband EDR applications. This transceiver is a high performance module for data communication and interconnect applications. It integrates four data lanes in each direction with 103.1Gbps bandwidth.

The length of NT-QSFP28-100G-100m is up to 70 meters over OM3 MMF or 100 meters over OM4 MMF. This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 38 contact edge type connector. The optical interface uses a 12 fiber MPO connector.

Product Features

- ✓ Hot-pluggable QSFP28 form factor
- ✓ Supports 25.78125Gb/s bit rate per channel
- ✓ Maximum link length of 70m over OM3 Multimode Fiber (MMF)and 100m over OM4（MMF）
- ✓ 4 channels 850nm VCSEL laser and 4 channels PIN photo detector array
- ✓ Single MPO connector receptacle
- ✓ Internal CDR circuits on both receiver and transmitter channels
- ✓ Case operating temperature range:0 ~ +70°C
- ✓ Single 3.3V power supply
- ✓ Power dissipation: <2.5 W
- ✓ QSFP28 housing with enhanced EMI shielding

Applications

- ✓ Data center and Cloud services
- ✓ 100GBASE-SR4 Ethernet
- ✓ Infiniband EDR interconnects
- ✓ Servers, Switches, Storage and Host Card Adapters

Standards

- ✓ Compliant with QSFP28 MSA
- ✓ Compliant with IEEE 802.3bm
- ✓ Compliant with SFF-8636
- ✓ RoHS Compliant

NT-QSFP28-100G-500m

NT-QSFP28-100G-500m is intended for up to 500m reach service with four-lane 25.78125G data rate. It is based o n 3.3V DC power supply and operates in the commercial temperature range. Digital diagnostic functions are avai lable via I2C interface, and the control functions can be achieved by LVTTL int erfaces on the host, mainly including Module Select(ModSelL)、Module Reset(R esetL)、Low Power Mode(LPMode). The transceiver incorporates a four-laser ar ray which is usually DFB 、four-PIN diode array 、a high performance CDR int egrated four drivers and TIAs IC separately. The differential AC coupled Tx an d Rx data interfaces are CML compatible.

Product Features

- ✓ MPO12 optical interface
- ✓ Maximum link length up to 500m
- ✓ Up to 25.78125Gb/s data links per lane
- ✓ +3.3 V power supply
- ✓ QSFP MSA compliant package
- ✓ Hot Pluggable
- ✓ High performance singal mode DML transmitter
- ✓ High sensitivity PIN/TIA optical receiver
- ✓ Single Mode operation
- ✓ BER < 5E-5@-10dBm（OMA）
- ✓ Built-in CDR
- ✓ Case Operating temperature : 0 to 70°C

Applications

- ✓ Data center and Cloud services
- ✓ 100GBASE-SR4 Ethernet
- ✓ Infiniband EDR interconnects
- ✓ Servers, Switches, Storage and Host Card Adapters

Standards

- ✓ Compliant with QSFP28 MSA
- ✓ Compliant with SFF-8636
- ✓ Compliant with SFF-8436
- ✓ Compliant with PSM4 MSA

NT-QSFP28-100G-2km

NT-QSFP28-100G-2km integrates four transmitters and receivers into one module. The central wavelengths of the 4 CWDM channels are 1271, 1291, 1311 and 1331 nm as members of the CWDM wavelength grid defined in ITU-T G.694.2. In the transmitter side, the four lanes of optical data channels are optically multiplexed by the integrated optical multiplexer. In the receive side, the four lanes of optical data channels are optically de-multiplexed by the integrated optical de-multiplexer. Each data channels is recovered by a PIN photo-detector and trans-impedance amplifier, retimed. The product is designed with form factor, optical/electrical connection and digital diagnostic interface according to the QSFP28 Multi-Source Agreement (MSA) and compliant to CWDM4 MSA. Host FEC is required to support up to 2km fiber transmission.

Product Features

- ✓ Compliant with CWDM4 MSA
- ✓ Supports 103.1Gb/s aggregate bit rate
- ✓ Integrated 4 CWDM lanes MUX/DEMUX
- ✓ Up to 2km transmission on single mode fiber (SMF) with FEC
- ✓ 4x25G electrical interface (OIF CEI-28G-VSR)
- ✓ Duplex LC receptacles
- ✓ Hot pluggable QSFP28 form factor
- ✓ Maximum power consumption 3.5W
- ✓ Operating temperature range: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode
- ✓ I2C management interface

Applications

- ✓ Data Center Interconnect
- ✓ 100G CWDM4 applications with FEC
- ✓ Infiniband QDR and DDR interconnects
- ✓ Enterprise networking

Standards

- ✓ Compliant with QSFP28 MSA, CWDM4 MSA
- ✓ Compliant with SFF-8636
- ✓ RoHS Compliant

NT-QSFP28-100G-10km

NT-QSFP28-100G-10km integrates four transmitter and receivers into one module. In the transmitter side, the four lanes of optical data channels are optically multiplexed by the integrated optical multiplexer. In the receive side, the four lanes of optical data channels are optically de-multiplexed by the integrated optical de-multiplexer. Each data channels are recovered by a PIN photo-detector and trans-impedance amplifier, retimed.The product is designed with form factor, optical/electrical connection and digital diagnostic interface according to the QSFP28 Multi-Source Agreement (MSA) and compliant to IEEE 802.3bm.

Product Features

- ✓ Compliant with 100GBASE-LR4
- ✓ Support from 103.125 Gbps~111.81 Gbps
- ✓ Integrated LAN WDM TOSA/ROSA for up to 10 km reach over SMF
- ✓ LC receptacle optical interface compliant
- ✓ No external reference clock
- ✓ Hot-pluggable
- ✓ Power dissipation < 3.5W
- ✓ Operating case temperature range:
- ✓ Commercial:0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

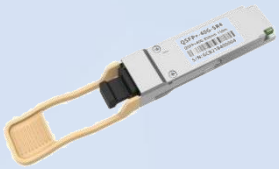
- ✓ Data Center
- ✓ 100GBASE-LR4 100G Ethernet
- ✓ OTN OTU4 4I1-9D1F

Standards

- ✓ Compliant with IEEE 802.3ba,IEEE802.3bm&100G LR4
- ✓ Compliant with SFF-8636
- ✓ RoHS Compliant

40G Optical Module

NT-QSFP-40G-150m



NT-QSFP-40G-150m is a QSFP+ Optical transceiver for 4 x 10 Gb/s optical links. It operates at 10.3125Gb/s up to 100m over OM3 multimode optical fiber and 150m over OM4 fiber. The optical transmitter portion of the transceiver incorporates a 4 channels VCSEL array, a 4 channels input buffer and laser driver, diagnostic monitors, control and bias blocks. For module control, the control interface incorporates a Two Wire Serial interface of clock and data signals. Diagnostic monitors for VCSEL bias, module temperature, TX power, RX power and supply voltage are implemented and results are available through the Two Wire Serial interface. Alarm and warning thresholds are established for the monitored attributes. Flags are set and interrupts generated when the attributes are outside the thresholds. All flags are latched and will remain set even if the condition initiating the latch clears and operation resumes. The optical output will squelch for loss of input signal unless squelch is disabled.

