



**PICadvanced**  
.com



# Optical Transceivers

# INDICE

• <b>COMPANY PROFILE</b>	3
• <b>BUSINESS</b>	4
• <b>Optical Transceivers</b>	
+ NG-PON2	5
+ MPM	6
+ XGSPON	7
+ 10GEAPON	8
+ GPON	9
+ 100GBASE	10
+ 40GBASE	11
+ 25GBASE	12
+ 25GBASE BiDi & LWDM	13
+ 10GBASE BiDi	14
+ 10GBASE	15
+ OC/ STM	16
+ 1000BASE BiDi	17
+ 1000BASE	18
• <b>BOSA</b>	
+ COMBO XGSPON OLT	19
+ XGSPON & XGPON	20
+ 10GEAPON	21
+ GPON	22

# COMPANY PROFILE

Founded in 2014 and with its headquarters in Europe, PICAdvanced has the main target the telecommunications market with its innovative and reliable transceiver and optical components line. The company is devoted to leading with its cost-effective solutions for NGPON2 standard as also with products for existing and future technologies.

Based in Portugal, the PICAdvanced research and development department is built by a young team of experienced engineers and specialists in the field of electronics, telecommunications, optics, and mechanics, which enhance and make possible the conception of new and innovative products.



## VISION

Excel in the segments of telecommunications and biomedicine with product development and market placing of optoelectronic components and its instrumentation related.

## VALUES

- + Innovation (both sustaining and disruptive)
- + Responsibility
- + Ethics
- + Quality
- + Customer Orientation
- + Respect
- + Teamwork

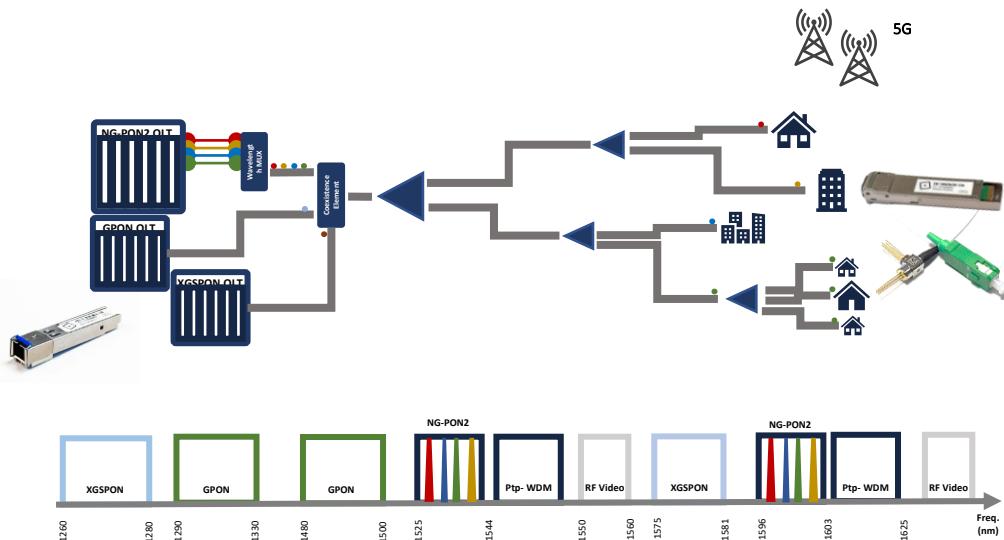


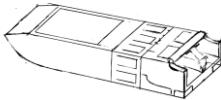
# BUSINESS

PIAdvanced has a diverse range of products, including its TWDM NG-PON2 transceivers which are all developed and manufactured in Portugal – Europe with a quality control system and fully standard compliant, establishing the company as the world's leading for such a solution. In addition, the company has also several customized optical components and transceiver lines for all the main technologies used in PON networks nowadays (XGS PON, GPON, 10G EPON, etc.), 5G Fronthaul/Backhaul and Metro Networks.

In addition, focused on innovation, the R&D team also develops disruptively photonic integrated circuits (PICs) and packaging structures. These are meant to integrate the next generation of optical components and devices, pushing the company once more to a leading position.

Currently, the company has an intellectual property for its own components as also patents, which will continuously support the innovative moving forward for the PON market.





