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# Optical Transmission Components

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**NEOPTEK**  
Fiber Optic Components Group of **LS** Cable

# PON Transceiver

GE-PON, HG-PON, B-PON



Part Number	Applicaton	Tx/Rx λ(nm)	Type	Package/ Connector	Data Rate [bps]	Pout [dBm]	Sensitivity [dBm]
NTPT-SG34	G-PON ONU	1310/1490	FP	SFF SC Pigtailed	622M(Up)/ 1.25G(Down)	+1 ~ +6	≤ 25
NTPT-SG43	G-PON OLT	1490/1310	DFB	SFF SC Pigtailed	622M(Up)/ 1.25G(Down)	-1 ~ +4	≤ 27
NTPT-SE34L10-10	GE-PON ONU PX 10	1310/1490	FP	2x5 SFF SC Pigtailed	1.25G	0 ~ +4	≤ 25.7
NTPT-SE34L10-20	GE-PON ONU PX 20	1310/1490	DFB	2x5 SFF SC Pigtailed	1.25G	0 ~ +4	≤ 25.7
NTPT-SE43L12-20	GE-PON OLT PX 20	1490/1310	DFB	2x6 SFF SC Pigtailed	1.25G	+2 ~ +7	≤ 27
NTCP-S43L12-20	GE-PON OLT PX 20	1490/1310	DFB	SFP SC Pigtailed	1.25G	+2 ~ +7	≤ 27
NTPT-S435L12-10	HG-PON ONU	1310/1550	FP	2x6 SFF SC Pigtailed	622M	0 ~ +4	≤ 29
NTPT-SV14L20	B-PON with Video Receiver	1310/ 1490, 1550	FP	20pin SC Pigtailed	155M(Up)/ 622M(Down)	-1 ~ +4	≤ 28.5

# SFP



Part Number	Applicaton	Wavelength	Laser Type	Pout [dBm]	Sensitivity [dBm]	Operating Temp
NTSP-D115-CT31	OC-3	1310nm	FP	-15 ~ -8	-34	A, B
NTSP-D140-CT31	OC-3	1310nm	FP	0 ~ +5	-34	A, B
NTSP-D180-CT55	OC-3	1550nm	DFB	0 ~ +5	-34	A, B
NTSP-D415-CT31	OC-12	1310nm	FP	-15 ~ -8	-28	A, B
NTSP-D440-CT31	OC-12	1310nm	DFB	-3 ~ +2	-28	A, B
NTSP-D480-CT31	OC-12	1310nm	DFB	-3 ~ +2	-28	A, B
NTSP-DE10-CT31	Gigabit Ethernet, 1x FC	1310nm	FP	-9.5 ~ -3	-20	A, B
NTSP-DE20-CT31	Gigabit Ethernet, 1x FC	1310nm	DFB	-8 ~ -3	-22	A, B
NTSP-DE40-CT31	Gigabit Ethernet, 1x FC	1310nm	DFB	-3 ~ +2	-26.5	A, B
NTSP-DE80-CT55	Gigabit Ethernet, 1x FC	1550nm	DFB	0 ~ +5	-26.5	A, B
NTSP-DG02-CT31	OC-48, 2xFC	1310nm	FP	-3 ~ -10	-18	A, B
NTSP-DG15-CT55	OC-48, 2xFC	1310nm	DFB	-5 ~ 0	-18	A, B
NTSP-DG40-CT31	OC-48, 2xFC	1550nm	DFB	-2 ~ +3	-27	A, B
NTSP-DG80-CT55	OC-48, 2xFC	1550nm	DFB	-2 ~ +3	-27	A, B
NTCP-DE80-CTxx	Gigabit Ethernet, 1x FC	CWDM	DFB	0 ~ +5	-26.5	A, C
NTCP-DG80-CTxx	OC-48, 2x FC	CWDM	DFB	0 ~ +5	-26.5	A, C

\* Temperature Option : A : 0 ~ +70°C, B : -20 ~ +85°C

\* xx (Wavelength Option) : 47:1470nm, 49:1490nm, 51:1510nm, 53:1530nm, 55:1550nm, 57:1570nm, 59:1590nm, 61:1610nm



