FC95700190-I03-OPC

Fujitsu® FC95700190-I03 Compatible TAA OC-48-LR2 SFP Transceiver Multi-Rate (SMF, 1550nm, 80km, LC)

Features

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

Applications:

- OC-48 Transmission
- Access and Enterprise

Product Description

This Fujitsu® FC95700190-I03 compatible SFP transceiver provides OC-48 (2488mbs) transmission rates for up to 80km over single-mode fiber (SMF) using a wavelength of 1550nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Fujitsu® 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.

OptioConnect's 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 internaltional trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")

TAA COMPLIANT

Rev. 062425

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		3.6	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Operating Relative Humidity	RH			95	%
Data Rate			2.488		Gbps
9μm Core Diameter SMF	L		80		km

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.15	3.30	3.45	V	
Power Supply Current		Icc			300	mA	
Transmitter							
LVPECL Differential Inputs		VIN	400		1600	mVp-p	1
Input Differential Impedance		ZIN	85	100	115	Ω	2
Tx_Disable	**Disable**		2		Vcc+0.3	V	
	Enable		0		0.8	V	
Tx_Fault	**Fault**		2		Vcc+0.3	V	
	Normal		0		0.5	V	
Receiver							
LVPECL Differential Outputs		VOUT	400	800	1200	mVp-p	3
Output Differential Impedance		ZOUT	85	100	115	Ω	
Tx_Disable Assert Time		t_off			10	us	
Rx_LOS	**LOS**		2		Vcc+0.3	V	
	Normal		0		0.8	V	
MOD_DEF(0.2)		VOH	2.5				
		VOL	0		0.5	V	

Notes:

1. AC coupled inputs. LVPECL logic. Internally AC coupled.
2. RIN>100kΩ @DC.
3. AC coupled outputs. LVPECL logic. Internally AC coupled.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1500	1550	1600	nm	
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	POUT	-2		3	dBm	1
Extinction Ratio	ER	8.2			dB	2
Rise/Fall Time (20-80%)	Tr/Tf			150	ps	
Total Jitter	TJ			0.07	UI	2
Output Optical Eye		ITU-T G.957 Compliant				
POUT @Tx_Disable Asserted	POUT			-45	dBm	
Receiver						
Receiver Sensitivity	Pmin			-28	dBm	3
Receiver Overload	P_{MAX}	-9			dBm	
Center Wavelength	λC	1260		1600	nm	
LOS De-Assert	LOSD			-29	dBm	
LOS Assert	LOSA	-42			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Output power is measured by coupling into a 9/125μm multi-mode fiber.
2. Filtered, measured with a PRBS 2^{23}-1 test pattern @2500Mbps.
3. Minimum average optical power is measured at BER less than $1E^{-12}$ with 2^{23}-1 PRBS and ER=9dB.

Pin Descriptions

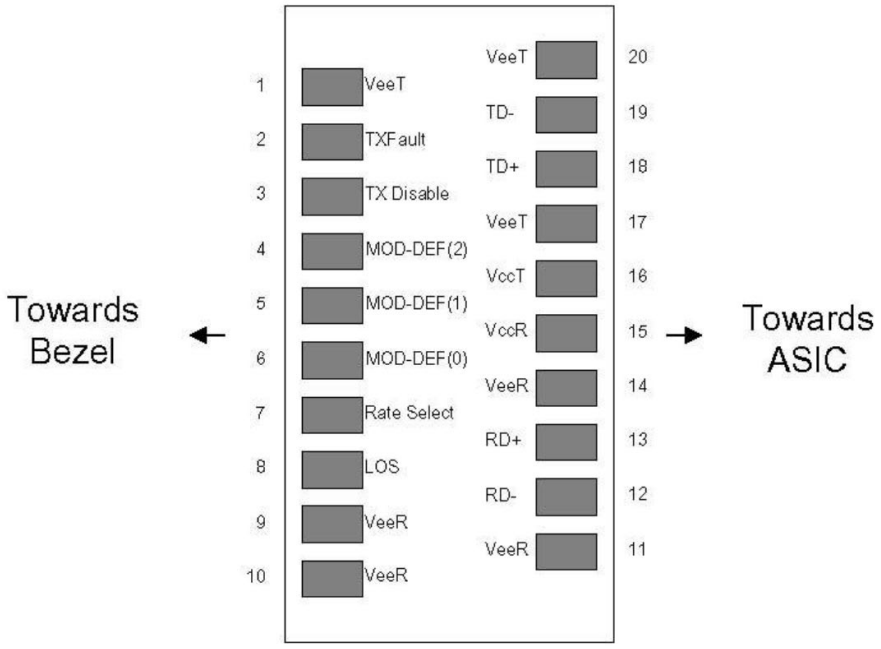
Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	5
2	Tx_Fault	Transmitter Fault Indication.	1
3	Tx_Disable	Transmitter Disable. Module disables on “high” or “open.”	2
4	MOD_DEF2	Module Definition 2. 2-Wire Serial ID Interface.	3
5	MOD_DEF1	Module Definition 1. 2-Wire Serial ID Interface.	3
6	MOD_DEF0	Module Definition 0. Grounded within the module.	3
7	Rate Select	No Connection Required. Function not available.	
8	LOS	Loss of Signal.	4
9	VeeR	Receiver Ground.	5
10	VeeR	Receiver Ground.	5
11	VeeR	Receiver Ground.	5
12	RD-	Receiver Inverted Data Out.	6
13	RD+	Receiver Data Out.	7
14	VeeR	Receiver Ground.	5
15	VccR	3.3V ± 5% Receiver Power Supply.	7
16	VccT	3.3V ± 5% Transmitter Power Supply.	7
17	VeeT	Transmitter Ground.	5
18	TD+	Transmitter Data In.	8
19	TD-	Transmitter Inverted Data In.	8
20	VeeT	Transmitter Ground.	5