# NG-PON2

## Product Applications

- NG-PON2 access networks
- Fiber-to-the-Home (FTTH)
- WDM systems

## Industry Standards

- ITU-T G.989.2
- XFP MSA
- CDRH/FDA Class 1 Laser 21 CFR 1040
- IEC 60825-1
- RoHS compliant

## XFP NG-PON2 ONU Class 3

### Features

- 10 Gbps DML laser diode
- 10 Gbps high-sensitive APD-TIA
- NG-PON2 compliant
- Class 3 tuning time
- C-Temp or I-Temp case temperature<sup>1</sup>



## XFP NG-PON2 ONU Class 2

### Features

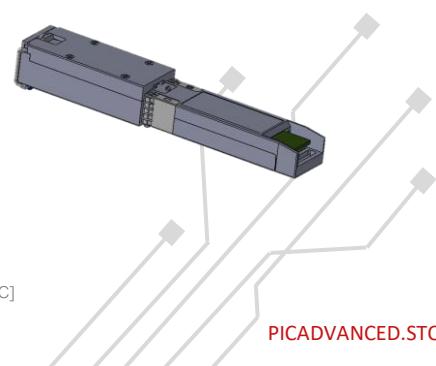
- 10 Gbps DML laser diode
- 10 Gbps high-sensitive APD-TIA
- NG-PON2 compliant
- Class 2 tuning time
- C-Temp case temperature<sup>1</sup>



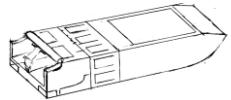
## SFP+ NG-PON2 ONT STICK

### Features

- under development – 2Q 2020
- NG-PON2 ONT with MAC function for Ethernet Switch, Router, Home gateway & other



<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# MPM

## Product Applications

- XG-PON Access Networks
- XGS-PON Access Networks
- GPON Access Networks
- P2MP applications

## Industry Standards

- ITU-T G.987.2
- ITU-T G.984.5
- ITU-T G.9807.1
- ITU-T G984.2
- SFP+ MSA compliant
- RoHS compliant

## SFP+ XGSPON N2 & GPON OLT

### Features

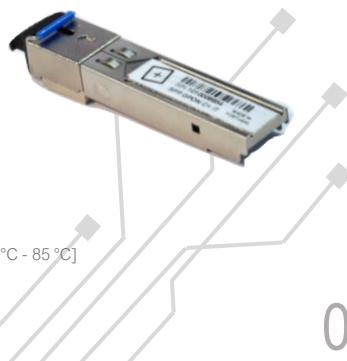
- Single fiber Quad-directional data links
- XGSPON & XGPON 1577nm 9.953Gbps continuous-mode transmitter with EML laser
- XGSPON & XGPON 1270nm 9.953Gbps and 2.488Gbps burst-mode receiver with APD-TIA (with RESET)
- GPON 1490nm 2.488Gbps continuous-mode transmitter with DFB laser, 1310nm 1.244Gbps burst mode receiver with APD-TIA (with RESET)
- 2-wire interface for integrated digital diagnostic monitoring
- Up to 20 km link
- C-Temp or E-Temp case temperature <sup>1</sup>



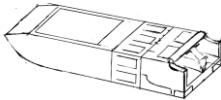
## SFP GPON MPM OLT

### Features

- 2.488 Gbps continuous mode Transmission
- 1.244 Gbps Burst mode receiver Data Rate
- 1490 nm DFB Tx with isolator
- 1310 nm APD Rx
- RX Fast Burst Mode Detection
- SFP with SC/PC connector
- I-Temp case temperature<sup>1</sup>



<sup>1</sup>Temperature range Commercial [0°C - 70 °C] | Under development - Extended [-20°C - 85 °C]



# XGSPON

## Product Applications

- 10Gigabit GPON Access Networks
- Fiber-to-the-Home (FTTH)
- Fiber-to-the-Curb (FTTC)
- Fiber-to-the-Building (FTTB)
- P2MP applications

## XGSPON OLT

### Features

- XGSPON 1577nm 9.953Gbps continuous-mode transmitter with EML laser, 1270nm 9.953Gbps burst-mode receiver with APD-TIA
- C-Temp case temperature<sup>1</sup>

### Industry Standards

- ITU-T G.987.2
- ITU-T G.9807.1
- SFP+ MSA compliant
- RoHS compliant



## XGSPON ONU

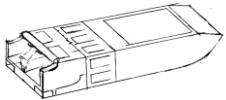
### Features

- XGSPON 1270nm 9.953Gbps burst-mode transmitter with DFB laser, 1577nm 9.953Gbps continuous-mode receiver with APD-TIA
- Tx DFB burst mode
- Rx APD continuous mode
- Single fiber bi-directional receptacle, support SC/UPC or SC/APC
- C-Temp or I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-XGSPON-OLT-SFP+-N1-C	SFP+	XGSPON	OLT	SC-UPC	N1	10 Gbps	20 km	1577   1270	C-Temp
PA-XGSPON-OLT-SFP+-N2a-C	SFP+	XGSPON	OLT	SC-UPC	N2a	10 Gbps	20 km	1577   1270	C-Temp
PA-XGSPON-ONU-SFP+-C	SFP+	XGSPON	ONU	SC-UPC	20 km	10 Gbps	20 km	1270   1577	C/I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 10GEAPON

