

GPON-SFP-OLT-C++-I-C

MSA and TAA Compliant GPON OLT SFP C++ Transceiver (1490nmTx/1310nmRx, 2.5Gbps/1.25Gbps, 39dBm, SC, -40 to 85C)

Features:

- INF-8074 and SFF-8472 Compliance
- Simplex SC Connector
- Single-mode Fiber
- Commercial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

Applications:

- GPON
- Access and Enterprise

Product Description

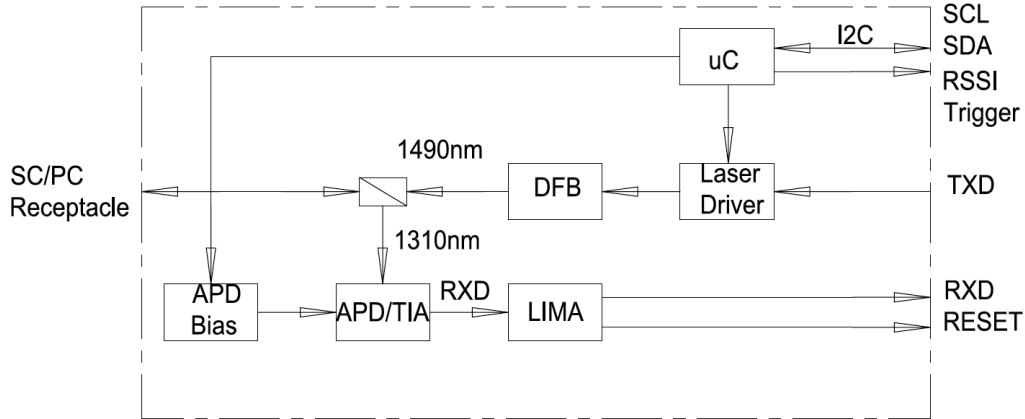
This MSA compliant SFP transceiver provides 2.4Gbps/1.2Gbps-C++ throughput up to 60km over single-mode fiber (SMF) using a wavelength of 1490nmTx/1310nmRx via a SC connector. It is also capable of withstanding rugged environments and can operate at temperatures between -40C to +85C. It is guaranteed to be 100% compatible with the equivalent MSA compliant transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



Function Diagram



Pin Descriptions

Pin	Symbol	Name/Descriptions
1	VeeT	Transmitter Ground.
2	Tx_Fault	Transmitter Fault Indication. LVTTTL Output. Active High.
3	Tx_Disable	Transmitter Disable. LVTTTL Input. Optical output power is off when this PIN is high or left unconnected.
4	SDA	2-Wire Serial Interface Data.
5	SCL	2-Wire Serial Interface Clock.
6	MOD_DEF(0)	Internally Grounded.
7	ResetL	Receiver Reset. LVTTTL Input. Set "Reset" high at the end of previous burst - 2 bytes in duration.
8	BPD	Burst Packet Detect. LVTTTL Output. BPD assert low when module receives "reset" signal. Assert high when incoming burst is present.
9	RSSI_Trigger	RSSI Trigger Signal from host. LVTTTL Input.
10	VeeR	Receiver Ground.
11	VeeR	Receiver Ground.
12	RD-	Inverted Received Data Out. LVPECL. DC Coupled.
13	RD+	Received Data Out. LVPECL. DC Coupled.
14	VeeR	Receiver Ground.
15	VccR	Receiver Power Supply.
16	VccT	Transmitter Power Supply.
17	VeeT	Transmitter Ground.
18	TD+	Transmit Data In. LVPECL or CML (AC coupled; internally 100Ω differential termination).
19	TD-	Inverted Transmit Data In. LVPECL or CML (AC coupled; internally 100Ω differential termination).
20	VeeT	Transmitter Ground.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	Tc	-40		85	°C
Storage Temperature	Tstg	-40		85	°C
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Power Supply Current	Icc			450	mA

Transmitter Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Optical Transmitter Power	Po	4.5		10	dBm	
Optical Transmitter Power off	Poff			-39	dBm	
Output Center Wavelength	λ	1480		1500	nm	
Output Spectrum Width	$\Delta\lambda$			1.0	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	8.2			dB	
Optical Rise Time				160	ps	
Optical Fall Time				160	ps	
Optical Eye Diagram	Compliant with ITU-T G.984.2 Mask					
Tolerance to Tx Back Reflection		-15			dB	
Data Rate			2.488		Gbps	
Differential Input Voltage	VIN-Tx_Data	300		1200	mV	
Differential Input Impedance	ZIN	80	100	120	Ω	
Tx_Disable	High	2.0			V	
	Low	0		0.8	V	
Tx_Fault	High	2.4			V	
	Low	0		0.4	V	