Product Features

- ✓ Supports 41.25Gb/s aggregate bit rate
- ✓ Multirate capability: 1.06Gb/s to 10.5Gb/s per channel
- ✓ Maximum link length of 100m links on OM3 multimode fiber or 150m links on OM4 multimode fiber
- ✓ High Reliability 850nm VCSEL technology
- ✓ Unretimed XLPPI electrical interface
- ✓ Single MPO-12 receptacle
- ✓ Digital diagnostic SFF-8436 compliant
- ✓ Case operating temperature range:0°C to +70°C
- ✓ Maximum Power dissipation < 1.5 W
- ✓ RoHS Compliant

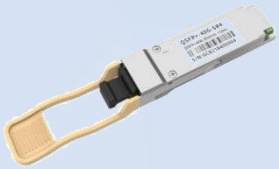
Applications

- ✓ 40GBASE- SR4 Ethernet
- ✓ Infiniband QDR interconnects
- ✓ Breakout to 10GBASE-SR Ethernet

Standards

- ✓ Compliant to IEEE 802.3ba
- ✓ Compliant to SFF-8436
- ✓ RoHS Compliant

NT-QSFP-40G-300m



NT-QSFP-40G-300m is a QSFP+ Optical transceiver for 4 x 10 Gb/s optical links. It operates at 10.3125Gb/s up to 100m over OM3 multimode optical fiber and 300m over OM4 fiber. The optical transmitter portion of the transceiver incorporates a 4 channels VCSEL array, a 4 channels input buffer and laser driver, diagnostic monitors, control and bias blocks. For module control, the control interface incorporates a Two Wire Serial interface of clock and data signals. Diagnostic monitors for VCSEL bias, module temperature, TX power, RX power and supply voltage are implemented and results are available through the Two Wire Serial interface. Alarm and warning thresholds are established for the monitored attributes. Flags are set and interrupts generated when the attributes are outside the thresholds. All flags are latched and will remain set even if the condition initiating the latch clears and operation resumes. The optical output will squelch for loss of input signal unless squelch is disabled.

Product Features

- ✓ Supports 41.25Gb/s aggregate bit rate
- ✓ Multirate capability: 1.06Gb/s to 10.5Gb/s per channel
- ✓ Maximum link length of 100m links on OM3 multimode fiber or 300m links on OM4 multimode fiber
- ✓ High Reliability 850nm VCSEL technology
- ✓ Unretimed XLPPI electrical interface
- ✓ Single MPO-12 receptacle
- ✓ Digital diagnostic SFF-8436 compliant
- ✓ Case operating temperature range:0°C to +70°C
- ✓ Maximum Power dissipation < 1.5 W
- ✓ RoHS Compliant

Applications

- ✓ 40GBASE- eSR4 Ethernet
- ✓ Infiniband QDR interconnects
- ✓ Breakout to 10GBASE-SR Ethernet

Standards

- ✓ Compliant to IEEE 802.3ba
- ✓ Compliant to SFF-8436
- ✓ RoHS Compliant

NT-QSFP-40G-10km

NT-QSFP-40G-10km integrates four transmitters and receivers into one module. The central wavelengths of the channels are 1271, 1291, 1311 and 1331 nm as members of the CWDM wavelength grid defined in ITU-T G.694.2. In the transmitter side, the four lanes of optical data channels are optically multiplexed by the integrated optical multiplexer. In the receive side, the four lanes of optical data channels are optically de-multiplexed by the integrated optical de-multiplexer.Each data channels is recovered by a PIN photo-detector and trans-impedance amplifier, retimed.The product is designed with form factor, optical/electrical connection and digital diagnostic interface according to the QSFP+ IEEE802.3ba 40GBASE-LR4 and compliant to SFF-8436.

Product Features

- ✓ Supports 41.25Gb/s aggregate bit rate
- ✓ Integrated 4 CWDM lanes MUX/DEMUX
- ✓ Up to 10km transmission on single mode fiber (SMF)
- ✓ XLPPI electrical interface
- ✓ Duplex LC receptacles
- ✓ Hot pluggable QSFP+ form factor
- ✓ Maximum power consumption 3.5W
- ✓ Case operating temperature range：0℃ ~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode
- ✓ I2C management interface

Applications

- ✓ Data Center
- ✓ Ethernet Switches

Standards

- ✓ Compliant with IEEE802.3ba
- ✓ Compliant with SFF-8436
- ✓ RoHS Compliant

25G Optical Module

NT-SFP28-25G-100m

NT-SFP28-25G-100m is a single-Channel, Pluggable, Fiber-Optic SFP28 for 25 Gigabit Ethernet and Infiniband EDR Applications. It is a high performance module for short-range data communication and interconnect applications which operate at 25.78125Gbps up to 70m using OM3 fiber or 100m using OM4 fiber. This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm.The electrical interface uses a 20 contact edge type connector. The optical interface uses duplex LC receptacle.

Product Features

- ✓ Hot-pluggable SFP28 form factor
- ✓ Supports 25.78125Gb/s bit rate
- ✓ Maximum link length of 70m on OM3 MMFand 100m on OM4 MMF
- ✓ Duplex LC receptacle
- ✓ Operating environment temperature -40 ~ +85℃
- ✓ Low power consumption
- ✓ SFP28 housing with enhanced EMI shielding
- ✓ Single 3.3V power supply

Applications

- ✓ 25GBASE-SR Ethernet
- ✓ 32G Fibre Channel

Standards

- ✓ Compliant with SFF-8472
- ✓ Compliant with IEEE802.3by
- ✓ Compliant with SFF-8431
- ✓ RoHS complaint

NT-SFP28-25G-10km

NT-SFP28-25G-10km is a single-Channel, Pluggable, Fiber-Optic SFP28 for 25G Ethernet and 5G Wireless Applications. It is a high performance module which operates at 25.78Gb/s up to 10km by single mode fiber. This module uses the duplex LC receptacle, which use uncooled 1310 nm DFB Laser transmitter and 1310nm PIN receiver.

Product Features

- ✓ Hot-pluggable SFP28 form factor
- ✓ Supports 24.33Gb/s~25.78Gb/s bit rate
- ✓ Uncooled 1310nm DFB Laser transmitter and PIN receiver
- ✓ Maximum link length of 10km SMF
- ✓ Duplex LC receptacle
- ✓ Operating case temperature range
- ✓ Commercial: 0°C ~ +70°C
- ✓ Industrial: -40°C ~ +85°C
- ✓ Low power dissipation: < 1.2W
- ✓ Single 3.3V power supply
- ✓ Class1 laser safety compliance

Applications

- ✓ 25G Ethernet
- ✓ eCPRI/CPRI-10
- ✓ Data center

Standards

- ✓ Compliant to SFP28 MSA
- ✓ Compliant with IEEE 802.3cc
- ✓ Compliant with SFF-8432，SFF-8472
- ✓ RoHS complaint

NT-BIDI-25G-10km-A/B

NT-BIDI-25G-10km-A/B is a single-Channel, Pluggable, Fiber-Optic SFP28 for 25G Ethernet and 5G Wireless Applications. It is a high performance module which operates at 25.78Gb/s up to 10km by single mode fiber. This module uses the simplex LC receptacle, which use 1270nm/1330nm DFB Laser and 1330nm/1270nm PIN receiver.