## Product Applications

- 10 Gigabit Access Networks
- Fiber-to-the-Home (FTTH)
- Fiber-to-the-Curb (FTTC)
- Fiber-to-the-Building (FTTB)
- P2MP applications

## SFP+ EPON ONU

## Industry Standards

- SFP+ MSA compliant
- XFP MSA compliant
- IEEE 802.3av compliant
- SFF-8472 Rev 10.4 compliant
- FCC 47 CFR Part 15, Class B compliant
- FDA 21 CFR 1040.10 and 1040.11
- RoHS compliant

## Features

- Tx 10.313Gbps / Rx 10.313Gbps application
- Tx DFB and high sensitivity Rx APD
- CML compatible data input/ output interface
- C-Temp case temperature<sup>1</sup>



## XFP 10GEAPON OLT

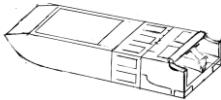
## Features

- TX 10.313Gbps Burst Mode Rx 1.25Gbps application
- Tx EML LD and high sensitivity APD
- C-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Typical Data Rate	Reach	Wavelength (Tx nm/Rx nm)	Temperature
PA-10E-OLTX-AM-C	XFP	EPON	OLT	SC	10 Gbps / 1.25 Gbps	20 km	1577   1310	C-Temp
PA-10E-OLTX-SM-C	XFP	EPON	OLT	SC	10 Gbps / 1.25 Gbps	20 km	1577   1270	C-Temp
PA-10E-ONUS+-AM-C	SFP+	EPON	ONU	SC	1.25 Gbps / 10 Gbps	20 km	1310   1577	C-Temp
PA-10E-ONUS+-SM-C	SFP+	EPON	ONU	SC	10 Gbps / 10 Gbps	20 km	1270   1577	C-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# GPON

## Product Applications

- GPON Access Networks
- Fiber-to-the-Home (FTTH)
- Fiber-to-the-Curb (FTTC)
- Fiber-to-the-Building (FTTB)
- P2MP applications

## SFP GPON OLT/ONU

## Features

- Tx DFB continuous mode
- Rx APD-TIA burst mode Rx
- 20 km link reach
- FSAN Class B+ and FSAN Class C+
- SFP with SC/PC connector
- C-Temp or I-Temp case temperature<sup>1</sup>



## SFP GPON ONU STICK

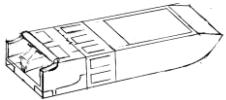
## Features

- GPON ONU with MAC function for Ethernet Switch, Router, Home gateway & other customer premises equipment
- Tx DFB burst mode
- Rx APD continuous mode
- Single fiber bi-directional receptacle, support SC/UPC or SC/APC
- I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm Rx nm)	Temperature
PA2(3)-GPON-SFP-C+-C(I)	SFP	GPON	OLT	SC-PC	C+	1.25 Gbps / 2.5 Gbps	20 km	1490   1310	C/I-Temp
PA2(3)-GPON-SFP-B+-C(I)	SFP	GPON	OLT	SC-PC	B+	1.25 Gbps / 2.5 Gbps	20 km	1490   1310	C/I-Temp
PA-GPON-ONU-SFP-B+-C(I)	SFP	GPON	ONU	SC-PC	B+	1.25 Gbps / 2.5 Gbps	20 km	1310   1490	C/I-Temp
PA-GPON-ONU-SFP-STICK-I	SFP	GPON Stick	ONU	SC-APC	B+	1.25 Gbps / 2.5 Gbps	20 km	1310   1490	I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 100GBASE

## Product Applications

- 100 GBASE Ethernet links
- InfiniBand QDR and DDR interconnects
- 100G Datacom connections

## 100G QSFP28 LR4

### Features

- Up to 25.781Gbps data rate per wavelength
- 4 CWDM lanes MUX/DEMUX design
- 10km transmission (LR4) on single mode fiber (SMF)
- Maximum power consumption 5W
- Tx WDM channels (1295.56nm, 1300.05nm, 1304.58nm, 1309.14nm)
- I-Temp case temperature<sup>1</sup>