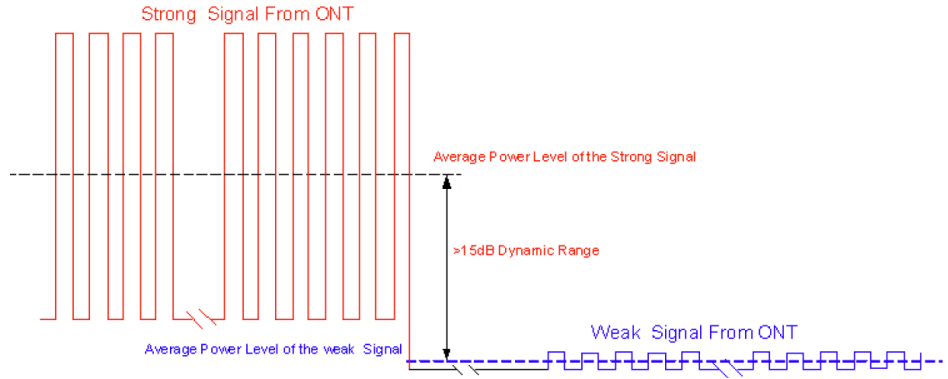
Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Wavelength of Operation		1260		1310	nm	
Data Rate			1.244		Gbps	
Sensitivity	S			-30	dBm	1
Saturation Optical Power	Sat	-12			dBm	1
Receiver Reflectance				-12	dB	
Receiver Burst-Mode Dynamic Range		15			dB	2
Data Output Voltage - High	VOH	VccR-1.05		VccR-0.85	V	
Data Output Voltage - Low	VOL	VccR-1.84		VccR-1.60	V	
Data Output Differential Swing		400		1600	mV	
RSSI Accuracy		-3		3	dB	3
BPD Output Voltage - High	VIH	2.4			V	4
BPD Output Voltage – Low	VIL			0.4	V	4
Guard Time	T _{GUARD}		32		bits	
Reset Width	T _{RESET}		16		bits	
Optical Signal During Time	T _{ONTEN_DUR}	300			ns	5
RSSI Trigger Delay	T _D	0		3000	ns	6
RSSI Trigger Width	T _W	300		T _{ONTEN_DUR}	ns	

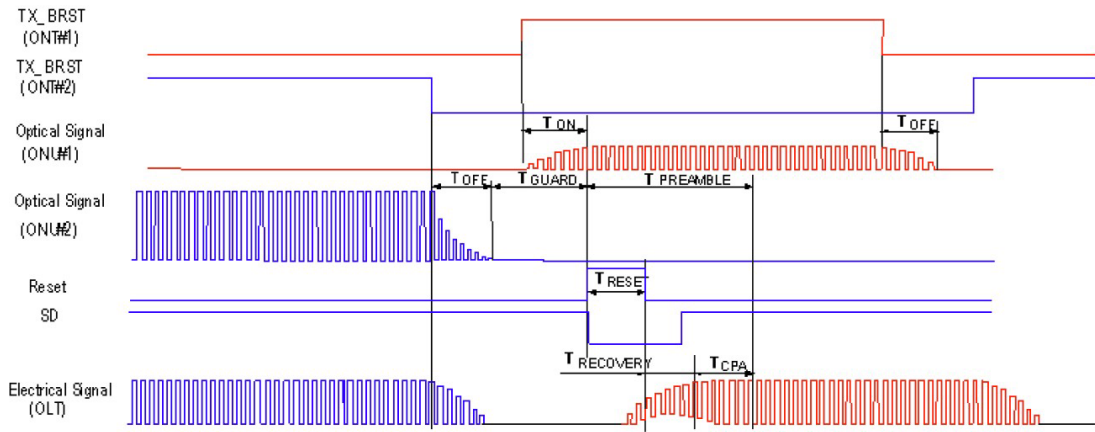
Notes

1. Measured with 1310nm, 1.244Gbps PRBS 2²³-1 burst-mode optical input, ER=10dB, and BER=1x10⁻¹⁰. Single burst packet length is 40μs and packet interval is 40μs.
2. Input optical power level difference of adjacent burst packets.
3. Receiver optical power ranged from -8dBm to -28dBm, measured with 1310nm, 1.244Gbps PRBS 2⁷-1 burst-mode optical input, ER=10dB, and 50% duty cycle.
4. BPD assert low when module receive “Reset” signal. Assert high when burst package is detected and latch to high state until next “Reset” signal.
5. For RSSI measurement.
6. Refer to first bit of the preamble.