## Bi-Directional Transceiver



Part Number	Application	Laser Type (Option)	Pout [dBm]	Package/Connector	Supply Voltage[V]	Operating Temp
NTBT-F135L(H)10	OC-3	1310nm FP	-15 ~ 0	SFF SC Receptacle	+3.3 (+5)	A, B
NTBT-F153L(H)10	OC-3	1550nm FP, DFB	-15 ~ 0	SFF SC Receptacle	+3.3 (+5)	A, B
NTBT-R135L(H)09	OC-3	1310nm FP	-15 ~ 0	1x9 SC Receptacle	+3.3 (+5)	A, B
NTBT-R153L(H)09	OC-3	1550nm FP, DFB	-15 ~ 0	1x9 SC Receptacle	+3.3 (+5)	A, B
NTBT-S135L(H)09	OC-3	1310nm FP	-15 ~ 0	1x9 SC Pigtailed	+3.3 (+5)	A, B
NTBT-S153L(H)09	OC-3	1550nm FP, DFB	-15 ~ 0	1x9 SC Pigtailed	+3.3 (+5)	A, B
NTBT-S435L10	OC-12	1310nm FP	-5 ~ 0	SFF SC Pigtailed	+3.3	A
NTBT-S453L10	OC-12	1550nm FP, DFB	-5 ~ 0	SFF SC Pigtailed	+3.3	A
NTBT-RE35L09	Gigabit Ethernet	1310nm FP, DFB	-5 ~ +4	1x9 SC Receptacle	+3.3	A
NTBT-RE53L09	Gigabit Ethernet	1550nm DFB	-5 ~ +4	1x9 SC Receptacle	+3.3	A
NTBT-SE35L10	Gigabit Ethernet	1310nm FP, DFB	-5 ~ +4	SFF SC Pigtailed	+3.3	A
NTBT-SE53L10	Gigabit Ethernet	1550nm DFB	-5 ~ +4	SFF SC Pigtailed	+3.3	A

★ Temperature Option : A : 0 ~ +70°C, B : -40 ~ +85°C

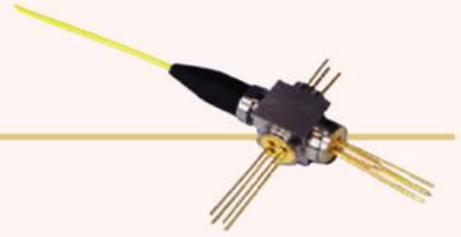
## 1x9, 2x9 Duplex Transceiver



Part Number	Applicaton	Laser Type [nm]	Pout [dBm]	Package/Connector	Supply Voltage[V]	Operating Temp
NTV-13L(H)09	OC-3	1310 FP	-15 ~ 0	1x9 SC	+3.3 (+5)	A, B
NTV-13L(H)18	OC-3	1310 FP	-15 ~ 0	2x9 SC	+3.3 (+5)	A, B
NTV-13H18C	OC-3	1310 FP	-15 ~ 0	2x9 SC	+5	A, B
NTV-43L(H)09	OC-12	1310 FP	-15 ~ 0	1x9 SC	+3.3 (+5)	A, B
NTV-43L(H)18	OC-12	1310 FP	-15 ~ 0	2x9 SC	+3.3 (+5)	A, B
NTV-43H18C	OC-12	1310 FP	-15 ~ 0	2x9 SC	+5	A, B
NTV-E3L09	Gigabit Ethernet	1310 FP	-15 ~ 0	1x9 SC	+3.3	A, B

★ Temperature Option : A : 0 ~ +70°C, B : -40 ~ +85°C

## Triplexer OSA



Part Number	Applicaton	Data Rate(bps)		Tx/Rx $\lambda$ (nm)	Analog Receiver	Operating Temp
		Up	Down			
NTR-S14	B-PON ONU	155.52M	622.8M	1310 FP/1490 PIN	1550 PIN	A,B
NTR-SEE	GE-PON ONU	1.25G	1.25G	1310 FP/1490 PIN	1550 PIN	A,B
NTR-S4E	G-PON ONU	622.08M	1.244G	1310 FP/1490 PIN	1550 PIN	A,B
NTR-SEG		1.244G	2.488G	1310 FP/1490 PIN	1550 PIN	A,B