Product Features

- ✓ Hot-pluggable SFP28 form factor
- ✓ Supports 25.78Gb/s bit rate
- ✓ 1270nm DFB Laser and 1330nm PIN receiver for NT-BIDI-25G-10km-A
- ✓ 1330nm DFB Laser and 1270nm PIN receiver for NT-BIDI-25G-10km-B
- ✓ Maximum link length of 10km SMF
- ✓ Simplex LC receptacle
- ✓ Operating case temperature range: -40 ~ +85℃
- ✓ Low power dissipation: <1.5W
- ✓ Single 3.3V power supply

Applications

- ✓ 25G Ethernet
- ✓ eCPRI/CPRI-10
- ✓ Data center

Standards

- ✓ Compliant to SFP28 MSA
- ✓ Compliant with IEEE 802.3cc
- ✓ Compliant with SFF-8432，SFF-8472
- ✓ RoHS complaint

10G Optical Module

NT-SFP-10G-300m

NT-SFP-10G-300m is a 10.3125Gbps 300m SFP+ multimode transceiver.

Product Features

- ✓ Up to 10.5Gbps data rate
- ✓ 850nm VCSEL Laser and PIN photo detector
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-SR
- ✓ Fiber Channel

Standards

- ✓ Compliant with SFP+ MSA
- ✓ Compliant with SFF-8472
- ✓ Compatible with IEEE802.3ae 10GBASE-SR
- ✓ 10GFC

NT-SFP-10G-1.4km

NT-SFP-10G-1.4m is a 10.3125Gbps 1.4km LC Duplex SFP+ transceiver.

Product Features

- ✓ Up to 10.5Gb/s bit rates
- ✓ 1310nm FP Laser and PIN photo detector
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~70℃
- ✓ Industrial: -40℃~85℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10GBASE-LR/LW
- ✓ 10G Fiber Channel

Standards

- ✓ Compliant with MSA SFP+ specification(SFF-8431)
- ✓ Compliant with SFF-8472
- ✓ CPRI Line Rate Option: 9830.4Mbps
- ✓ Compliant to IEEE 802.3ae

NT-SFP-10G-10km

NT-SFP-10G-10km is a 10.3125Gbps 10km LC Duplex SFP+ transceiver.

Product Features

- ✓ Up to 10.5Gb/s bit rates
- ✓ 1310nm DFB Laser and PIN receiver
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Up to 10km transmission distance over Single Mode Fiber
- ✓ Operating case temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-LR/LW
- ✓ 10G Fiber Channel

Standards

- ✓ Complies with SFP+MSA(SFF-8431)
- ✓ Complies with SFF-8472
- ✓ Complies with IEEE802.3ae

NT-SFP-10G-20km

NT-SFP-10G-20km is a 10.3125Gbps 20km LC Duplex SFP+ transceiver.

Product Features

- ✓ Up to 10.5Gb/s bit rates
- ✓ 1310nm DFB Laser and PIN receiver
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Up to 20km transmission distance over Single Mode Fiber
- ✓ Operating case temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-LR/LW
- ✓ 10G Fiber Channel

Standards

- ✓ Complies with SFP+MSA(SFF-8431)
- ✓ Complies with SFF-8472
- ✓ Complies with IEEE802.3ae

NT-SFP-10G-40km

NT-SFP-10G-40km is a 10.3125Gbps 40km LC Duplex SFP+ transceiver.

Product Features

- ✓ Up to 10.3125 Gbps data rate
- ✓ 1550nm EML transmitter and High performance PIN receiver
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Up to 40km transmission distance over Single Mode Fiber without CDR inside
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-ER/EW
- ✓ 10G Fiber Channe

Standards

- ✓ Complies with SFP+ MSA(SFF-8431)
- ✓ Complies with SFF-8472
- ✓ Complies with IEEE802.3ae

NT-SFP-10G-80km

NT-SFP-10G-80km is a 10.3125Gbps 80km LC Duplex SFP+ transceiver.

Product Features

- ✓ Up to 10.3125Gbps data rate
- ✓ 1550nm EML cooled transmitter and High performance APD receiver
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Up to 80km transmission distance over Single Mode Fiber
- ✓ Operating case temperature range:
- ✓ Commercial: 0℃~ +70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-ZR/ZW

Standards

- ✓ Complies with SFP+MSA(SFF-8431)
- ✓ Complies with SFF-8472
- ✓ Complies with IEEE802.3ae

NT-BIDI-10G-10km/20km/40km/60km-A/B

NT-BIDI-10G-10km / 20km / 40km / 60km -A/B are 10.3125Gbps 10km / 20km / 40km / 60km LC BIDI SFP+ transceivers.

Product Features

- ✓ Up to 10.5Gb/s bit rates
- ✓ 1270nm DFB Laser and 1330nm PIN receiver for NT-BIDI-10G-xxkm/xxkm/xxkm/xxkm-A
- ✓ 1330nm DFB Laser and 1270nm PIN receiver for NT-BIDI-10G-xxkm/xxkm/xxkm/xxkm-B
- ✓ Simplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Up to 10km transmission distance over Single Mode Fiber
- ✓ Operating temperature range:
- ✓ Commercial:0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-LR/LW
- ✓ 10G Fiber Channel

Standards

- ✓ Complies with SFP+MSA(SFF-8431)
- ✓ Complies with SFF-8472 .
- ✓ Complies with IEEE802.3ae

3G Optical Module

NT-BIDI-3G-500m/2km/10km-A/B

NT-BIDI-3G-500m / 2km / 10km -A/B are 3.125Gbps 500m / 2km / 10km LC BIDI SFP transceivers.

Product Features

- ✓ Up to 3.125Gbps data rate
- ✓ 1310nm FP Laser and PIN photo detector for NT-BIDI-3G-xxm/xxkm/xxkm-A
- ✓ 1550nm FP Laser and PIN photo detector for NT-BIDI-3G-xxm/xxkm/xxkm-B
- ✓ LC BIDI receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Industrial:-40℃~+85℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ SONET/SDH/ATM
- ✓ Distributed Multi-Processing

Standards

- ✓ Compliant with SFP MSA (INF-8074i)
- ✓ Compliant with SFF-8472 v11.0
- ✓ Compliant with ITU-T G.958

2.5G Optical Module

NT-SFP-2.5G-2km

NT-SFP-2.5G-2km is a 2.5Gbps 2km LC Duplex SFP transceiver.

Product Features

- ✓ Up to 2.5Gbps data rate
- ✓ 1310nm FP Laser and PIN photo detector
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ Industrial:-40℃~+85℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ Point-to-Point networking
- ✓ SONET OC-48
- ✓ 1X,2X Fiber Channel
- ✓ Other Optical Links

Standards

- ✓ Compliant with SFP MSA (INF-8074i)
- ✓ Compliant with SFF-8472 v9.3
- ✓ Compliant with ITU-T G.958
- ✓ Compliant with ITU-T G.957 STM-16

NT-SFP-2.5G-15km

NT-SFP-2.5G-15km is a 2.5Gbps 15km LC Duplex SFP transceiver.

