FTF-OLT-COMBO-C+N2I-DA

SFP+ XGS COMBO PON OLT C+/N2 transceiver, single-mode

The FTF-OLT-COMBO-C+N2I-DA is a combination of XGS-PON OLT and GPON OLT optical transceiver in an SFP+ housing. It's engineered to handle both XGS-PON and GPON network standards on a single optical fiber by using a method called coarse wave division multiplexing. This device has two-way communication capabilities for XGS-PON with optics waves 1270nm/1577nm, and for GPON 1310nm/1490nm. For transmitting data, it uses a 1577nm EML laser for 10G speeds and a 1490nm DFB laser for 2.5G speeds.

Key features

- SC Simplex receptacle
- Support 20km transmission distance with SMF
- Throughput up to: TX 9.953Gbps (downstream), RX 9.953Gbps/2.488Gbps (upstream)
- Throughput up to: TX 2.488Gbps (downstream), RX 1.244Gbps (upstream)
- High power 1577nm EML LD & High power 1490nm DFB LD
- High sensitivity 1270nm/1310nm APD
- Hot-Pluggable
- RoHS6 compliant
- RX_SD indication
- Digital diagnostic monitor interface
- Metal case for low EMI
- Operating case temperature : -40~85°C

Standards

- Complies with SFP+ MSA
- Complies with SFF-8472
- Complies with ITU G.9807.1 Class N1/N2 compliant,
- Complies with ITU G.987.2 Class N1/N2a compliant
- Complies with ITU-T G.984.2 Class B+/C+ compliant
- Complies with FCC 47 CFR Part 15, Class B
- Complies with FDA 21 CFR 1040.10 and 1040.11
- Complies with IEC 60825-1:2014, EN 60825-1:2014+A11:2021 and IEC 60825-2: 2021, EN 60825-2:2004+A1:2007+A2:2010.