Notes:

1. Tx_Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. Pull-up voltage is between 2.0V and VccT/R+0.3V. When “high,” this output indicates a laser fault of some kind. “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
2. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor.
   Low (0V – 0.8V): Transmitter On.
   Between (>0.8V and <2.0V): Undefined.
   High (2.0V – 3.465V): Transmitter Disabled.
   Open: Transmitter Disabled.
3. MOD-DEF0, 1, and 2. These are the module definition pins. They should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board to supply less than VccT or VccR.
   MOD-DEF0 is grounded by the module to indicate that the module is present.
   MOD-DEF1 is the clock line of 2-wire serial interface for optional serial ID.
   MOD-DEF2 is the data line of 2-wire serial interface for optional serial ID.
4. LOS (Loss of Signal) is an open collector/drain output that should be pulled up externally with a 4.7kΩ to 10kΩ resistor. Pull-up voltage is between 2.0V and VccT/R+0.3V. When “high,” this output indicates that

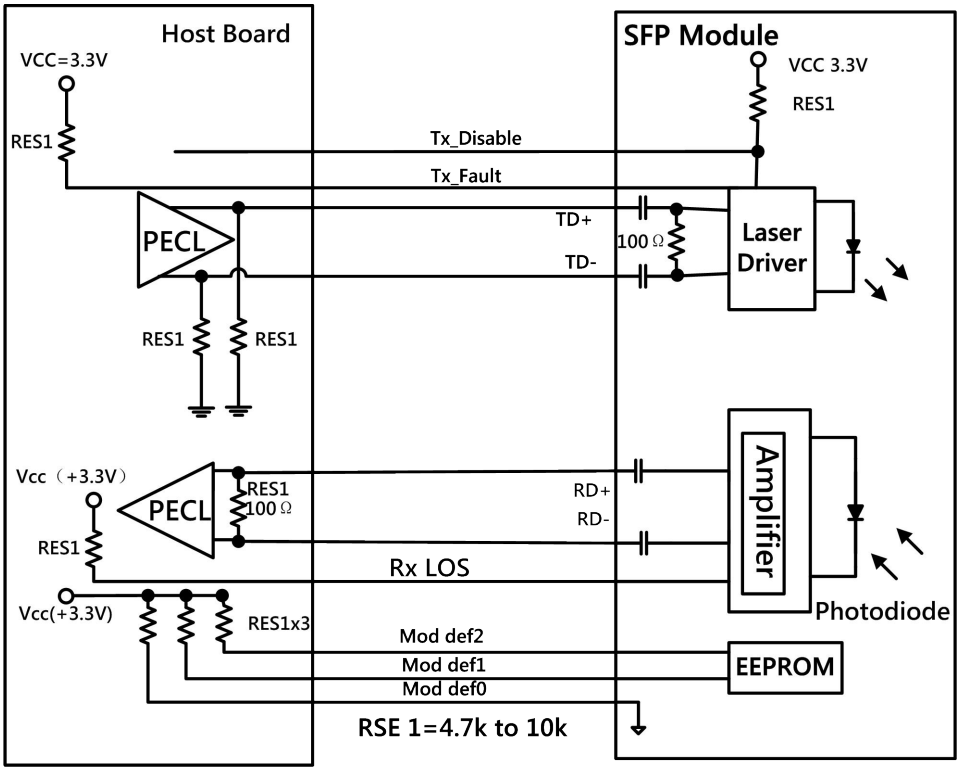
the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.