Product Features

- ✓ Up to 2.5Gbps data rate
- ✓ 1310nm DFB Laser and PIN photo detector
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ Industrial:-40℃~+85℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ Point-to-Point networking
- ✓ SONET OC-48
- ✓ 1X,2X Fiber Channel
- ✓ Other Optical Links

Standards

- ✓ Compliant with SFP MSA (INF-8074i)
- ✓ Compliant with SFF-8472 v11.0
- ✓ Compliant with ITU-T G.958
- ✓ Compliant with ITU-T G.957 STM-16

NT-BIDI-2.5G-20km-A/B

NT-BIDI-2.5G-20km-A/B is a 2.5Gbps 20km LC BIDI SFP transceiver.

Product Features

- ✓ Up to 2.5Gbps data rate
- ✓ 1310nm DFB Laser and PIN photo detector for NT-BIDI-2.5G-20km-A
- ✓ 1550nm DFB Laser and PIN photo detector for NT-BIDI-2.5G-20km-B
- ✓ LC BIDI receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Industrial: -40℃~85℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ Point-to-Point networking
- ✓ SONET OC-48
- ✓ 1X,2X Fiber Channel
- ✓ Other Optical Links

Standards

- ✓ Compliant with SFP MSA (INF-8074i)
- ✓ Compliant with SFF-8472 v11.0
- ✓ Compliant with ITU-T G.958
- ✓ Compliant with ITU-T G.957 STM-16

1.25G Optical Module

NT-SFP-1.25G-550m

NT-SFP-1.25G-550m is a 1.25Gbps 550m Duplex LC SFP transceiver.

Product Features

- ✓ Up to 1.25Gbps Data rate
- ✓ 850nm VCSEL Laser and PIN photo detector
- ✓ Duplex LC receptacle optical interface
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 1000Base-SX Ethernet

Standards

- ✓ Compliant with MSA SFP specification
- ✓ Compatible with IEEE802.3
- ✓ Compliant with SFF-8472
- ✓ Compliant with FC-PI v2.0

NT-SFP-1.25G-10km

NT-SFP-1.25G-10km is a 1.25Gbps 10km LC Duplex SFP transceiver.

Product Features

- ✓ Up to 1.25 Gbps data rate
- ✓ 1310nm FP Laser and PIN photo detector
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial:0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ Gigabit Ethernet
- ✓ Gigabit Fiber Channel
- ✓ Switch to switch interface
- ✓ Switched backplane applications

Standards

- ✓ Compliant with SFP MSA (INF-8074i)
- ✓ Compliant with SFF-8472
- ✓ Compatible with IEEE802.3ah 2004

NT-BIDI-1.25G-20km-A/B

NT-BIDI-1.25G-20km-A/B is a 1.25Gbps 20km LC BIDI SFP transceiver.

Product Features

- ✓ Up to 1.25Gbps Data rate
- ✓ 1550nm DFB Laser and PIN photo detector for NT-BIDI-1.25G-20km-A
- ✓ 1310nm FP Laser and PIN photo detector for NT-BIDI-1.25G-20km-B
- ✓ Simplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of LVPECL signals
- ✓ International Class1 laser safety certified
- ✓ Operating temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ Gigabit Ethernet
- ✓ Gigabit Fiber Channel
- ✓ Switch to switch interface
- ✓ Switched backplane applications

Standards

- ✓ Compliant with SFP MSA (INF-8074i)
- ✓ Compliant with SFF-8472
- ✓ Compatible with IEEE802.3ah

Telecom Operator Optical Module

NT-CWDM-10G-10km

NT-CWDM-10G-10km is a 10.3125Gbps 10km CWDM LC Duplex SFP+ transceiver.

Product Features

- ✓ Up to 10.5Gb/s bit rates
- ✓ CWDM DFB Laser and PIN receiver
- ✓ Duplex LC receptacle optical interface compliant
- ✓ Single +3.3V power supply
- ✓ Hot-pluggable
- ✓ AC coupling of CML signals
- ✓ International Class1 laser safety certified
- ✓ Up to 10km transmission distance over Single Mode Fiber
- ✓ Operating case temperature range:
- ✓ Commercial: 0℃~+70℃
- ✓ RoHS Compliant
- ✓ DDMI function available with internally calibrated mode

Applications

- ✓ 10G BASE-LR/LW
- ✓ 10G Fiber Channel

Standards

- ✓ Complies with SFP+MSA(SFF-8431)
- ✓ Complies with SFF-8472
- ✓ Complies with IEEE802.3ae

Order Information

Part.No	Specifications								
	Pack	Rate	Tx(nm)	Po	RX	Sen	Temp	Reach	Others
NT-CWDM-10G-10km-1271nm	SFP+	10.3125	1271	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1291nm	SFP+	10.3125	1291	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1311nm	SFP+	10.3125	1311	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1331nm	SFP+	10.3125	1331	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1351nm	SFP+	10.3125	1351	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1371nm	SFP+	10.3125	1371	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1391nm	SFP+	10.3125	1391	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1411nm	SFP+	10.3125	1411	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1431nm	SFP+	10.3125	1431	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1451nm	SFP+	10.3125	1451	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1471nm	SFP+	10.3125	1471	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1491nm	SFP+	10.3125	1491	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1511nm	SFP+	10.3125	1511	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1531nm	SFP+	10.3125	1531	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1551nm	SFP+	10.3125	1551	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1571nm	SFP+	10.3125	1571	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1591nm	SFP+	10.3125	1591	-3~3	PIN	<-14.4	0~70	10	DDM;
NT-CWDM-10G-10km-1611nm	SFP+	10.3125	1611	-3~3	PIN	<-14.4	0~70	10	DDM;

NT-CWDM-25G-10km

NT-CWDM-25G-10km is a single-Channel, Pluggable, Fiber-Optic SFP28 for 25G Ethernet and 5G Wireless Applications. It is a high performance module which operates at 25.78Gbps up to 10km by single mode fiber. This module uses the duplex LC receptacle, which use uncooled CWDM （1271~1371nm）DFB Laser and PIN photo detector.