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Specification

Supported transmission technology
ITU-T G.9807.1; ITU-T G.9807.2 ; ITU-T G.984.2

RX Data Rate
9.953Gbps/2.488Gbps/1.244Gbps

TX Data Rate
9.953Gbps/2.488Gbps

Transmission medium
Single-mode fiber 9/125µm

Transmission distance**
20km

Receptacle type
SC Simplex

Wavelength
TX: 1577nm, 1490nm / RX:1270nm, 1310nm

Output power
XGS-PON: +4~+7dBm, GPON: +3~+7dBm

Receiver sensitivity
XGS-PON: -28dBm, GPON: -30dBm

Power supply voltage
3.3V

Total power consumption
3.5W

Operating environment – temperature
-40~ +85°C

Operating environment - humidity
5~95% non-condensing

Dimensions
Compliant with SFP+ Multi-Source Agreement

Detailed technical specification

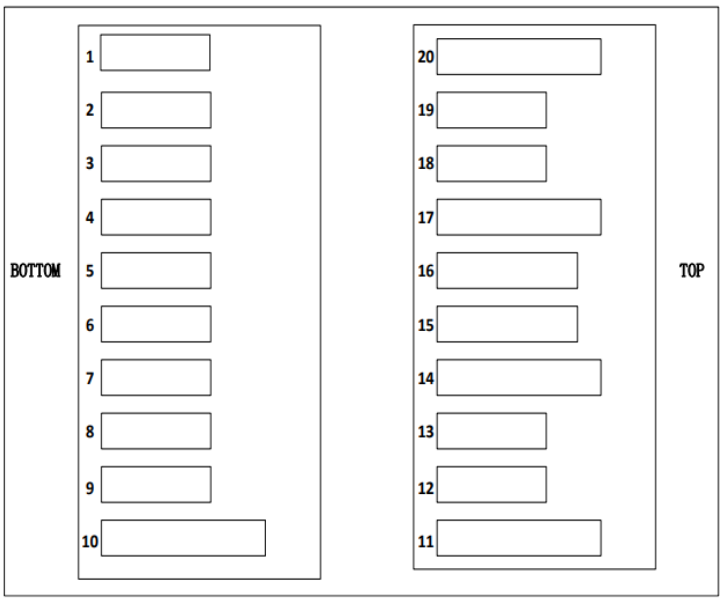

Figure 1 Pion Out Drawing

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Pin Description

Pin	Name	Function/Description	Notes
1	GPON_TD+	2.5G Transmit Data In	AC coupled, CML input
2	GPON_TD-	Inv. 2.5G Transmit Data In	AC coupled, CML input
3	GND	Module Ground	
4	SDA	I2C Data in/out	
5	SCL	I2C Clock in	
6	GPON_RD-	Inv. Received 1G Data Out	DC coupled
7	RESET&RATE SELECT	Select XGSPON Reset& Rate Select	High: Reset, Middle:2.5G, Low:10G
8	XGSPON_SD	XSGPON SD Indicator	LOW: lost signal
9	TRIG/TXDIS	RSSI trigger in	
10	GPON_RD+	Received 1G Data Out	DC coupled
11	GND	GND	
12	XGSPON_RD-	XGSPON data out, CML	CML output, DC coupled; squelch function
13	XGSPON_RD+	XGSPON data out, CML	CML output, DC coupled; squelch function
14	GPON SD	GPON SD Indicator	
15	VCCR	Module power	
16	VCCT	Module power	
17	GPON RESET	GPON RESET	
18	XGSPON_TD+	XGSPON data in, CML	AC coupled, CML input
19	XGSPON_TD-	XGSPON data in, CML	AC coupled, CML input
20	GND	GND	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Case Operating Temperature	T	-40	-	+85	°C
Module Supply Voltage	Vcc	3.135	3.3	3.465	V
Module Supply Current	Icc	-	750		mA
Power Consumption	P	-	-	3.5	W

XGSPON Transmitter optical parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Central wavelength	λc	1575	1577	1580	nm	EML laser
Spectral width	Δλ			1	nm	
Avarage Launch optical power	P_0	4		7	dBm	1
Extinction ratio	EX	8.2			dB	
Side mode suppression ratio	SMSR	30			dB	
Downstream Signal Rate		9.95328			Gb/s	
Optical Waveform Diagram	Compliant with ITU G.9807.1					

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XGS-PON COMBO OLT Transceivers

GPON Transmitter optical parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Central wavelength	λc	1480	1490	1500	nm	DFB Laser
Spectral width	Δλ			1	nm	
Launch optical power	P_o	+3		+7	dBm	1
Extinction ratio	EX	8.2			dB	
Side mode suppression ratio	SMSR	30			dB	
Downstream Signal Rate		2.48832			Gb/s	
Optical Waveform Diagram	Compliant with ITU G.984.2					

XGSPON/XGPON Receiver optical parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Upstream Signal Rate		9.95328 / 2.48832			Gb/s	
XGS-PON Receivers Sensitivity	P_{min}			-28	dBm	2
XG-PON Receivers Sensitivity	P_{min}			-29.5	dBm	3
Central wavelength	λc	1260	1270	1280	nm	APD/TIA Receiver
XGS-PON Receiver Optical Overload*	P_{in}(SAT)	-7			dBm	
XG-PON Receiver Optical Overload		-9			dBm	
Damaged Input Optical Power	P_d			-5	dBm	2
XGS Rx_SD Assert	S_A	-45		-28.5	dBm	
XGS Rx_SD De Assert	S_D	-45		-28.5	dBm	
XGS Rx_SD Hysteresis	S_{Hy}	0		7	dBm	
XG Rx_SD Assert	S_A	-45		-30	dBm	
XG Rx_SD De Assert	S_D	-45		-30	dBm	
XG Rx_SD Hysteresis	S_{Hy}	0		-7	dBm	

GPON Receiver optical parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Optical Center Wavelength	λc	1290	1310	1330	nm	Burst APD/TIA Receiver
Upstream Signal Rate		1.24416			Gb/s	
Receiver Sensitivity*5	P_{IN}			-30	dBm	4
Receiver Sensitivity*6	P_{IN}			-32	dBm	5
Receiver Optical Overload	P_{IN}(SAT)	-7			dBm	
Damaged Input Optical Power	P_d			-5		
SD Assert Level	S_A	-45		-30.5	dBm	
SD De-Assert Level	S_D	-45		-30.5	dBm	
Hysteresis	-	0		7	dB	