5. VeeR and VeeT may be internally connected within the SFP module.
6. RD-/+. These are the differential receiver outputs. They are AC coupled 100 differential lines which should be terminated with 100 (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board. The voltage swing on these lines will be between 400mV and 2000mV differential (200mV to 1000mV single-ended) when properly terminated.
7. VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V ± 5% at the SFP connector pin. Maximum supply current is 300mA. Recommended host board power supply filtering is shown below. Inductors with DC resistance of less than 1Ω should be used in order to maintain the required voltage at the SFP input pin with 3.3V supply voltage. When the recommended supply-filtering network is used, hot-plugging of the SFP transceiver module will result in an in-rush current of no more than 30mA greater than the steady state value. VccR and VccT may be internally connected within the SFP transceiver module.
8. TD-/+. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential terminations inside the module. The AC coupling is done inside the module and is thus not required on the host board. The inputs will accept differential swings of 400mV to 2000mV (200mV to 1000mV single-ended).

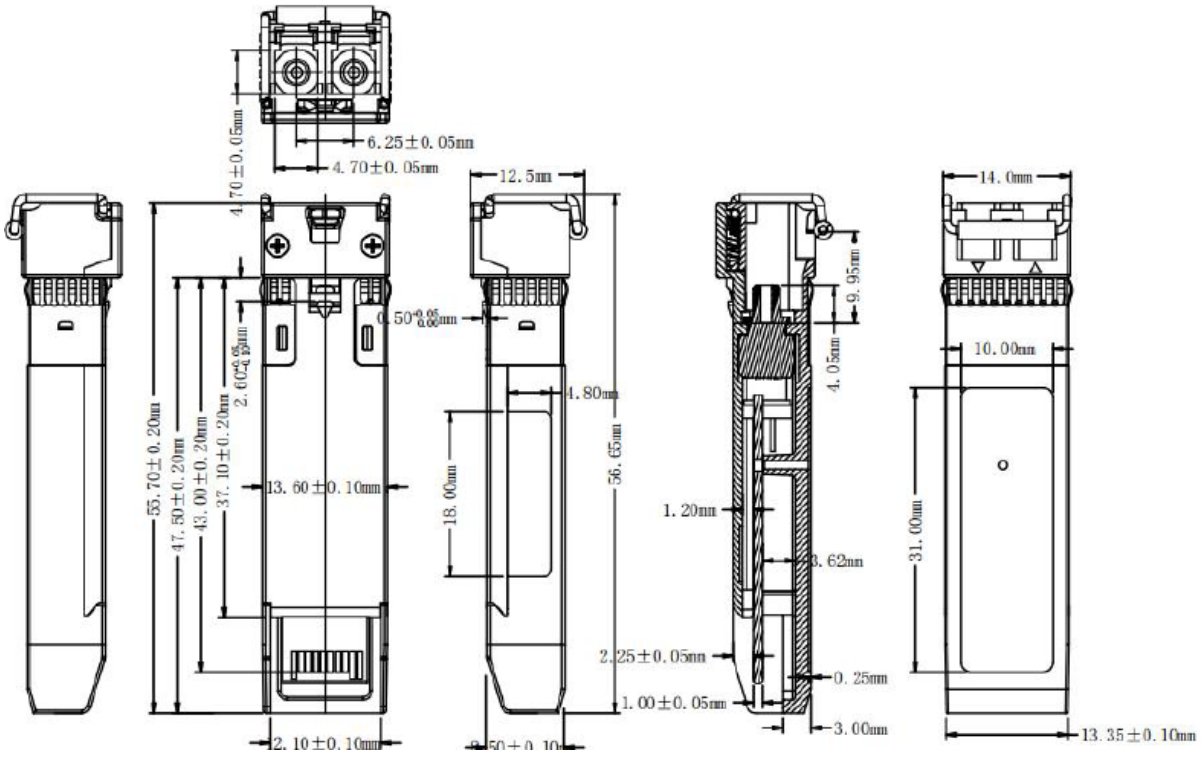


Pin-Out of Connector Block on the Host Board

Recommended Circuit Schematic



Mechanical Specifications



OptioConnect
Innovation for the Future of High-Speed Networking

Who We Are
OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do
At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design
Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team
Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission
To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

Let's Connect
Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.
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