\* Temperature Option : A : 0 ~ +70°C, B: -40 ~ +85°C

## Transmitter / Receiver



Part Number	Applicaton	Tx/Rx $\lambda$ (nm)	Type	Package/Connector	Pout [dBm] Sensitivity	Operating Temp
NTT-13	OC-3	1310	FP-LD	Pigtailed / SC,FC,ST	-15 ~ 0	A, B
NTT-43	OC-12	1310	FP-LD	Pigtailed / SC,FC,ST	-15 ~ 0	A, B
NTR(C) -13	OC-3	1100 ~1600	PIN-PD	Pigtailed / SC,FC,ST	-34	A, B
NTR(C) -43	OC-12	1100 ~1600	PIN-PD	Pigtailed / SC,FC,ST	-28	A, B

\* Temperature Option : A : 0 ~ +70°C, B: -40 ~ +85°C

## Pigtailed LD / PD



Part Number	Applicaton	Tx/Rx $\lambda$ (nm)	Type	Package/Connector	Pout / Sensitivity	Operating Temp
NTLF3		1310	FP-LD	Pigtailed / SC,FC	3mW, 4mW	A, B
NTLD3	SONET/SDH/CATV	1310	DFB-LD	Pigtailed / SC,FC	3mW, 4mW	A, B
NTLF5		1550	FP-LD	Pigtailed / SC,FC	3mW, 4mW	A, B
NTLD5	SONET/SDH	1550	DFB-LD	Pigtailed / SC,FC	3mW, 4mW	A, B
NTPP	SONET/SDH/CATV	1310 ~ 1550	PIN-PD	Pigtailed / SC,FC	0.8mA / mW	A, B
NTPPT	OC-3,OC-12 Gigabit Ethernet	1100 ~ 1600	PIN-TIA	Pigtailed / SC,FC		A, B

\* Temperature Option : A : 0 ~ +70°C, B: -40 ~ +85°C

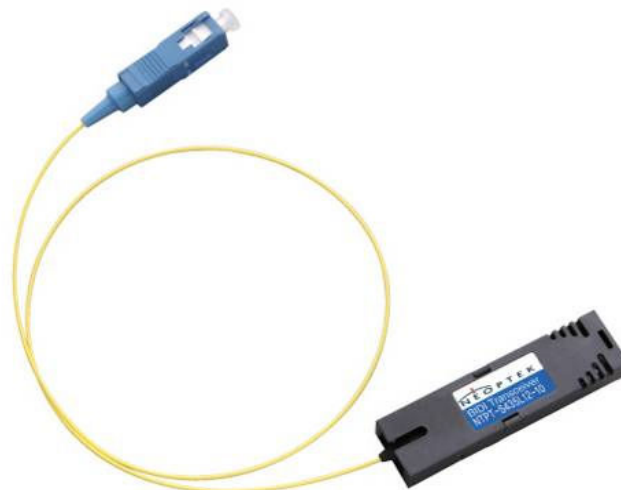
# HG-PON (ONU)

## APPLICATION

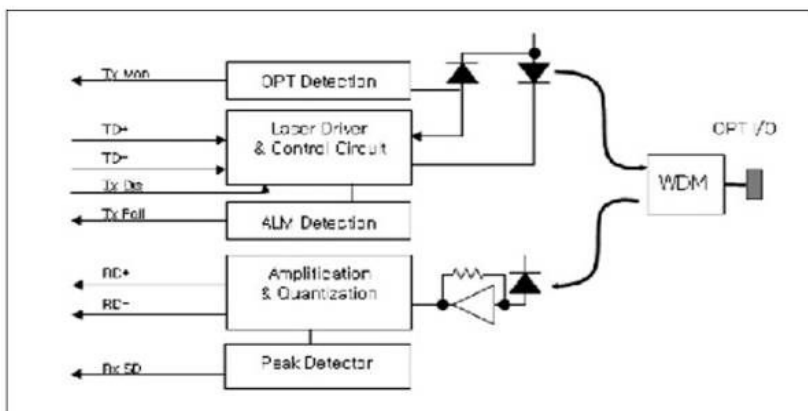
- Compatible to PON ONU Transceiver

## FEATURES

- Burst transmitter/Continuous receiver
- +3.3V single power supply
- LVPECL high-speed signal interface
- AC Coupled data inputs and outputs
- 2x6 SFF package



