Cod: 95.021.000-242
Data: 15/07/15
Rev: 01

SFP TRANSCEIVER MODULES

- **Dual fiber SFP Transceiver**
- **Center Wavelength: 1310 nm, 1550 nm**
- **For SONET / SDH applications**
- **Data rate from 155 Mbps to 2.5 Gbps**
- **Distance SR, IR1, IR2, LR1, LR2**
- **Single 3.3 V power supply**
- **With or w/o DDM (Digital Diagnostic Monitoring)**
- **Operating temperature: - 40°C ÷ +85°C**

Type	Data Rate	Wavelength	Fiber Type	Reach
OC3/STM-1	155 Mbps	1300 nm	MM	2 km
OC3/STM-1	155 Mbps	1310 nm	SM	2 km
OC3/STM-1	155 Mbps	1310 nm	SM	15 km
OC3/STM-1	155 Mbps	1310 nm	SM	40 km
OC3/STM-1	155 Mbps	1550 nm	SM	80 km
OC12/STM-4	622 Mbps	1300 nm	MM	2 km
OC12/STM-4	622 Mbps	1310 nm	SM	2 km
OC12/STM-4	622 Mbps	1310 nm	SM	15 km
OC12/STM-4	622 Mbps	1310 nm	SM	40 km
OC12/STM-4	622 Mbps	1550 nm	SM	80 km
OC48/STM-16	2.5 Gbps	1310 nm	SM	2 km
OC48/STM-16	2.5 Gbps	1310 nm	SM	15 km
OC48/STM-16	2.5 Gbps	1550 nm	SM	80 km

GE SFP TRANSCEIVER MODULES

- **Gigabit Ethernet SFP Transceiver**
- **Center Wavelength: 850 nm; 1310 nm, 1550 nm**
- **1000BASE-T; 1000BASE-SX; 1000BASE-LX; 1000BASE-ZX;**
- **Distances from 100 m to 80 km**
- **Single 3.3 V power supply**
- **Operating temperature: - 40°C ÷ +85°C**

Type	Wavelength	Fiber Type	Reach
1000BASE -SX	850 nm	MM	550 m
1000BASE -LX	1310 nm	SM	10 km
1000BASE -ZX	1550 nm	SM	80 km
1000BASE -BX	Tx 1490 nm / Rx 1310 nm	SM	10 km
1000BASE -BX	Tx 1310 nm / Rx 1490 nm	SM	10 km
1000BASE -BX	Tx 1550 nm / Rx 1310 nm	SM	40 km
1000BASE -BX	Tx 1310 nm / Rx 1550 nm	SM	40 km
1000BASE -BX	Tx 1490 nm / Rx 1310 nm	SM	40 km
1000BASE -BX	Tx 1310 nm / Rx 1490 nm	SM	40 km

10G XFP TRANSCEIVER MODULES

- **850 nm VCSEL / 1310 nm DFB LD / 1550 nm EML / 1270 nm DFB – 1410 nm DFB CWDM Transmitter**
- **Up to 10.7 Gbps data links**
- **Single 3.3 V power supply**
- **Distance up to 300 m at MM fiber**
- **Distance up to 300 m / 10 km / 40 km / 80 km at SM fiber**
- **Operating temperature: 0°C ÷ +70°C**
- **Applications: 10GBASE-LR at 10.3125 Gbps; 10GBASE-LW at 9.953 Gbps; 10GFC at 10.51875 Gbps;**

Data Rate	Wavelength	Reach	
10 Gbps	850 nm VCSEL	300 m	**RoHS with DDM**
10 Gbps	1310 nm DFB	300 m	
10 Gbps	1310 nm DFB	10 km	
10 Gbps	1550 nm EML	40 km	
10 Gbps	1550 nm EML	80 km	
10 Gbps	1270 nm CWDM	10 km	
10 Gbps	1290 nm CWDM	10 km	
10 Gbps	1310 nm CWDM	10 km	
10 Gbps	1330 nm CWDM	10 km	
10 Gbps	1350 nm CWDM	10 km	
10 Gbps	1370 nm CWDM	10 km	
10 Gbps	1390 nm CWDM	10 km	