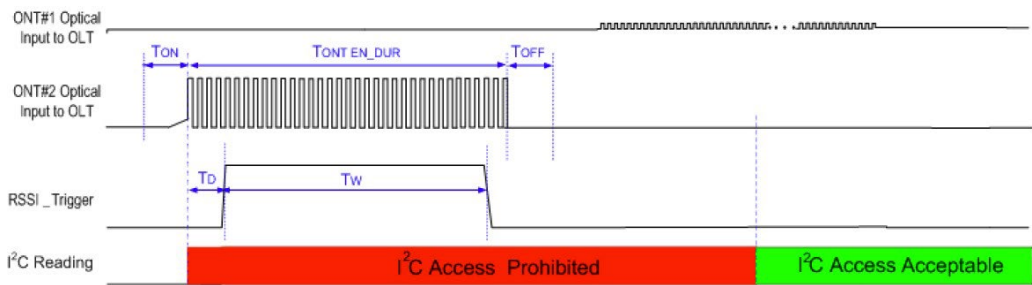
Burst Mode Receiver Dynamic Range



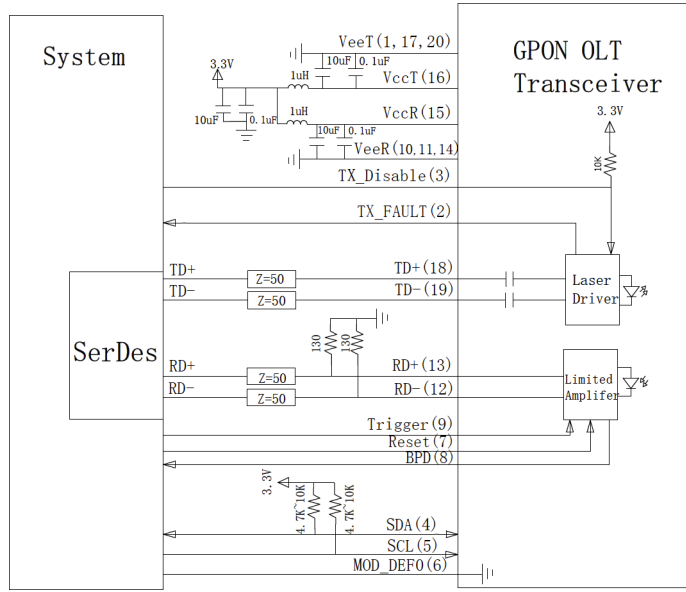
Timing Parameter Definitions in Burst Mode Sequence



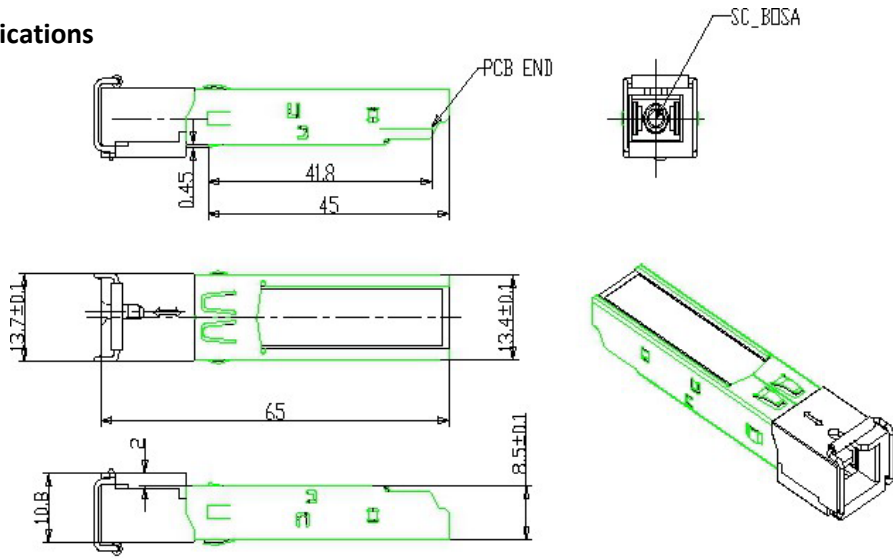
RSSI Timing Sequence



Recommended Application Circuit



Mechanical Specifications



Digital Diagnostic Monitoring Accuracy

Parameter	Accuracy	Units	Notes
Transceiver Temperature	± 3	$^{\circ}\text{C}$	Temperature Sensor
Power Supply Voltage	± 3	%	Vcc=3.13-3.47V
Tx Bias Current	± 10	mA	
Tx Optical Power	± 3	dB	Average Power
Rx Power	± 3	dB	

About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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