Product Features

- ✓ Hot-pluggable SFP28 form factor
- ✓ Supports 24.33Gb/s~25.78Gb/s bit rate
- ✓ Uncooled CWDM（1271~1371nm）DFB Laser and PIN photo detector
- ✓ Maximum link length of 10km on SMF
- ✓ Duplex LC receptacle
- ✓ Operating case temperature range
- ✓ Commercial:0~70℃
- ✓ Low power dissipation:
- ✓ Commercial: < 1.2 W
- ✓ Single 3.3V power supply
- ✓ Class1 laser safety compliance

Applications

- ✓ 25G Ethernet
- ✓ eCPRI/CPRI-10
- ✓ Data center

Standards

- ✓ Compliant to SFP28 MSA
- ✓ Compliant with IEEE 802.3cc
- ✓ Compliant with SFF-8432，SFF-8472
- ✓ RoHS compliant

Order Information

Part.No	Specifications								
	Form	Data Rate	λ	Po	RX	Sen*	Reach	Color	DDMI
NT-CWDM-25G-10km-1271nm	SFP28	25.78	1271	0~6	PIN	<-14	10	Water-Blue	Y
NT-CWDM-25G-10km-1291nm	SFP28	25.78	1291	0~6	PIN	<-14	10	Hot Pink	Y
NT-CWDM-25G-10km-1311nm	SFP28	25.78	1311	0~6	PIN	<-14	10	Olive	Y
NT-CWDM-25G-10km-1331nm	SFP28	25.78	1331	0~6	PIN	<-14	10	Yellow	Y
NT-CWDM-25G-10km-1351nm	SFP28	25.78	1351	0~6	PIN	<-14	10	Sky-Blue	Y
NT-CWDM-25G-10km-1371nm	SFP28	25.78	1371	0~6	PIN	<-14	10	Pink	Y

EPON Optical Module

NT-EPON-PX20+

NT-EPON-PX20+ is based on the IEEE 802.3ah specification for bidirectional communications over a single fiber and incorporates a high performance 1310nm burst mode APD Receiver and 1490nm CW mode DFB transmitter.

Product Features

- ✓ Single fiber bi-directional data links TX 1.25Gbps/RX1.25Gbps application
- ✓ 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- ✓ Compatible with SFP MSA, Hot-pluggable SFP footprint
- ✓ Small Form Factor Pluggable package with SC/UPC Connector
- ✓ 0 to 70°C operating temperature, -40 ~ +85°C storage temperature
- ✓ Single 3.3V power supply
- ✓ Digital diagnostic monitoring interface
- ✓ Small size, it can be used in the optical access system of high density optical interface
- ✓ Low EMI and excellent ESD protection
- ✓ Class I laser safety standard IEC-60825 compliant
- ✓ RoHS6 Compliance

Applications

- ✓ Gigabit Ethernet Passive Optical Networks (GEPON)

Standards

- ✓ Complies with SFP Multi-Source Agreement (MSA) SFF-8074i
- ✓ Complies with IEEE 802.3ah
- ✓ Complies with FCC 47 CFR Part 15, Class B
- ✓ Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
- ✓ Complies with SFF-8472
- ✓ Compatible with TR-NWT-000870 4.1 ESD sensitivity classification Class2.
- ✓ Compatible with Telcordia GR-468-CORE

NT-EPON-PX20++

NT-EPON-PX20++ is based on the IEEE 802.3ah specification for bidirectional communications over a single fiber and incorporates a high performance 1310nm burst mode APD Receiver and 1490nm CW mode DFB transmitter.

Product Features

- ✓ Single fiber bi-directional data links TX 1.25Gbps/RX1.25Gbps application
- ✓ 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- ✓ Compatible with SFP MSA, Hot-pluggable SFP footprint
- ✓ Small Form Factor Pluggable package with SC/UPC Connector
- ✓ 0 to 70°C operating temperature, -40 ~ +85°C storage temperature
- ✓ Single 3.3V power supply
- ✓ Digital diagnostic monitoring interface
- ✓ Small size, it can be used in the optical access system of high density optical interface
- ✓ Low EMI and excellent ESD protection
- ✓ Class I laser safety standard IEC-60825 compliant
- ✓ RoHS6 Compliance

Applications

- ✓ Gigabit Ethernet Passive Optical Networks (GEPON)

Standards

- ✓ Complies with SFP Multi-Source Agreement (MSA) SFF-8074i
- ✓ Complies with IEEE 802.3ah
- ✓ Complies with FCC 47 CFR Part 15, Class B
- ✓ Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser NoticeNo.50, dated June 24, 2007
- ✓ Complies with SFF-8472
- ✓ Compatible with TR-NWT-000870 4.1 ESD sensitivity classification Class2. Compatible with Telcordia GR-468-CORE

GPON Optical Module

NT-GPON-CLASS-B+

NT-GPON-CLASS-B+ is based on the ITU-T G.984.2 Class B+ specifications for bidirectional communications over asingle fiber and incorporates a high performance 1310nm Burst Mode APD/TIA receiver and 1490nm CW mode DFB transmitter with internal optical isolator.

Product Features

- ✓ Single fiber bi-directional data links asymmetric TX 2488Mbps/RX1244Mbps application
- ✓ 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- ✓ Small Form Factor Pluggable package with SC/UPC Connector
- ✓ -40 to 85°C operating temperature
- ✓ Single 3.3V power supply
- ✓ Digital diagnostic monitoring interface
- ✓ Digital burst RSSI function to monitor the received optical power level
- ✓ LVPECL compatible data input/output interface
- ✓ LVTTL transmitter disable control
- ✓ LVTTL transmitter laser fault alarm
- ✓ Fast LVTTL receiver Signal Detect (SD) indication response
- ✓ Low EMI and excellent ESD protection
- ✓ Class I laser safety standard IEC-60825 compliant
- ✓ RoHS6 Compliance

Applications

- ✓ Gigabit Ethernet Passive Optical Networks (GEPON)

Standards

- ✓ Complies with SFP Multi-Source Agreement (MSA) SFF-8074i
- ✓ Complies with ITU-T G.984.2 Amendment 2
- ✓ Complies with FCC 47 CFR Part 15, Class B
- ✓ Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser NoticeNo.50, dated June 24, 2007
- ✓ Complies with SFF-8472
- ✓ Compatible with TR-NWT-000870 4.1 ESD sensitivity classification Class2. Compatible with Telcordia GR-468-CORE

NT-GPON-CLASS-C+

NT-GPON-CLASS-C+ is based on the ITU-T G.984.2 Class C+ specifications for bidirectional communications over a single fiber and incorporates a high performance 1310nm Burst Mode APD/TIA receiver and 1490nm CW mode DFB transmitter with internal optical isolator.

Product Features

- ✓ Single fiber bi-directional data links asymmetric TX 2488Mbps/ RX 1244Mbps application
- ✓ 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- ✓ Small Form Factor Pluggable package with SC/UPC Connector
- ✓ 0 to 70°C operating temperature
- ✓ Single 3.3V power supply
- ✓ Digital diagnostic monitoring interface
- ✓ Digital burst RSSI function to monitor the received optical power level
- ✓ LVPECL compatible data input/output interface
- ✓ LVTTL transmitter disable control
- ✓ LVTTL transmitter laser fault alarm
- ✓ Fast LVTTL receiver Signal Detect (SD) indication response
- ✓ Low EMI and excellent ESD protection
- ✓ Class I laser safety standard IEC-60825 compliant
- ✓ RoHS6 Compliance

Applications

- ✓ Gigabit Ethernet Passive Optical Networks (GEPON)

Standards

- ✓ Complies with SFP Multi-Source Agreement (MSA) INF-8074i
- ✓ Complies with ITU-T G.984.2 Amendment 2
- ✓ Complies with FCC 47 CFR Part 15, Class B
- ✓ Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
- ✓ Complies with SFF-8472
- ✓ Compatible with TR-NWT-000870 4.1 ESD sensitivity classification Class2.
- ✓ Compatible with Telcordia GR-468-CORE

NT-GPON-CLASS-C++

NT-GPON-CLASS-C++ is based on the ITU-T G.984.2 Class C++ specifications for bidirectional communications over a single fiber and incorporates a high performance 1310nm Burst Mode APD/TIA receiver and 1490nm CW mode DFB transmitter with internal optical isolator.