## BLOCK DIAGRAM



## SPECIFICATIONS

Product Name		NTPT-S435L12-10	
Parameter	Unit	Specification	
Bit rate	Mbps	622	
Transmission mode	-	Tx: burst, Rx: continuous	
Transfer code	-	NRZ	
Bi-directional transmission	-	1-fibre WDM	
Transmission distance	Km	10	
Laser diode	-	1.31um FP-LD	
Photo detector	-	PIN PD	
Operating temperature	°C	0 ~ 70	



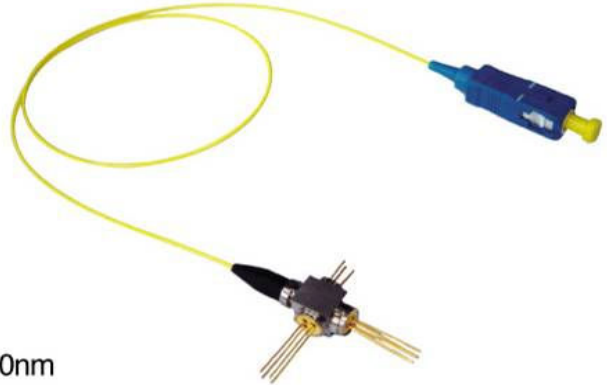
# Triplexer OSA

## APPLICATION

- B-PON, GE-PON, G-PON available with analog video channel

## FEATURES

- Wide range of laser and receiver options
- Analog PD current monitor
- FP-LD for digital transmission at 1310nm
- In GaAs/InP-PIN diode for digital receiving at 1490nm



## SPECIFICATIONS

Product Name		ONU / OLT	Data Rate [Mbps]	
			Up	Down
NTTR-S14	ITU-T G983.1 Class B	ONU	155.52	622.08
NTTR-SEE	IEEE 802.3ah	ONU	1250	1250
NTTR-S4G	ITUT-T G.984 Class B	ONU	622.08	1244.16
NTTR-SEG			1244.16	2488.32

# Triplexer Module

## APPLICATION

- Analog photodiodes available on the triplexers
- B-PON, GE-PON, G-PON available

## FEATURES

- Wide range of laser and receiver options



Parameter	Unit	B-PON
Bit rate	bps	Up : 155.52M, Down : 622.08M
Transmission mode	-	Tx : burst, Rx : continuous
Transfer code	-	NRZ
Bi-directional transmission	-	1-fibre WDM
Transmission distance	Km	20
Laser diode	-	1.31um FP-LD
Photo detector	-	PIN PD

# GE-PON (ONU)

## APPLICATION

- Optical transceiver for Gigabit Ethernet PON (1.25Gbps)

## FEATURES

- Burst transmitter/Continuous receiver
- Compliant with IEEE 802.3ah 1000BASE PX-10-U and PX-20-U
- +3.3V single power supply
- LVPECL high-speed signal interface
- 2x5 SFF package



## SPECIFICATIONS

Product Name		NTPT-S34L10-10	NTPT-S34L10-20
Parameter	Unit	Specification	Specification
Bit rate	Gbps	1.25	1.25
Transmission mode	-	Tx : burst, Rx : continuous	Tx : burst, Rx : continuous
Transfer code	-	NRZ	NRZ
Bi-directional transmission	-	1-fibre WDM	1-fibre WDM
Transmission distance	Km	10	20
Laser diode	-	1.31um FP-LD	1.31um DFB-LD
Photo detector	-	PIN PD	PIN PD
Operating temperature	°C	0 ~ 70	0 ~ 70