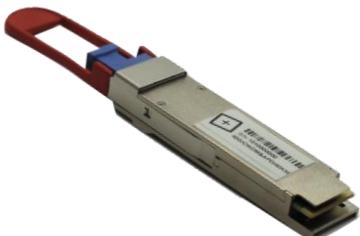
## 100G QSFP28 ER4

### Features

- Up to 25.781 Gbps data rate per wavelength
- 4 CWDM lanes MUX/DEMUX design
- 40km transmission (ER4 w/ FEC), 30km transmission (ER4 without FEC) on single mode fiber (SMF)
- Maximum power consumption 5W
- Tx WDM
- I-Temp case temperature<sup>1</sup>

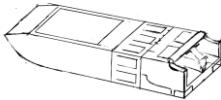
## Industry Standards

- IEEE 802.3bm standard
- QSFP28 MSA compliant
- SFF-8665 compliant
- RoHS compliant



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-QP28-100BLR4C	QSFP28	100GBase	LAN WDM	Duplex LC	LR/LW	4x25Gbps / 4x25Gbps	10 km	(1295.56, 1300.05, 1304.58, 1309.14)   (1295.56, 1300.05, 1304.58, 1309.14)	C-Temp
PA-QP28-100BER4C(I)	QSFP28	100GBase	LAN WDM	Duplex LC	ER/RW	4x25Gbps / 4x25Gbps	40 km	(1295.56, 1300.05, 1304.58, 1309.14)   (1295.56, 1300.05, 1304.58, 1309.14)	C/I-Temp
PA-QP28-100BCW4C	QSFP28	100GBase	CWDM	Duplex LC	CWDM	100Gbps	2km	(1271, 1291, 1311, 1331)   (1271, 1291, 1311, 1331)	C-Temp
PA-QP28-100BAOCC	QSFP28	100GBase	NA	MPO	SR/SW	100Gbps	100m	850	C-Temp
PA-QP28-100BSR4C	QSFP28	100GBase	NA	MPO	SR/SW	100Gbps	100m	850   850	C-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 40GBASE

## Product Applications

- 40 GBASE Ethernet Links
- InfiniBand QDR and DDR interconnects
- 40G Telecom connections
- Data Center

## 40G QSFP+ LR4

### Features

- Up to 11.2Gbps data rate per wavelength
- 4 CWDM lanes MUX/DEMUX design
- 10km transmission (LR4) on single mode fiber (SMF)
- Maximum power consumption 3.5W
- Tx CWDM channels (1271nm, 1291nm, 1311nm, 1331nm)
- LC duplex connector
- C-Temp or I-Temp case temperature<sup>1</sup>

### Industry Standards

- IEEE 802.3ba standard
- QSFP+ MSA compliant
- RoHS compliant

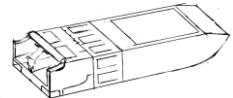


## 40G QSFP+ ER4

### Features

- Up to 11.2Gbps data rate per wavelength
- 4 CWDM lanes MUX/DEMUX design
- 40km transmission (ER4) on single mode fiber (SMF)
- Maximum power consumption 3.5W
- Tx CWDM channels (1271nm, 1291nm, 1311nm, 1331nm)
- LC duplex connector
- C-Temp or I-Temp case temperature<sup>1</sup>

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C] | Extended [-20°C - 85 °C]



# 25GBASE

## Product Applications

- 25G Ethernet
- 24.33Gbps CPRI

## Industry Standards

- SFP28 MSA compliant
- IEEE802.3cc compliant
- SFF- 8431 compliant-
- SFF-8472 compliant
- RoHS compliant

## SFP28 25GBASE SR/SW

### Features

- Typical data rate 25.781Gbps
- Duplex LC connector
- 100m over M5F MMF (50/125um OM4)
- 70m over M5E MMF (50/125um OM3)
- 20m over M5F MMF (50/125um OM2)
- 850nm VCSEL laser transmitter and PIN receiver
- C-Temp case temperature <sup>1</sup>



## SFP28 25GBASE LR/LW and ER/EW

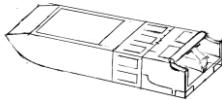
### Features

- Supports 24.3Gbps to 26.5Gbps
- Duplex LC connector
- Up to 10km or 40km transmission on SMF
- 1310nm DFB laser/ EML TOSA and PIN receiver
- Metal enclosure, for low EMI
- C-Temp or I-Temp case temperature <sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA2-SP28-25B-L-C(I)	SFP28	25GBase	NA	Duplex LC	LR/LW	25 Gbps	10 km	1310   1310	C/I-Temp
PA-SP28-25B-S-C	SFP28	25GBase	NA	Duplex LC	SR/SW	25 Gbps	100m	850   850	C-Temp
PA-SP28-25B-E-C(I)	SFP28	25GBase	NA	Duplex LC	ER/EW	25 Gbps	40 km	1310   1310	C/I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 25GBASE BiDi & LWDM