Product Features

- ✓ Single fiber bi-directional data links asymmetric TX 2488Mbps/RX1244Mbps application
- ✓ 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- ✓ Small Form Factor Pluggable package with SC/UPC Connector
- ✓ 0 to 70°C operating temperature
- ✓ Single 3.3V power supply
- ✓ Digital diagnostic monitoring interface
- ✓ Digital burst RSSI function to monitor the received optical power level
- ✓ LVPECL compatible data input/output interface
- ✓ LVTTL transmitter disable control
- ✓ LVTTL transmitter laser fault alarm
- ✓ Fast LVTTL receiver Signal Detect (SD) indication response
- ✓ Low EMI and excellent ESD protection
- ✓ Class I laser safety standard IEC-60825 compliant
- ✓ RoHS6 Compliance

Applications

- ✓ Gigabit Ethernet Passive Optical Networks (GEPON)

Standards

- ✓ Complies with SFP Multi-Source Agreement (MSA) SFF-8074i
- ✓ Complies with ITU-T G.984.2
- ✓ Complies with FCC 47 CFR Part 15, Class B
- ✓ Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser NoticeNo.50, dated June 24, 2007
- ✓ Complies with SFF-8472
- ✓ Compatible with TR-NWT-000870 4.1 ESD sensitivity classification Class2.
- ✓ Compatible with Telcordia GR-468-CORE

10G EPON Optical Module

NT-10GEPON-S

NT-10GEPON-S is designed for single mode fiber and operates at wavelength of 1270nm. The transceiver module uses a DFB laser diode and fully compliant with IEC60825 and CDRH class 1 eye safety. It contains APC functions, a temperature compensation circuit to ensure compliance with IEEE 802.3av requirements at operating temperature. The receiver section uses a hermetic packaged APD-TIA (APD with trans-impedance amplifier) and a limiting amplifier. The APD converts optical power into electrical current and the current is transformed to voltage by the trans-impedance amplifier. The differential DATA and /DATA CML data signals are produced by the limiting amplifier. The APD-TIA is AC coupled to the limiting amplifier through a low pass filter.

Product Features

- ✓ Single Fiber10G symmetrical EPON ONU Transceiver
  1270nm burst-mode 10.3125 Gb/s transmitter with DFB laser
  1577nm continuous-mode 10.3125Gb/s APD/TIA receiver
- ✓ Digital diagnostic monitoring (DDM)with internal calibration
- ✓ SFP+ package with SC/UPC receptacle connector
- ✓ +3.3V separated power supply, low power dissipation
- ✓ LVPECL interface logic level for data input
- ✓ CML interface logic level for data output
- ✓ LVTTL for burst signal input
- ✓ LVTTL for receiver loss of signal detect indication
- ✓ Compliant with IEEE 802.3av
- ✓ SFF-8472 compliant
- ✓ Telcordia GR-468-CORE and MIL-STD-883 compliant
- ✓ RoHS-6/6 compliant
- ✓ Operating temperature range: Commercial: 0℃~70℃
- ✓ IEC 60825-1 compliant
- ✓ FCC Part 15 Class B /EN55022 Class B (CISPR 22B)/ VCCI Class B compliant

Applications

- ✓ Symmetric 10GEPON PR30 ONU

NT-10GEPON-A

NT-10GEPON-A is designed for single mode fiber and operates at wavelength of 1310nm. The transceiver module uses a DFB laser diode and fully compliant with IEC60825 and CDRH class 1 eye safety. It contains APC functions, a temperature compensation circuit to ensure compliance with IEEE 802.3av requirements at operating temperature. The receiver section uses a hermetic packaged APD-TIA (APD with trans-impedance amplifier) and a limiting amplifier. The APD converts optical power into electrical current and the current is transformed to voltage by the trans-impedance amplifier. The differential DATA and /DATA CML data signals are produced by the limiting amplifier. The APD-TIA is AC coupled to the limiting amplifier through a low pass filter.

Product Features

- ✓ Single Fiber 10G asymmetrical EPON ONU Transceiver
  1310nm burst-mode 1.25 Gb/s transmitter with DFB laser
  1577nm continuous-mode 10.3125Gb/s APD/TIA receiver
- ✓ Digital diagnostic monitoring (DDM)with internal calibration
- ✓ SFP+ package with SC/UPC receptacle connector
- ✓ +3.3V separated power supply, Low power dissipation
- ✓ LVPECL interface logic level for data input
- ✓ CML interface logic level for data output
- ✓ LVTTL for burst signal input
- ✓ LVTTL for receiver loss of signal detect indication
- ✓ Compliant with IEEE 802.3av
- ✓ SFF-8472 compliant
- ✓ Telcordia GR-468-CORE and MIL-STD-883 compliant
- ✓ RoHS-6/6 compliant
- ✓ Operating temperature range: -40℃ ~ +85℃
- ✓ FCC Part 15 Class B /EN55022 Class B (CISPR 22B)/ VCCI Class B compliant.

Applications

- ✓ Asymmetric 10GEPON PRX30 ONU

XG PON Optical Module

NT-XGPON-A

NT-XGPON-A is designed for single mode fiber and operates at wavelength of 1270nm. The transceiver module uses a DFB laser diode and fully compliant with IEC60825 and CDRH class 1 eye safety. It contains APC functions, a temperature compensation circuit to ensure compliance with ITU-T G987.2 requirements at operating temperature. The receiver section uses a hermetic packaged APD-TIA (APD with trans-impedance amplifier) and a limiting amplifier. The APD converts optical power into electrical current and the current is transformed to voltage by the trans-impedance amplifier. The differential DATA and /DATA CML data signals are produced by the limiting amplifier. The APD-TIA is AC coupled to the limiting amplifier through a low pass filter.

Product Features

- ✓ Single Fiber XG-PON ONU Transceiver
  1270nm burst-mode 2.48832 Gb/s transmitter with DFB laser
  1577nm continuous-mode 9.95328Gb/s APD/TIA receiver
- ✓ Digital diagnostic monitoring (DDM)with internal calibration
- ✓ SFP+ package with SC APC receptacle connector
- ✓ +3.3V separated power supply , Low power dissipation
- ✓ LVPECL interface logic level for data input
- ✓ CML interface logic level for data output
- ✓ LVTTL for burst signal input
- ✓ LVTTL for receiver loss of signal indication
- ✓ Compliant with ITU-T G.987.2
- ✓ SFP+ MSA SFF-8431 compliant
- ✓ SFF-8472 compliant
- ✓ Telcordia GR-468-CORE and MIL-STD-883 compliant
- ✓ RoHS-6/6 Compliant
- ✓ Operating temperature range: -40℃ ~ + 85℃
- ✓ IEC 60825-1 Compliant
- ✓ FCC Part 15 Class B /EN55022 Class B (CISPR 22B)/ VCCI Class B Compliant

Applications

- ✓ 10-Gigabit-capable passive optical networks（XG-PON）ONU

NT-XGSPON-S

NT-XGSPON-S is is designed for single mode fiber and operates at wavelength of 1270nm. The transceiver module uses a DFB laser diode and fully compliant with IEC60825 and CDRH class 1 eye safety. It contains APC functions, a temperature compensation circuit to ensure compliance with ITU-T G987.2 requirements at operating temperature. The receiver section uses a hermetic packaged APD-TIA (APD with trans-impedance amplifier) and a limiting amplifier. The APD converts optical power into electrical current and the current is transformed to voltage by the trans-impedance amplifier. The differential DATA and /DATA CML data signals are produced by the limiting amplifier. The APD-TIA is AC coupled to the limiting amplifier through a low pass filter.