Notes:

1. Launched into SMF
2. PRBS2^{31}-1@9.953Gbps BER ≤1×10-3 , ER ≥6dB
3. PRBS2^{23}-1@2.488Gbps BER ≤ 1×10-4, ER ≥ 6dB
4. PRBS2^{23}-1@ BER ≤1×10^{-10} , ER =9dB
5. PRBS2^{23}-1@ BER ≤1×10^{-4} , ER =9dB

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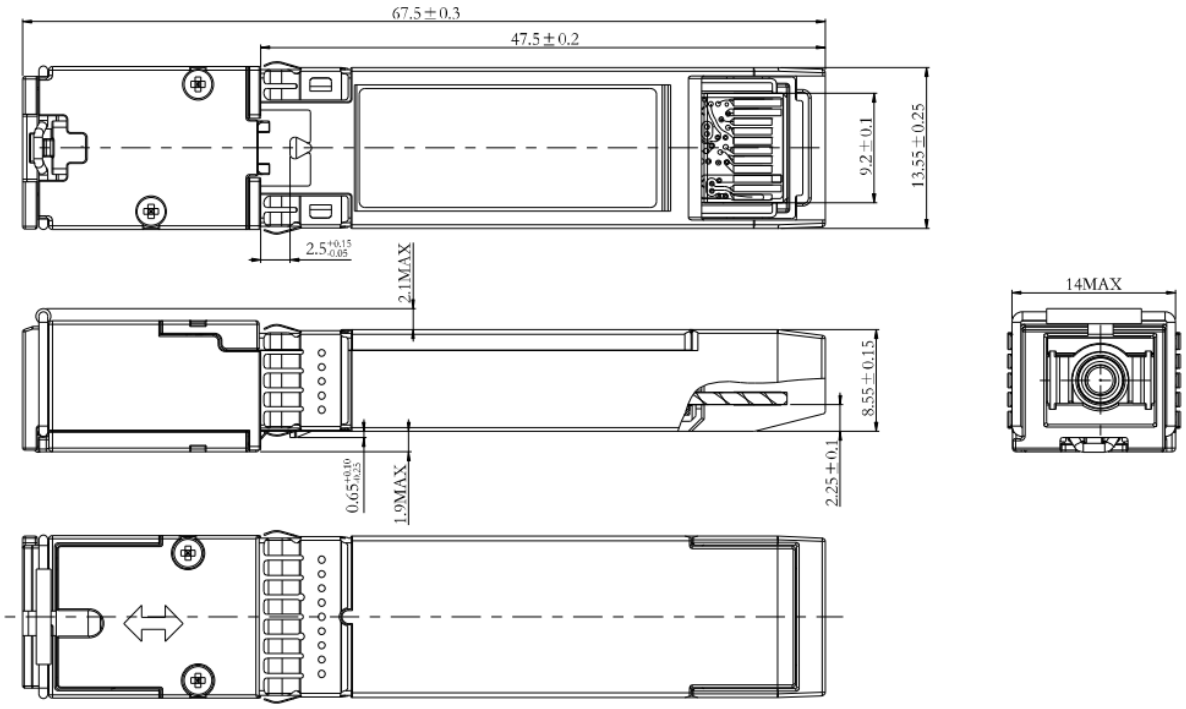
Mechanical specification



Ordering information

FTF-OLT-COMBO-C+N2I-DA – FIBRAIN SFP+ MODULE, XGS-PON COMBO OLT, SMF, SC SIMPLEX, C+ CLASS, N2 CLASS, DDMI, INDUSTRIAL TEMP

For further information regarding host device PCB layout recommendation, power supply requirements, EEPROM memory map, DDMI specification please check:

SFF-8472 - Description of EEPROM and Digital Diagnostic Monitoring Interface and INF-8431 - Technical specification for SFP+ transceiver

Technical specification is subject to change without end user notification. Pictures used for reference only, actual product look may differ. For most actual information please contact technical support via aktywa@elmat.pl

* - transmission distance depends on optical link attenuation, fiber type and other conditions

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