## Product Applications

- 25GBASE-LR
- 25G fronthaul eCPRI

## Industry Standards

- SFP28 MSA compliant
- IEEE802.3cc compliant
- SFF- 8432 compliant
- RoHS 2.0 compliant

## SFP28 25GBASE BiDi

### Features

- Operating data rate 25.78Gbps
- Maximum link length 10km on 9/125 SMF
- Single LC connector
- 3.3V single power supply
- Power consumption < 1.2W
- C-Temp or I-Temp case temperature <sup>1</sup>

## SFP28 25GBASE LWDM

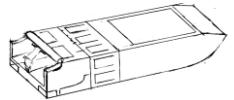
### Features

- Operating data rate 25.78Gbps with CDR on Tx and Rx
- Maximum link length of 30km on G.652 SMF
- Duplex LC connector
- 3.3V single power supply
- Power consumption < 2.5W
- C-Temp or I-Temp case temperature <sup>1</sup>



<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]





# 10GBASE BiDi

## Product Applications

- 10G BASE BX
- 10G Fiber Channel
- SONET OC-192 SDH STM-64

## Industry Standards

- IEEE802.3 compliant
- SFF-8472 reversion 9.5 compliant
- SFP+ and XFP MSA compliant
- CDRH/FDA Class 1 Laser 21 CFR 1040
- Telcordia GR-468-CORE compliant
- RoHS compliant

## SFP+ or XFP 10GBASE

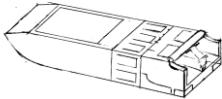
## Features

- Support 9.95 Gbps to 11.1 Gbps bit rates
- Digital Diagnostic Monitor Interface (DDMI)
- Single +3.3 Power Supply
- C-Temp or I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-SFP+Bxx-10B-C(I)	SFP+	10GBase	BiDi	LC	LR/LW	10 Gbps	10 km	Multiple Available	C/I-Temp
PA-SFP+Bxx-10B-20-C(I)	SFP+	10GBase	BiDi	LC	LR/LW	10 Gbps	20 km	Multiple Available	C/I-Temp
PA-SFP+Bxx-10B-40-C(I)	SFP+	10GBase	BiDi	LC	LR/LW	10 Gbps	40 km	Multiple Available	C/I-Temp
PA-SFP+Bxx-10B-60-C(I)	SFP+	10GBase	BiDi	LC	LR/LW	10 Gbps	60 km	Multiple Available	C/I-Temp
PA-SFP+Bxx-10B-80-C	SFP+	10GBase	BiDi	LC	LR/LW	10 Gbps	80 km	Multiple Available	C-Temp
PA-XFPBxx-10B-Z-Z-C	XFP	10GBase	BiDi	LC	ZR/ZW	10 Gbps	80 km	Multiple Available	C-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 10GBASE

## Product Applications

- 10G BASE BX
- 10G Fiber Channel
- SONET OC-192 SDH STM-64

## Industry Standards

- IEEE802.3 compliant
- SFF-8472 reversion 9.5 compliant
- SFP+ and XFP MSA compliant
- CDRH/FDA Class 1 Laser 21 CFR 1040
- Telcordia GR-468-CORE compliant
- RoHS compliant

## SFP+ or XFP 10GBASE

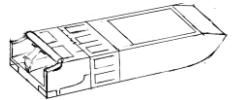
## Features

- Support 9.95Gbps to 11.1Gbps bit rates
- Digital Diagnostic Monitor Interface (DDMI)
- Single +3.3 Power Supply
- C-Temp, E-Temp or I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-XFP-Dxx10BEEC	XFP	10GBase	DWDM	Duplex LC	ZR/ZW	10 Gbps	40 km	DWDM	C-Temp
PA-XFP-Dxx10BZC	XFP	10GBase	DWDM	Duplex LC	ZR/ZW	10 Gbps	80 km	DWDM	C-Temp
PA2-SFP+-Dxx10BECE(I)	SFP+	10GBase	DWDM	Duplex LC	ZR/ZW	10 Gbps	40 km	DWDM	C-Temp
PA-SFP+-Dxx10BZZC(I)	SFP+	10GBase	DWDM	Duplex LC	ZR/ZW	10 Gbps	80 km	DWDM	C/I-Temp
PA2-SFP+-10B-L-L-C(I)	SFP+	10GBase	NA	Duplex LC	LR/LW	10 Gbps	10 km	1310	C/I-Temp
PA2-SFP+-10B-E-E-C(I)	SFP+	10GBase	NA	Duplex LC	ER/EW	10 Gbps	40 km	1310	E-TEMP
PA2-SFP+-10B-Z-Z-C(E)(I)	SFP+	10GBase	NA	Duplex LC	ZR/ZW	10 Gbps	80 km	1310	C/E/I-Temp
PA-SFP+-10B-S-S-C(I)	SFP+	10GBase	NA	LC	SR/SW	10 Gbps	300 m	850	C/I-Temp
PA-XFP-10B-L-L-C(E)	XFP	10GBase	NA	Duplex LC	LR/LW	10 Gbps	10 km	1310	C/E-Temp
PA-XFP-10B-Z-Z-C	XFP	10GBase	NA	Duplex LC	ZR/ZW	10 Gbps	80 km	1550	C-Temp
PA-XFP-10B-E-E-C(E)	XFP	10GBase	NA	Duplex LC	ER/EW	10 Gbps	40 km	DWDM	C/E-Temp
PA-SFP+-TC-10BZC	SFP+	10GBase	Tunable DWDM	Duplex LC	ZR/ZW	10 Gbps	80 km	Tunable DWDM	C-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C] | Extended [-20°C - 85 °C]