# GE-PON (OLT)

## APPLICATION

- Optical transceiver for Gigabit Ethernet PON (1.25Gbps)



## FEATURES

- Continuous transmitter / Burst receiver
- Compliant with IEEE 802.3ah 1000BASE-PX20-D
- +3.3V single power supply
- LVPECL high-speed signal interface
- 2x6 SFF & SFP optional package



## SPECIFICATIONS

Product Name	NTPT-SE43L12-20	
Parameter	Unit	Specification
Bit rate	Gbps	1.25
Transmission mode	-	Tx : continuous, Rx : burst
Transfer code	-	NRZ
Bi-directional transmission	-	1-fibre WDM
Transmission distance	Km	20
Laser diode	-	1.49um DFB-LD
Photo detector	-	APD
Operating temperature	°C	0 ~ 70



# Small Form Factor Pluggable Module

## APPLICATION

- Metro Access Network
- Data Communication Network
- High speed interface for file serve

## FEATURES

- Up to 2.5Gbps
- Compliant with SFP MSA
- Built-in Digital Diagnostic Monitoring Function
- Single +3.3V power supply
- TTL signal detect indicator
- Differential AC coupled inputs and outputs
- Hot-pluggable capability
- LC Duplex receptacle
- Metal enclosure, for lower EMI
- Very low jitter
- Low power dissipation



## COMPLIANCE

- GR-253-CORE
- ITU-T G.957
- IEEE802.3z Gigabit Ethernet 1000Base-LX, ZX
- Fiber Channel FC-PI 13.0
- SFF-8472 Revision 9.5

## SPECIFICATIONS

Parameter	Unit	Specification
Bit rate	bps	Up to 2.5Gbps
Laser Diode		FP LD & Uncooled DFB LD
Center Wavelength : $\lambda_n$	nm	1310nm (LX) & 1550nm (ZX)
Wavelength Stability	nm	FP LD : $\lambda_n \pm 6.5\text{nm}$ @Tc = -40 to 85°C DFB LD : $\lambda_n \pm 6.5\text{nm}$ @Tc = -40 to 85°C
Spectral Width	nm	FP LD : 3 (RMS) DFB LD : 1 (-20dB Width)
Mean Launched Power	dBm	Refer to the Datasheet
Extinction Ratio	dB	$\geq 9$
Sensitivity (@BER=1x10 <sup>-10</sup> )	dBm	Refer to the Datasheet
Operating Temperature	°C	-40 ~ 85

# SFP Transceiver for CWDM System

## APPLICATION

- Metro Access Network
- Data Communication Network
- High speed interface for file serve

## FEATURES

- Up to 2.5Gbps
- Compliant with SFP MSA
- Hot-pluggable capability
- Uncooled DFB Laser transmitter
- 8 Channel CWDM wavelengths
- Built-in DDM(Digital Diagnostic Monitoring) Function
- Single +3.3V power supply
- TTL signal detect indicator
- Differential AC coupled inputs and outputs
- LC Duplex receptacle
- Metal enclosure, for lower EMI
- Very low jitter
- Low power dissipation



## COMPLIANCE

- GR-253-CORE
- ITU-T G.957
- SFF-8472 Revision 9.5

## SPECIFICATIONS

Parameter	Unit	Specification
Bit rate	bps	Up to 2.5Gbps
Laser Diode		Uncooled DFB LD
Center Wavelength : $\lambda_n$	nm	$\lambda_1$ :1470, $\lambda_2$ :1490, $\lambda_3$ :1510, $\lambda_4$ :1530 $\lambda_5$ :1550, $\lambda_6$ :1570, $\lambda_7$ :1590, $\lambda_8$ :1610
Spectral Width	nm	1 (-20dB Width)
Side Mode Suppression Ratio	dB	$\geq 30$
Mean Launched Power	dBm	0 to +5
Extinction Ratio	dB	$\geq 9$
Sensitivity (@BER= $1 \times 10^{-10}$ )	dBm	Refer to the Datasheet
Operating Temperature	$^{\circ}\text{C}$	-40 ~ 85