10G CWDM XFP	10G DWDM XFP
Duplex LC connector	Duplex LC connector
Hot- pluggable	Hot- pluggable
Excellent EMI & ESD protection	Excellent EMI & ESD protection
RoHS compliant & lead-free	RoHS compliant & lead-free
Reach up to 70 km	Reach up to 80 km
Power supply: +5 V and +3.3 V (P_d < 3.5 W)	Power supply: +5 V and +3.3 V (P_d < 3.5 W)
XFP MSA; ITU-T G.959, G.691; IEEE 802.3ae; GR-253-CORE	XFP MSA; ITU-T G.959, G.691; G.692; IEEE 802.3ae; GR-253-CORE

10G CWDM SFP+	10G DWDM SFP+
Duplex LC connector	Duplex LC connector
Hot- pluggable	Hot- pluggable
Excellent EMI & ESD protection	Excellent EMI & ESD protection
RoHS compliant & lead-free	RoHS compliant & lead-free
SFF-8431 Rev4.1; ITU-T G.959, G.691; IEEE 802.3ae; GR-253-CORE	SFF-8431 Rev4.1; ITU-T G.959, G.691; G.692; IEEE 802.3ae; GR-253-CORE
Reach up to 70 km	Reach up to 80 km
	100 GHz ITU Grid, C Band
Digital Diagnostic compatibility: SFF-8472 Rev11.0	Digital Diagnostic compatibility: SFF-8472 Rev11.0

PON TRANSCEIVER

PON (Passive Optical Network) is the technology used in FTTH (Fiber To The Home) deployments. The PON topology is a point to multipoint (P2MP) topology. A single optical fiber connects an OLT (Optical Line Terminal) in the Central Office (CO) to a passive optical splitter which splits the signal on different lines: typical splitting ratio are 1:16 / 1:32 / 1:64. The transmitted and received signals travel on the same fiber at different wavelengths, consequently a bidirectional transmission on the same single fiber is allowed. The OLT transmits at the same time the same signal on all the different lines. The ONU (Optical Network Unit) at the customer side decides what are the data packets for that customer, discarding the other ones. There are two different standards for PON: GPON (Gigabit-capable Passive Optical Network) and EPON (Ethernet Passive Optical Network). In GPON the data rate is 2.488 Gbps for downstream link (OLT → ONU) and 1.244 Gbps for upstream link (ONU → OLT). EPON uses a symmetric 1.25 Gbps upstream / downstream link.

Type	Tx	Rx	T [°C]	Reach
GPON OLT	1490 nm DFB @ 2.488 Gbps	1310 nm APD-TIA @ 1.244 Gbps	0 ÷ 70°C	20 km
GPON ONU	1310 nm DFB @ 1.244 Gbps	1490 nm APD-TIA @ 2.488 Gbps	0 ÷ 70°C	20 km
EPON ONU	1310 DFB @ 1.25 Gbps	1490 PIN-TIA	-40°C ÷ +85°C	20 km

COPPER CABLES

40G QSFP+ Copper cable	10G SFP+ Copper cable
4 independent full-duplex channels	Single channel
Data rate: 1 Gbps to 10.5 Gbps per channel	Data rate: 1 Gbps to 10.5 Gbps per channel
Hot- pluggable	Hot- pluggable
Excellent EMI & ESD protection	Excellent EMI & ESD protection
RoHS compliant & lead-free	RoHS compliant & lead-free
Power supply: Single 3.3 V	Power supply: Single 3.3 V
Lengths: 1, 3, 5 m	Lengths: 1, 1.5, 2, 2.5, 3, 5, 7 m
Compliant with IEEE802.3ba	Compliant with SFF-8472 Rev 11.1
Compliant with QSFP+ MSA: SFF-8436	Compliant with QSFP+ MSA: SFF-8431 Rev4.1