# OC/STM

## Product Applications

- SONET OC-12/SDH STM-4
- Fiber Channel
- P2P applications
- Routers, Hubs or Repeaters

## Industry Standards

- SFP MSA compliant
- SFF-8472 compliant
- Telcordia GR-468 CORE compliant
- RoHS compliant

## SONET OC-12 / SDH STM-4

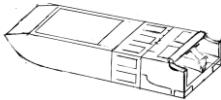
### Features

- Duplex LC SFP Transceiver
- Typical data rate – 622Mbps
- Digital Diagnostic Monitor Interface (DDMI)
- Single +3.3 Power Supply
- C-Temp or I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Typical Data Rate	Reach	Wavelength (Tx nm Rx nm)	Temperature
PA-SFP-L4.1-C(I)	SFP	SONET OC-12 / SDH STM-4	L-4.1	LC	622 Mbps	2km, 15km, 40km or 80km 120km	1310	C/I-Temp
PA-SFP-S4.1-C(I)	SFP	SONET OC-12 / SDH STM-4	S-4.1	LC	622 Mbps	15 km	1310	C/I-Temp
PA-SFP-L4.2-C(I)	SFP	SONET OC-12 / SDH STM-4	L-4.2	LC	622 Mbps	80 km	1550	C/I-Temp
PA-SFP-L1.1-C(I)	SFP	SONET OC-3 / SDH STM-1	L-1.1	LC	155 Mbps	40 km	1310	C/I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 1000BASE BiDi

## Product Applications

- Gigabit Ethernet
- Fiber Channel
- Router/Server interface
- P2P FTTH application
- Other optical links

## SFP 1000BASE BiDi

## Features

- DFB Laser transmitter
- PIN+TIA for receiver
- BiDi SC or LC SFP Single Mode Transceiver
- Single +3.3 Power Supply
- C-Temp or I-Temp case temperature<sup>1</sup>



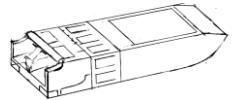
## CSFP 1000BASE BiDi

## Features

- DFB laser transmitter
- PIN photo-detector
- LC/UPC type pluggable optical interface
- Single +3.3V power supply
- C-Temp or I-Temp case temperature<sup>1</sup>

PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-SFPBxx-1000B-L-L-C(I)	SFP	1000Base	BiDi	LC	LR/LW	1 Gbps	10 km	Multiple Available	C/I-Temp
PA-SFPBxx-1000B-20-(I)	SFP	1000Base	BiDi	LC	20km	1 Gbps	20 km	Multiple Available	C/I-Temp
PA-SFPBxx-1000B-E-E-C(I)	SFP	1000Base	BiDi	LC	ER/EW	1 Gbps	40km	Multiple Available	C/I-Temp
PA-SFPBxx-1000B-60-C(I)	SFP	1000Base	BiDi	LC	60km	1 Gbps	60km	Multiple Available	C/I-Temp
PA-SFPBxx-1000B-Z-Z-C(I)	SFP	1000Base	BiDi	LC	ZR/ZW	1 Gbps	80 km	Multiple Available	C/I-Temp
PA-CSFPBxx-2CH-1000B-L-L-C(I)	CSFP	1000Base	BiDi	LC	LR/LW	1 Gbps	10 km	Multiple Available	C/I-Temp
PA-CSFPBxx-2CH-1000B-20-(I)	CSFP	1000Base	BiDi	LC	20km	1 Gbps	20 km	Multiple Available	C/I-Temp
PA-CSFPBxx-2CH-1000B-E-E-C(I)	CSFP	1000Base	BiDi	LC	ER/EW	1 Gbps	40 km	Multiple Available	C/I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 1000BASE