Product Features

- ✓ Single Fiber XG-PON ONU Transceiver 1270nm burst-mode 2.48832 Gb/s transmitter with DFB laser 1577nm continuous-mode 9.95328Gb/s APD/TIA receiver
- ✓ Digital diagnostic monitoring (DDM)with internal calibration
- ✓ SFP+ package with SC APC receptacle connector
- ✓ +3.3V separated power supply , Low power dissipation
- ✓ LVPECL interface logic level for data input
- ✓ CML interface logic level for data output
- ✓ LVTTL for burst signal input
- ✓ LVTTL for receiver loss of signal indication
- ✓ Compliant with ITU-T G.987.2
- ✓ SFP+ MSA SFF-8431 compliant
- ✓ SFF-8472 compliant
- ✓ Telcordia GR-468-CORE and MIL-STD-883 compliant
- ✓ RoHS-6/6 Compliant
- ✓ Operating temperature range: -40℃ ~ + 85℃
- ✓ IEC 60825-1 Compliant
- ✓ FCC Part 15 Class B /EN55022 Class B (CISPR 22B)/ VCCI Class B Compliant

Applications

- ✓ 10-Gigabit-capable passive optical networks（XG-PON）ONU

AOC

NT-QSFP28-100G-AOC

NT-QSFP28-100G-AOC is a Four-Channel, Pluggable, Parallel, Fiber-Optic QSFP8 AOC for 100 Gigabit Ethernet, Infiniband EDR Applications. This transceiver is a high performance module for short-range multi-lane data communication and interconnect applications. It integrates four data lanes in each direction with 100Gbps bandwidth. MNC QSFP28 Active Optical Cable's length is up to 70 meters over OM3 MMF or 100 meters over OM4 MMF. These modules are designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 38 contact edge type connector.

Product Features

- ✓ Hot-pluggable QSFP28 form factor
- ✓ Supports 25.78125Gb/s bit rate per channel
- ✓ 4 channels 850nm VCSEL laser and 4 channels PIN photo detector array
- ✓ Maximum link length of 70m over OM3 MMF and 100m over OM4 MMF
- ✓ Internal CDR circuits on both receiver and transmitter channels
- ✓ Case operating temperature range:0 ~ +70°C
- ✓ Single 3.3V power supply
- ✓ power dissipation: <2.5W per end
- ✓ Flat, rubberized, LSZH cable
- ✓ QSFP28 housing with enhanced EMI shielding

Applications

- ✓ 100GBASE-SR4 100G Ethernet
- ✓ Data center
- ✓ Infiniband EDR

Standards

- ✓ Compliant with QSFP28 MSA
- ✓ Compliant with IEEE 802.3bm
- ✓ Compliant with SFF-8636
- ✓ RoHS Compliant

Order Information

Part.No	Specifications							
	Pack	Rate (Gbps)	Tx (nm)	Rx	Temp (℃)	Reach (m)	Pull Tab Color	Others
NT-QSFP28-100G-AOC-1m	QSFP28	103.125	850 VCSEL	PIN	0~+70	1	Beige	RoHS
NT-QSFP28-100G-AOC-3m	QSFP28	103.125	850 VCSEL	PIN	0~+70	3	Beige	RoHS
NT-QSFP28-100G-AOC-5m	QSFP28	103.125	850 VCSEL	PIN	0~+70	5	Beige	RoHS
NT-QSFP28-100G-AOC-7m	QSFP28	103.125	850 VCSEL	PIN	0~+70	7	Beige	RoHS
NT-QSFP28-100G-AOC-10m	QSFP28	103.125	850 VCSEL	PIN	0~+70	10	Beige	RoHS
NT-QSFP28-100G-AOC-15m	QSFP28	103.125	850 VCSEL	PIN	0~+70	15	Beige	RoHS
NT-QSFP28-100G-AOC-20m	QSFP28	103.125	850 VCSEL	PIN	0~+70	20	Beige	RoHS
NT-QSFP28-100G-AOC-25m	QSFP28	103.125	850 VCSEL	PIN	0~+70	25	Beige	RoHS
NT-QSFP28-100G-AOC-30m	QSFP28	103.125	850 VCSEL	PIN	0~+70	30	Beige	RoHS
NT-QSFP28-100G-AOC-40m	QSFP28	103.125	850 VCSEL	PIN	0~+70	40	Beige	RoHS
NT-QSFP28-100G-AOC-50m	QSFP28	103.125	850 VCSEL	PIN	0~+70	50	Beige	RoHS
NT-QSFP28-100G-AOC-100m	QSFP28	103.125	850 VCSEL	PIN	0~+70	100	Beige	RoHS

NT-QSFP-40G-AOC

NT-QSFP-40G-AOC is a high data rate parallel active optical cable (AOC), to overcome the bandwidth limitation of traditional copper cable. The AOC offers 4 independent data transmission channels and 4 data receiving channels via the multimode ribbon fibers, each capable of 10 Gb/s operation. Consequently, an aggregate data rate of 40Gb/s over 100 meters transmission can be achieved by this product, to support the ultra-fast computing data exchange. The product is designed with form factor, optical/electrical connection according to the QSFP+ Multi-Source Agreement (MSA). It has been designed to meet the harshest external operating conditions including temperature, humidity and EMI interference.

Product Features

- ✓ Four-channel full-duplex active optical cable
- ✓ Complies with QSFP MSA high-density form factor
- ✓ Reliable VCSEL array technology using multimode fiber
- ✓ Hot Pluggable
- ✓ Flat, rubberized, LSZH cable
- ✓ Low power dissipation: <1.3W per cable end
- ✓ Commercial operating case temperature range: 0°C to 70°C
- ✓ RoHS-6 Compliant

Applications

- ✓ Infiniband QDR
- ✓ 40G Ethernet
- ✓ 4G/8G/10G Fiber Channel
- ✓ HPC Interconnections