## Product Applications

- Gigabit Ethernet
- Fiber Channel
- Routers Hubs or Repeaters

## SFP 1000Base

### Features

- Typical data rate 1.25Gbps
- Compliant with SFP MSA and SFF-8472 with LC receptacle
- Hot-pluggable
- Single +3.3 Power Supply
- Maximal reach 10km, 40km 80km
- LC Single Mode Transceiver
- C-Temp or I-Temp case temperature<sup>1</sup>

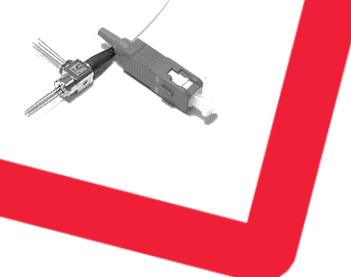
## Industry Standards

- SFP MSA compliant
- SFF-8472 with LC
- Telcordia GR-468 CORE compliant
- RoHS compliant



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-SFP-1000B-ZX-IT-TXC	SFP	1000Base	NA	LC	ZX	1.25 Gbps	80 km	1550	I-Temp
PA-SFP-1000B-LX-IT-TXO	SFP	1000Base	NA	LC	LX	1.25 Gbps	10 km	1310	C/I-Temp
PA-SFP-1000B-EX-IT-TXO	SFP	1000Base	NA	LC	EX	1.25 Gbps	40 km	1310	I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# COMBO XGSPON OLT

## Product Applications

- COMBO PON OLT (D1, D2 class ODN)
- XGSPON OLT (N1, N2 class ODN)
- XGPON OLT (N1a, N2a class ODN)
- GPON OLT (class B+, C+)

## XGSPON OLT

## Features

- XGSPON/XGPON: 9.953Gbps downstream and 9.953 /2.488Gbps upstream
- GPON: 2.488Gbps downstream and 1.25Gbps upstream
- XGSPON/XGPON: 1577nm continuous-mode EML laser transmitter and 1270nm burst mode APD-TIA receiver
- GPON: 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- Single fiber Quad-directional data link SC/UPC connector
- C-Temp or I-Temp case temperature<sup>1</sup>

## Industry Standards

- ITU-T G.987.2 & G.9807.1 & G.984.2 compliant
- RoHS compliant

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# XGSPON & XGPON

## Product Applications

- XGSPON OLT (N1, N2 class ODN)
- XGPON ONU (N1a, N2a class ODN)

## Industry Standards

- ITU-T G.987.2 & G.9807.1 compliant
- RoHS compliant

## XGSPON TRIPLEXER

### Features

- DFB laser 1270nm at 10.3Gbps
- APD 1577nm with TIA at 9.95Gbps
- APD 1555nm with TIA at 9.95Gbps
- Single Fiber ONU TRIPLEXER with SC/APC Pigtail
- C-Temp or I-Temp case temperature<sup>1</sup>



## XGSPON ONU/OLT

### Features

- DFB 1270/1577 nm laser at 9.985 10.3Gbps
- APD 1577/1270nm with TIA at 9.9853~10.3Gbps
- Single Fiber BOSA with SC/APC Pigtail
- C-Temp or I-Temp case temperature<sup>1</sup>



## XGPON ONU

### Features

- Single Fiber ONU BOSA with SC/APC Pigtail
- DFB 1270nm laser at 2.5Gbps
- APD 1577nm with TIA at 9.95Gbps
- C Temp or I Temp case temperature 1

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# 10G-EPON

## Product Applications

- 10G-EPON ONU Transceiver Module

## Industry Standards

- IEEE 802.3av compliant
- RoHS compliant

## 10G EPON ONU BOSA

### Features

- Single fiber SC/UPC bi-directional data links with
  - Asymmetrical - DFB 1310nm laser Tx at 1.25Gbps (**PA-10E-ONUB-AM-IT**)
  - Symmetrical – DFB 1270 nm laser Tx at 10.3Gbps (**PA-10E-ONUB-SM-IT**)
- APD 1577nm Rx with TIA at 10.3 Gbps
- C-Temp or I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA-10E-ONUB-AM-IT	BOSA	10GE-PON	ONU	SC-UPC	1.25 Gbps / 10 Gbps	20 km	1310   1577 (1575~1580nm)	I-Temp
PA-10E-ONUB-SM-IT	BOSA	10GE-PON	ONU	SC-UPC	10 Gbps	20 km	1270   1577 (1575~1580nm)	I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Industrial [-40°C - 85 °C]



# GPON

## Product Applications

- GPON ONU Transceiver Module

## Industry Standards

- ITU-T G.984.5
- RoHS compliant

## GPON BOSA ONU TRIPLEXER

### Features

- DFB 1310nm laser Tx at 1.244Gbps
- APD 1490nm TIA Rx at 2.488Gbps
- PIN 1550nm with 2.5GHz bandwidth
- Single Fiber bi-directional Asymmetric with SC/APC Pigtail
- C-Temp or E-Temp case temperature<sup>1</sup>



## GPON BOSA ONU

### Features

- DFB 1310nm laser Tx at 1.244Gbps
- APD 1490nm TIA Rx at 2.488Gbps
- Single Fiber bi-directional Asymmetric with SC/APC Pigtail
- C-Temp or I-Temp case temperature<sup>1</sup>



PN	Form Factor	Technology	Sub-Category	Interface	Application Type	Typical Data Rate	Reach	Wavelength (Tx nm   Rx nm)	Temperature
PA2-GPON-ONU-ST-CT-xxx-Bxxx	BOSA	GPON	ONU	SC-APC Pigtail	NA	1.25 Gbps / 2.5 Gbps	20 km	1310   1490	I-Temp
PA2-GPON-ONU-BOSA-IT-260-B180	BOSA	GPON	ONU	SC-APC Pigtail	NA	1.25 Gbps / 2.5 Gbps	20 km	1310   1490	I-Temp
PA2-GPON-ONU-TRI-B+-Ir1	BOSA TRIPLEXER	GPON	ONU	SC-APC Pigtail	B+	1.25 Gbps / 2.5 Gbps	20 km	1310   1490	C/I-Temp

<sup>1</sup> Temperature range Commercial [0°C - 70 °C] | Extended [-10°C – 85°C] | Industrial [-40°C - 85 °C]

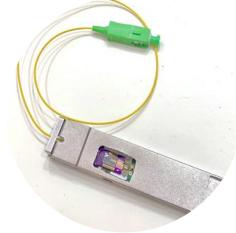
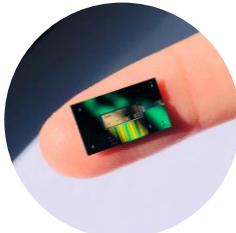
# Photonic Integrated Circuits

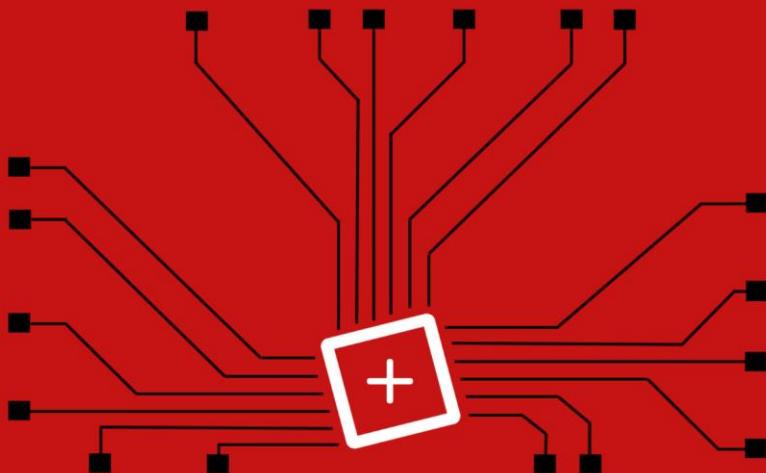
Alongside the discrete optics product line, PICAdvanced also has an innovative series of photonic integrated circuit based optics.

Since its early beginning, the company has been developing PIC based architectures and circuits focused on the telecommunication market. Developed by its R&D team, the process to achieve a final product, is launched by establishing the concept, i.e., defining a target standard or technology and its main requirements. Using simulation software, a feasibility study is made and when validated, the team starts the design process. At this stage, the team not only create the layout but also models and designs custom optical building blocks for the purpose and depending on the substrate which suits best for the characteristics desired, a foundry is then chosen for the manufacturing process.

After its production and reception at company facilities, the PIC is then assembled, and tests are made. Due to the multidisciplinary nature of its research team, PICAdvanced has developed unique packaging techniques, being capable to host the photonic integrated circuit not only with an auto fiber alignment process as also in an MSA transceiver pluggable format.

With knowledge and proved concepts in these two main stages of PICs, Design and Packaging, PICAdvanced can offer a service to develop an innovative product based in integrated optics, packaged in a commercial or test format with its respective firmware, allowing its easy usage.





**Tuning to the right  
bandwidth!**



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