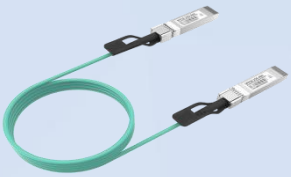
Standards

- ✓ Compliant to QSFP+ MSA
- ✓ RoHS Compliant

Order Information

Part.No	Specifications						
	Pack	Rate (Gbps)	Tx (nm)	Rx	Temp (℃)	Reach (m)	Others
NT-QSFP-40G-AOC-1m	QSFP+	40	850 VCSEL	PIN	0~+70	1	RoHS
NT-QSFP-40G-AOC-3m	QSFP+	40	850 VCSEL	PIN	0~+70	3	RoHS
NT-QSFP-40G-AOC-5m	QSFP+	40	850 VCSEL	PIN	0~+70	5	RoHS
NT-QSFP-40G-AOC-7m	QSFP+	40	850 VCSEL	PIN	0~+70	7	RoHS
NT-QSFP-40G-AOC-10m	QSFP+	40	850 VCSEL	PIN	0~+70	10	RoHS
NT-QSFP-40G-AOC-15m	QSFP+	40	850 VCSEL	PIN	0~+70	15	RoHS
NT-QSFP-40G-AOC-20m	QSFP+	40	850 VCSEL	PIN	0~+70	20	RoHS
NT-QSFP-40G-AOC-25m	QSFP+	40	850 VCSEL	PIN	0~+70	25	RoHS
NT-QSFP-40G-AOC-30m	QSFP+	40	850 VCSEL	PIN	0~+70	30	RoHS
NT-QSFP-40G-AOC-40m	QSFP+	40	850 VCSEL	PIN	0~+70	40	RoHS
NT-QSFP-40G-AOC-50m	QSFP+	40	850 VCSEL	PIN	0~+70	50	RoHS

NT-SFP28-25G-AOC



NT-SFP28-25G-AOC are direct-attach fiber assemblies with SFP28 connectosr. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. MNC SFP28 Active Optical Cable's length is up to 70 meters over OM3 MMF or 100 meters over OM4 MMF. This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm.

Product Features

- ✓ Hot-pluggable SFP28 cable ends
- ✓ Supports 25.78Gbps bit rate
- ✓ Maximum link length of 70m over OM3 MMF and 100m over OM4 MMF
- ✓ Operating environment temperature: 0 ~ +70℃
- ✓ Low power consumption: <1W per end
- ✓ SFP28 housing with enhanced EMI shielding
- ✓ Single 3.3V power supply
- ✓ Flat, rubberized, LSZH cable

Applications

- ✓ 25GBASE-SR Ethernet

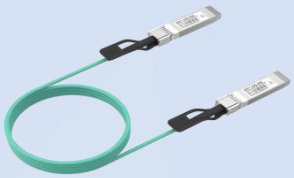
Standards

- ✓ Compliant with SFF-8472
- ✓ Compliant with IEEE802.3by
- ✓ Compliant with SFF-8431
- ✓ RoHS complaint

Order Information

Part.No	Specifications							
	Pack	Rate (Gbps)	Tx (nm)		Rx	Temp (℃)	Reach (m)	Others
NT-SFP28-25G-AOC-1m	SFP28	25.78	850	VCSEL	PIN	0~+70	1	RoHS
NT-SFP28-25G-AOC-3m	SFP28	25.78	850	VCSEL	PIN	0~+70	3	RoHS
NT-SFP28-25G-AOC-5m	SFP28	25.78	850	VCSEL	PIN	0~+70	5	RoHS
NT-SFP28-25G-AOC-7m	SFP28	25.78	850	VCSEL	PIN	0~+70	7	RoHS
NT-SFP28-25G-AOC-10m	SFP28	25.78	850	VCSEL	PIN	0~+70	10	RoHS
NT-SFP28-25G-AOC-15m	SFP28	25.78	850	VCSEL	PIN	0~+70	15	RoHS
NT-SFP28-25G-AOC-20m	SFP28	25.78	850	VCSEL	PIN	0~+70	20	RoHS
NT-SFP28-25G-AOC-25m	SFP28	25.78	850	VCSEL	PIN	0~+70	25	RoHS
NT-SFP28-25G-AOC-30m	SFP28	25.78	850	VCSEL	PIN	0~+70	30	RoHS
NT-SFP28-25G-AOC-40m	SFP28	25.78	850	VCSEL	PIN	0~+70	40	RoHS
NT-SFP28-25G-AOC-50m	SFP28	25.78	850	VCSEL	PIN	0~+70	50	RoHS
NT-SFP28-25G-AOC-70m	SFP28	25.78	850	VCSEL	PIN	0~+70	70	RoHS
NT-SFP28-25G-AOC-100m	SFP28	25.78	850	VCSEL	PIN	0~+70	100	RoHS

NT-SFP-10G-AOC



NT-SFP-10G-AOC are direct-attach fiber assemblies with SFP+ connectors. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. The Cables's length is up to 300 meters on OM3 MMF.

Product Features

- ✓ Hot-pluggable SFP+ cable ends
- ✓ Supports 10.3125Gb/s bit rate
- ✓ Pre-terminated twin axial cable / fiber cable
- ✓ Operating environment temperature 0 ~ 70℃
- ✓ Low power consumption
- ✓ SFP+ housing with enhanced EMI shielding
- ✓ Single 3.3V power supply
- ✓ Available in lengths up to 300m

Applications

- ✓ 10G Ethernet
- ✓ 10G Fiber Channel over Ethernet
- ✓ Applicable to 1X QDR / 1X DDR / 1x SDR Infiniband
- ✓ High capacity IO with SFP+ interface
- ✓ Data center and in-rack connection

Standards

- ✓ SFF-8431 SFP+ Electrical MSA
- ✓ SFF-8432 SFP+ Mechanical MSA
- ✓ RoHS complaint

Order Information

Part.No	Specifications						
	Pack	Rate (Gbps)	Tx (nm)	Rx	Temp (℃)	Reach (m)	Others
NT-SFP-10G-AOC-1m	SFP+	10.3125	850 VCSEL	PIN	0~+70	1	RoHS
NT-SFP-10G-AOC-3m	SFP+	10.3125	850 VCSEL	PIN	0~+70	3	RoHS
NT-SFP-10G-AOC-5m	SFP+	10.3125	850 VCSEL	PIN	0~+70	5	RoHS
NT-SFP-10G-AOC-7m	SFP+	10.3125	850 VCSEL	PIN	0~+70	7	RoHS
NT-SFP-10G-AOC-10m	SFP+	10.3125	850 VCSEL	PIN	0~+70	10	RoHS
NT-SFP-10G-AOC-15m	SFP+	10.3125	850 VCSEL	PIN	0~+70	15	RoHS
NT-SFP-10G-AOC-20m	SFP+	10.3125	850 VCSEL	PIN	0~+70	20	RoHS
NT-SFP-10G-AOC-25m	SFP+	10.3125	850 VCSEL	PIN	0~+70	25	RoHS
NT-SFP-10G-AOC-30m	SFP+	10.3125	850 VCSEL	PIN	0~+70	30	RoHS
NT-SFP-10G-AOC-40m	SFP+	10.3125	850 VCSEL	PIN	0~+70	40	RoHS
NT-SFP-10G-AOC-50m	SFP+	10.3125	850 VCSEL	PIN	0~+70	50	RoHS
NT-SFP-10G-AOC-100m	SFP+	10.3125	850 VCSEL	PIN	0~+70	100	RoHS
NT-SFP-10G-AOC-200m	SFP+	10.3125	850 VCSEL	PIN	0~+70	200	RoHS
NT-SFP-10G-AOC-300m	SFP+	10.3125	850 VCSEL	PIN	0~+70	300	RoHS